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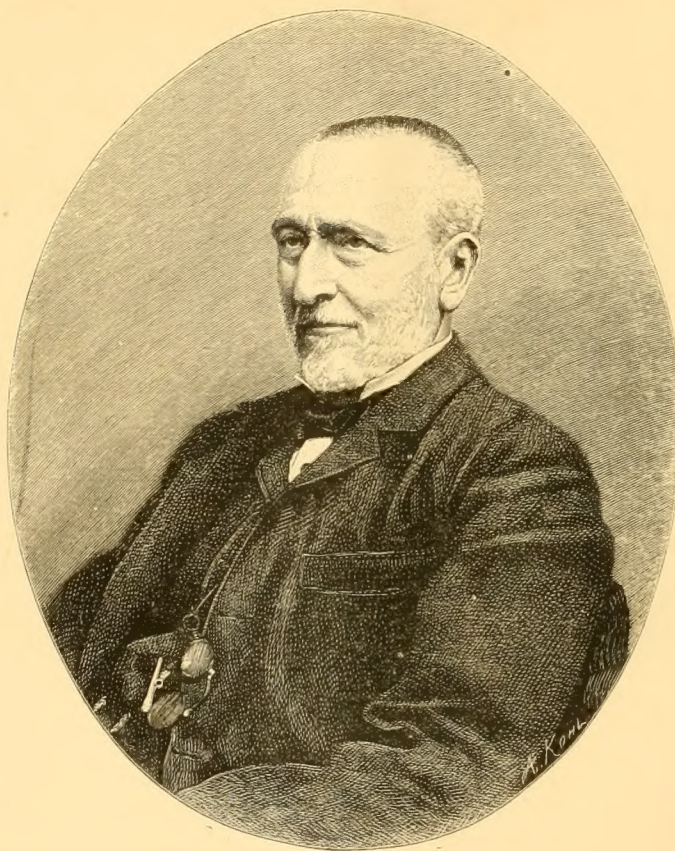
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EDWARD ROGER CUTLER.



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OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

"You see, sweet maid, we marry
A gentler scion to the wildest stock ;
And make conceive a bark of baser kind
By bud of nobler race : This is an art
Which does mend Nature,—change it rather : but
The art itself is nature."

Shakespeare.

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TO THE MEMORY OF

EDWARD R. CUTLER,

FOR OVER FIFTY YEARS SECRETARY OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION

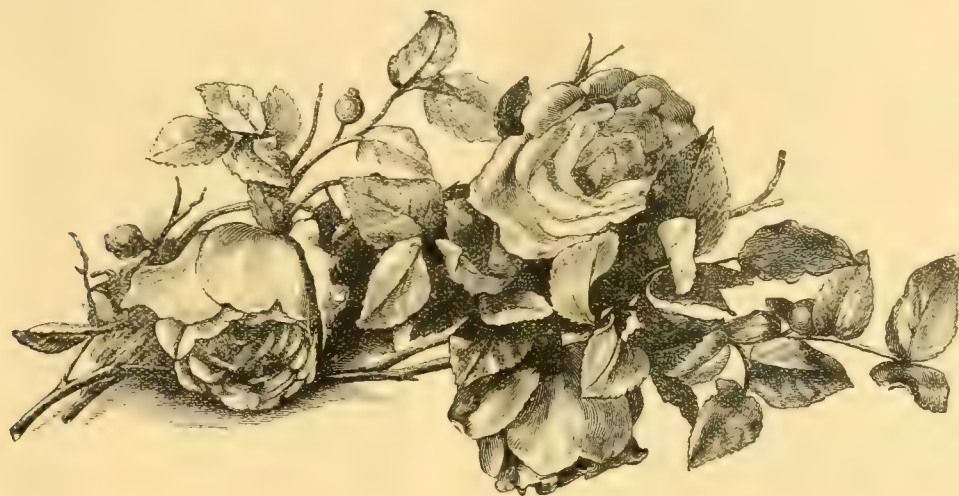
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EDWARD R. CUTLER.

THE late Mr. E. R. Cutler, to whose memory we dedicate the Thirty-ninth Volume of THE GARDEN, was born in London on November 28, 1819. At the age of fourteen he entered the service of the East India Company, and was stationed for some time at Calcutta. In 1838 he was appointed clerk, and latterly assistant secretary to the Scottish Corporation. In 1842 he entered the Westminster Fire Office as junior clerk, and having attained the position of chief clerk, he retired in May, 1877. In 1840 he became honorary secretary of the Gardeners' Benevolent Institution, and latterly was appointed paid secretary. How much this society owes to the indefatigable perseverance of Mr. Cutler is now well known. When he became secretary there were only four pensioners, its annual income being £120, with £200 invested in Consols. At the beginning of the year 1891 there were 156 pensioners, the sum invested being £25,000. At the annual meeting, held on the 15th of January, 1891, Mr. Cutler was unanimously elected secretary for the fiftieth time. He died very unexpectedly on the 24th of February, aged seventy-two, at his residence, Bonwicks, the Downs, Wimbledon, and was buried at Brookwood, Woking.

The GARDEN.

VOL. XXXIX.

ORCHARD AND FRUIT GARDEN.

DESSERT PEARS.

It would be interesting to consumers of Pears to have the opinions of growers of late kinds with a view to carry forward our knowledge a step further than we are at present. Both early and midseason kinds seem to be pretty unanimously established, and if growers could be prevailed upon to come forward and give unbiased opinions of those kinds which they have had under their individual observation, much valuable information might be diffused and planters would be encouraged. Specially interesting would it be to hear how Pears from December 1, say, had ripened this year; whether regularly or irregularly as compared with ordinary seasons; also any special characteristics of flavour one kind may possess over another. I do not think we shall ever be able to limit our collections to the stipulated twelve kinds, for several reasons. After Josephine de Malines is over there seems a perfect dearth, and here appears to me a fine opening for raisers of new kinds; and why should it not be possible to ultimately fix late keeping properties on to some of our numerous mid-season sorts? One or two good February and March Pears would prove a veritable gold mine to the lucky raiser thereof. When we compare results already secured in some other fruits and view the extraordinary and practically unlimited field to which Nature with her extreme coyness is capable of being extended, in conjunction with the skill of man, we recognise an encouraging fact open to hybridisers as certainly within the bounds of possibility. I trust it will be realised at no far distant date. In proof of this, witness Mr. Myles's extraordinary success in raising those two new excellent Grapes, Lady Hutt (white) and Appley Towers (black), by artificially fertilising some six flowers of Gros Colman with Black Alicante, which in due course produced seed, and afterwards plants, with fruit of unprecedented characteristics—an unlooked-for result—the production of a very fine flavoured white Grape from black parentage. I have been privileged to taste these fine Grapes, and can thus speak positively as to their quality. If such results can be obtained with Grapes, it seems feasible to apply the same analogy in fixing the long-keeping properties in Pears, the only real point deficient in this universal fruit, seeing that we have plenty of size and flavour to

satisfy the most fastidious connoisseur. My previously formed opinion that Doyenné du Comice is the very best wall Pear has been again confirmed, those from a west wall being perfection, and by gathering the fruit at intervals a very long season is secured. It crops well on the free or Pear stock, and although not of quite so large a size, the flavour is better than when grown on the Quince. When grown on the free stock it is very necessary to lift and relay the roots nearer the surface during the first few years after planting. Josephine de Malines, too, is an excellent late kind with delicious melting flavour and does well in Worcestershire as a standard in the open. Ne Plus Meuris from walls or pyramids comes slightly gritty, otherwise good. Marie Benoist is a large late Doyenné du Comice, and of which I have a high opinion. Glou Morceau is always good if the roots are kept up, but not unless. Bergamotte d'Esperen is one of the last having any claim to good flavour. Beurré Rance and Easter Beurré seldom ripen properly or become fit for dessert. L'Inconnue Van Mons is generally of fair quality and ripens better than the two last named, whilst the fruit may be grown on an open standard, the tree being a good cropper.

Madresfield Court.

W. CRUMP.

An item of fruit tree training.—In tying the branches of fruit trees to the wires, raffia is pretty generally used now in place of the old-fashioned Russian matting. It is excellent for all tying purposes; but though soft and flexible, it is capable of doing a lot of mischief to young growing trees when the branches are tied too closely to the wires. Young hands are rather apt to tie the branches up close to the wire instead of leaving space for the spring and summer's growth. For want of a little thought when the trees are trained a good deal of mischief is sometimes done, and in the case of Peaches or Apricots the injury done by tight ligatures may, in fact often does, lead to gumming and canker. Tight threads in the case of wall trees are just as injurious as the tight lacing of the trees under glass. Nothing shows what a man's early training has been so well as giving him a nail bag, a hammer, and a pruning knife, and setting him to work upon a wall tree to trim and train it. What a desire some men seem to have to drive nails into a wall. Half the nails commonly employed if rightly placed would be sufficient to keep the branches straight and true; and when once the young shoots are got into the right position, only nails enough to keep the branches from breaking away need be used. For all large branches I like the slender twigs of the Golden Willow. They cost nothing and will last well for one year; sometimes some

may be left a second year, but they are easily obtained, and so few are required, that, even if all had to be renewed, there would be a saving in their use over other materials. They are best cut a couple of days before being used; this toughens the twigs and they, in consequence, work better.—E. H.

TRAINING VINES TOO NEAR THE GLASS.

In the majority of gardens where Vines are grown they are trained by far too near the glass, with the result that the foliage presses against it, and is thus unable to perform its proper functions. When the foliage is pressing against the glass or even in very close proximity, it is very much subjected to the alternate influence of heat and cold. The temperature in the body of the vinery may feel comfortable on warm days with what those in charge deem sufficient ventilation, but by getting up amongst the foliage the heated and uncomfortable state of the surrounding atmosphere is easily apparent. The consequent evils are red spider, burnt or scorched foliage, with the corresponding evil of bad colour and poor quality of the Grapes. When the Vines are not trained too near the glass, with a space of even 18 inches or 2 feet from the top of the foliage to the glass, the leaves are in a much more genial and equable temperature. Independent of more genial surroundings, the work of tying down the shoots is considerably lessened. Gardeners, as a rule, have quite sufficient work in hand during the early growing season of Vines to have to be continually tying down the shoots almost daily, so as to prevent them touching the glass. If it is necessary to tie down the shoots to prevent them from becoming chilled, surely it is the same when the tops of the leaves are pressing against the glass. Some people will recommend the Vines to be placed about 15 inches or 18 inches from the glass, when 30 inches or even 3 feet would be far better. Where it may not be convenient to lower the Vines, the rods could be slung up at a distance from the wires. This may look rather odd at first sight, but as the shoots push forth and the leaves increase in size this is not so apparent. A circulation of air amongst the foliage, without being subjected to a draught through the ventilators being opened to an undue extent, is very beneficial to the health of the Vines. Not only Vines, but Peaches, and particularly Cucumbers and Melons, are trained too near the glass. In the case of the last the foliage is often scorched up long before the fruit is ripe; consequently varieties are condemned as being poor in flavour. This, however, is only caused by the foliage being withered up, and so not able to perform its proper functions in ripening the fruit.

RURAL.

Mildew on Vines.—Last season in some places the mildew did much injury to the crop of Grapes both under glass and in the open air.

There is probably more than one cause for the presence of mildew; a sluggish atmosphere and a check given to the roots in combination therewith often lead to its attack. On the other hand, it may be produced by cold currents rushing through the fruit and foliage. It is always well to have abundant means of ventilation, but it may not always be wise to use them, and different houses require different treatment in the matter of ventilation. Large houses are, of course, more easily managed than small ones, because the outside atmosphere has much less influence upon a large structure. It may, I suppose, be taken for granted that all extremes, whether in the atmosphere surrounding the branches or at the root, tend to disorganisation of the growing forces of the plants, and may thus open a way for the attacks of mildew which may be regarded as a purely atmospheric ailment. The spores or seeds of mildew, to give it the common name by which it is known among cultivators, may be always present in the atmosphere surrounding our fruit trees, waiting for suitable conditions to begin the attack. The simplest antidote to this troublesome parasite is well known to be sulphur in some form. Exposed to a dusting of dry sulphur, it changes colour and almost immediately perishes, but Grapes cannot be exposed to an attack of mildew, however slight, without their appearance and consequently their value being seriously injured; hence in any vinery subject to mildew last summer, it would be wise now to give the house and all it contains a thorough cleansing with a wash containing sulphur in considerable quantities. Some sulphur also might be put in the limewash with which all walls are dressed. When the cleansing has been brought to a conclusion remove all the dry, loose soil from the borders and top-dress with turfy loam, bone-meal, and soot thoroughly blended.—E. H.

Glass copings.—The season will soon come round when protection for trees on walls will be called into request. All will agree that some kind of protection is necessary (except in the most favourable localities, such as near the sea, &c.) for such fruits as Apricots, Peaches, and, in fact, for Pears in many places. During the last two years I have used glass copings for protecting fruit trees when in bloom. I must confess that previous to this time I had not much faith in glass copings. My coping is over Apricot trees. It is supported on the underside by strong iron brackets, which have an eye to them at the end and just under the edge of the glass large enough for an iron gas pipe to drop into. This pipe is in lengths to keep the whole lot together. We have an iron rod just large enough to go inside of the pipe. This passes down each end several inches, then the two lengths are pushed together, thus forming a joint. To this pipe I hang strong cotton and wool netting by rings. These curtains are strained to strong pegs driven into the ground, and tied to these pegs by strong tar string. Protection is not afforded till there is a danger of the frost destroying the bloom, and when put on it is allowed to remain till there is no danger of frost injuring the fruit. These curtains do not come down to the ground by 12 inches, and do not join very closely together, thus allowing a good circulation of air and light. As there is a good deal of light from the glass above, the trees do not suffer in the least from their not being taken down. Although the last two years have not been favourable for fruit, yet during the first season (1889) I had a fine crop of Apricots, which was spread over the whole space of the wall. But in 1890 the frost was very severe just at the time the trees were in full bloom and destroyed every flower, as the greater portion of the bloom was expanded at the time. Some days afterwards when looking over the trees I fully thought we should not have an Apricot, as I could not see a good bloom left as far up the trees as I could reach. To my surprise, however, some weeks after and as the fruit began to swell, I could see up under the coping some Apricots. After removing the curtains, to my surprise, the fruit was in clusters of three and four in some places. On closer examination I observed there was hardly a fruit below the line of the glass, thus proving that

the glass coping had saved the crop. The crop swelled off grandly and gave us several dozen grand fruit.—DOBSET.

AUTUMN-FRUITING RASPBERRIES.

On several occasions during the prevalence of fine weather in October and the early part of November, the daily and weekly papers alluded to the fact that ripe Raspberries were to be found in gardens, and it was considered that it was an accidental product of an exceptionally fine autumn. In all probability the fruit was from the autumn-fruiting varieties. Of these there are a few sorts, the best being Belle de Fontenay, a red double-bearing variety of good quality, but with a tendency to throw up a good many suckers from the roots, which unless thinned out cause the plants to bear very sparingly, and the yellow Four Seasons—Merveille de Quatre Saisons Jaune of the French—a good bearer, nice sweet fruit, said to be better than the red. But during a fine autumn the summer-fruiting kinds will bear laterals from the previous year's wood. The common Fastolf will do this, the fruit being as well flavoured as in July.

The autumn Raspberries, unlike the commoner summer kinds, are of a more drooping and straggling habit, and partake more of the character of the Blackberry. They do best in a warm and dry situation, which is a decided advantage, because they are more likely to ripen off their fruit at a season when the nights are getting long and cold, and rain and frost happen. They are more slender in habit than most of the summer sorts, and, as in the case of the Bramble, fruit on the current year's growth from the stool, they should, therefore, be entirely cut over early in the spring. These October Raspberries will fruit twice a year if allowed, first in July at the usual time, like other Raspberries, on the young wood of last year if some of it is allowed to stand; and secondly, on the points of the young shoots of the current year in October. The fruit produced in summer is tolerable, but not at all to be compared with that of the common summer sorts; hence it is the usual practice to cut away all the previous year's wood in spring, and the wood of the current year will bear fruit. The growths should be thinned out, the earliest and strongest left for a crop. Young growths will keep coming up throughout the summer, but they should be cut away, as they will be of no use for fruiting, and rob those that will bear fruit of their strength. It is generally recommended that autumn Raspberries be not tied up to a stake, as in the case of the summer-fruiting varieties, but have each shoot tied out if it can be managed, the reason being that in the autumn all the sun and air possible should circulate among the fruit to assist ripening; the moister the district, the more is this necessary. Some growers adopt the practice of training the shoots as horizontally as possible, so that the fruit is protected by the leaves from injury by rain. One decided advantage attaching to the autumn-fruiting Raspberries is that they bear freely, and come in to assist in making up desserts at a time when small fruits are becoming very scarce. R. D.

Shading Vines.—I notice "J. R." (p. 597) appeals to a former correspondent as to the result of his experiment in shading Gros Colman, and he will doubtless receive a reply from Mr. Stratton. Pending any such reply, I may note that in a short article on "Late Grapes" on the same page there is a paragraph touching on the very question, and I may add that where vineries have an aspect therein described, with the Vines in robust health, and in addition have the foliage rather near the glass, this question of a slight shading in the early stages of growth seems quite an essential feature in the successful cultivation of the strong-growing late Grapes. I am not aware if all market growers shade; certainly some of the best do so, and their houses show the very height of perfection in Grape growing, so far at any rate as weight and finish of crop, vigour of wood, and luxuriance of foliage are concerned. It is the amount of moisture thrown off by the foliage when Vines are in this state and

the inability to thoroughly dry the leaf before the sun attains great power that are chiefly answerable for this scalding, although I am aware that scalding is sometimes seen under exactly opposite conditions, viz., when the Vines are in a bad weakly state and there is no substance nor firmness of texture in the leaf. There are probably only two conditions which would act as perfect safeguards in either of the above-mentioned cases against any partial destruction of leaf, and these are a greater distance from the glass in training and a S.W. by S. aspect for the vineries. There is no doubt that in the majority of cases our Vines are too near the glass, and with the natural tendency of the young shoots to work their way towards it, the young and tender foliage, even when only partially expanded, is often hard against it, unless there is time to allow for looking after such things every day. So far as the aspect of the vinery is concerned, I do not advocate anything approaching the S.W. by S., but merely state that such an aspect would be a safe one for an unshaded house, as there would be ample time, by judicious air-giving, to thoroughly dry the foliage before the sun was full upon it.—E. BURRELL.

A SERVICEABLE PEACH.

PEACH HALE'S EARLY is now well known to most fruit growers interested in Peach culture, but does not find a place so often as it should do in gardens connected with medium-sized establishments. No variety can be said to be more reliable under glass or against sunny garden walls, and till something better can be recommended I would certainly give it a place in quite the smallest collections. The fact of there being experienced gardeners in this country who have pronounced against the Peach under notice does not greatly alter the case. The only real objection urged against it is its presumably poor quality, but let me ask is it so much inferior to other early varieties, or, say, either Early Alexander or Waterloo ripened under similar conditions? There was a great demand for Hale's Early directly its merits became known on this side of the Atlantic, and as a consequence not a few unscrupulous nurserymen supplied what they had nearest approaching the variety, or else either Continental or American raised trees, and which they could not honestly vouch for, were distributed. The true Hale's Early was comparatively scarce for several years after its introduction to this country from America, but Mr. Austin when at Ashton Court got the right sort, and from one by no means vigorous tree growing against a wall near his private garden numerous buds were taken and distributed among those of his friends who recognised its worth. I was fortunate in procuring two trees of the true form, one being grown under glass and the other against a wall facing south. A third tree I purchased for an amateur in this neighbourhood for his Peach house has given the greatest satisfaction, but in a large garden in an adjoining parish a grand tree of Hale's Early has recently been condemned and cut out of a house, the quality of the fruit not pleasing the owner. It may be that the stock on which the trees are budded greatly influences the quality of the fruit, but it is my belief overcropping is more often to blame for this poorness of quality than any other cause that can be stated. The true Hale's Early is not a strong grower, at least such is my experience of it, but, as might be expected under the circumstances, it is exceedingly free flowering. Quite young trees will flower freely, and, as a rule, a good crop will set on either small or large trees. This further tends towards checking strong growth, and the trees being allowed to bear heavily, their decadence, and that of the quality of the fruit too, are the inevitable consequence. Whether the trees are growing strongly or not, they ought not to be allowed to swell off extra heavy crops, or, say, a fruit to every 4 inches of trees' surface, as I have seen them left. If left one to every 9 inches or rather more, the fruit will attain a fairly large size, colour beautifully, and be of good quality, but when given still more space, or, say, 12 inches square, grand samples are obtained, and with which, if eaten before they are dead ripe, very

little fault can be found either as regards lusciousness or richness of flavour. Not only are the full-sized fruits of superior quality, but they also sell for nearly double the price of average Peaches. Severe thinning out, therefore, pays well in every way. Peaches, whether required for marketing or home consumption, ought to be carefully detached from the trees before they approach the dropping period, and this can best be done by the aid of a pair of Grape scissors and a pad of cotton wool in the left hand. It is not a good traveller, so that early gathering is particularly desirable in the case of any sent to a distance.

This excellent and most serviceable Peach is well adapted for early work, as without much hard forcing fine fruit can be had ripe in April, while if trees are started early in January and gently brought forward, the fruit ripens from the middle to the end of May. It should also find a place in what may be the only Peach house on the place, the fruit ripening with the aid of little or no fire-heat early in July, and forming one important contribution to a long succession. Particularly valuable is Hale's Early for open walls. In some seasons it is possible to gather ripe fruit of it from open wall trees by the middle of July, but the end of that month or the first week in August would perhaps be nearer the average date of gathering. If there is a class at a flower show during the early part of August and up to near the end of that month, the prizes are almost certain to be won by Hale's Early. One great point in favour of the fruit gathered from the wall trees is their richness of colour, and those especially who market the surplus, or, it may be, the whole of their produce, ought certainly to plant Hale's Early extensively. In all probability the covering of a south wall with this variety would prove a good commercial speculation.

W. IGGULDEN.

THE WEEK'S WORK.

PLANT HOUSES.

STOVE.—BERRY-BEARING SOLANUMS.—In common with several other popular plants that are mostly grown from cuttings struck annually, it is necessary to commence propagating these Solanums at the beginning of the year. Cuttings are better than seeds, as there is a great difference in the freedom with which the plants individually produce berries. Cuttings should only be taken from plants that fruit freely. A few of the plants that had their berries ripe early in autumn should now have their shoots shortened well back and then be put into an intermediate or cool stove temperature. Here they will push growth that will be sown in right condition for striking. To assist their breaking, syringe overhead once a day.

ALLAMANDAS.—Where there is a constant demand for considerable quantities of cut flowers there are few stove plants that will afford so long a supply as Allamandas, provided they are started early enough to get them into bloom before the spring is far advanced. It is better if possible to grow several plants, so that some may be started earlier than others. They are more useful when grown in pots than when planted out. A plant in a 16-inch or 18-inch pot will yield an immense quantity of flowers without monopolising so much head-room, to the injury of other things, as usually occurs when the roots are turned out in a bed. Another advantage is that in pots they can be moved to any house where there is the necessary heat, even if they have to be grown on later elsewhere. Plants that were kept dry at the roots with a view to resting them in the manner advised in autumn will now be in a condition for cutting in. Full-sized specimens that are already as large as necessary should have all the last season's growths cut away to within two or three eyes of where they started. If the soil has got very dry it will be best to soak the roots in a tub filled with tepid water for several hours until the balls are thoroughly moistened. Without this it is difficult to get the water to reach the centre. After the soaking it will be well to turn the plants out of the pots and get away a con-

siderable portion of the old material, which should be replaced with new loam and rotten manure, in the proportion of about three of the former to one of the latter, adding sufficient sand to make the whole moderately light. The quantity of manure named is not too much for free-growing, gross-feeding plants like Allamandas. For most purposes, especially for cutting, the smaller-flowered kinds, such as *A. grandiflora* and *A. Chelsoni*, are preferable to the larger flowered sorts like *A. Hendersoni* and *A. Schottii*. The two first-mentioned are also superior in colour.

CROTONS.—Where large bushy specimens of Crotons are grown they require their branches shortened back considerably once a year. When this is not done the plants get straggling and bare of foliage at the bottom. If they have been at all affected by thrips, mealy bug, or red spider they should have a thorough syringing with insecticide, so as to, as far as possible, free them from the insects before any new growth is formed. Whatever is used in this way may be applied stronger now than would be safe after the young soft growth is present. Small Crotons are amongst the best of all variegated plants for general decoration, as during the warm summer and autumn weather they will bear cool quarters for some time. To keep up the stock for this purpose a sufficient number should be struck annually. The leading points, in lengths of about 6 inches or 8 inches, of the headed-back branches should be used in this way. Put them singly into small pots filled with sand. They will root readily if kept close and moist in a stove temperature.

CISSUS.—The old *Cissus discolor* is still one of the most beautiful of all variegated-leaved plants. It does well for covering a wall at the back of a stove, and from its naturally free habit of growth requires to be cut well in once a year. This gives an opportunity to get rid of the old foliage, which at this time gets poor and colourless. After cutting in, encourage the plants to make growth and fill the space quickly they are intended to occupy. When the young shoots have made an inch or two of growth, if the plants are in pots, they should be turned out and have about half the old soil taken away, replacing it with new loam, to which a liberal amount of manure and sand has been added. Where young stock is to be used for covering walls, training round pillars, or for any similar purpose, plants that were struck last summer should now have a shift and be pushed on in a warm stove so as to get them to make the requisite amount of growth early. Other kinds, such as *C. porphyrophylla*, *C. Lindenii*, and *C. gloriosa*, that can be similarly used, require like treatment.

DIEFFENBACHIAS.—These can only be used in a warm house, for they do not long maintain a good appearance in a cool place. But their spotted leaves are very effective in the stove. To keep them furnished with healthy foliage down to the bottom, plants require to be struck annually. Such as were propagated last year will, in most cases, now have lost their bottom leaves. The tops can be taken off 12 inches or 14 inches from the extremity; two or three of the lowest leaves may be removed, and they should then be put singly into 6-inch or 7-inch pots in sand. They will soon root in a brisk stove heat if kept close. Too much water must not be given, or the thick fleshy stems are apt to rot. After they are well rooted, they should be potted in free, sandy soil—either peat or loam will answer—and grown on with plenty of heat and light, giving larger pots as the roots require more room. Plants struck from large pieces of the tops in this way will make nice specimens by mid-summer. They look best when confined to single stems. In a warm stove temperature the stools will start into several growths. These may be allowed to remain until towards the end of spring, when they can be taken off and struck in the way recommended for the tops.

ACALYPHAS.—These are most useful whilst in a small state and confined to single stems such as can be grown in 6-inch or 7-inch pots. In this way they are effective for grouping amongst Ferns or other green-leaved subjects, or with flowering

plants. They may be struck from single joints, with a leaf attached where cuttings happen to be scarce. It is, however, better to use the tops of the shoots, consisting of about three or four joints; remove the leaves from the bottom joint, and put them singly into 3-inch pots, drained and half filled with a mixture of sand and loam or sand and peat; they will thrive in either. Put sand alone on the surface. They should be kept close and in a brisk heat. When the little pots are full of roots, move them into others 2 inches or 3 inches bigger. If bushy specimens are wanted, all that is necessary will be to pinch out the tops when a little growth has been made, and to give larger pots in spring.

CYPERUS ALTERNITOLIUS.—Both the green and the variegated forms are as useful for cutting as for ordinary decoration. They are somewhat slow to increase, as the usual method of propagation is by division of the crowns. This should be effected when the plants are at rest, before they begin growing; the general time for which, under ordinary cultivation, is during the ensuing month. Where the stock is to be increased, strong old plants should now be turned out of the pots, have the soil removed, the roots disentangled, and the crowns divided, so as to secure a fair portion of roots to each piece. Put the pieces into pots large enough to admit them with a moderate amount of soil. Drain sufficiently, for though these Cyperuses are almost aquatic, still they do not thrive in pots where the soil is water-logged. Ordinary turfy loam, with some sand and a little leaf-mould, will answer for them. As soon as potted, they should be stood where they will have a moderate stove temperature, so as to at once start them into growth. Later on in the spring they should be moved into 6-inch pots, in which size they will grow large enough for general use. Plenty of water at the roots during the time they are making growth is necessary, with a free use of the syringe daily, to keep them free from thrips or red spider.

PANICUM VARIEGATUM.—This plant can be used in so many ways, that a sufficient stock of it should be provided annually. The appearance of a stove is much improved by it when used for draping the side stages alternately with some darker-leaved subject, such as *Isolepis gracilis*, the *Fittonias*, *Peperomias*, or others of like distinct character. It is best to strike the cuttings five or six together in small pots, which should be drained and three parts filled with a mixture of loam, rotten manure, and sand, the surface all sand. In this way when required they can be moved on intact into larger pots. The cuttings should be made of the points of the shoots, consisting of about three or four joints each. Keep them moderately close and moist in an ordinary stove temperature until rooted, after which stand them where they will have a fair amount of light. By getting things of this character increased early, there will be time and room available for many things that will shortly require propagating.

T. B.

HOTBEDS.

THERE are few gardens at this time of year in which hotbeds are not being made to force early supplies of Asparagus, Potatoes, Carrots, Radishes, &c.; therefore, a few remarks upon the subject may be acceptable. The first thing to be done is to mix sufficient manure (as it is brought from the stable yard) with an equal quantity of leaves (Oak and Chestnut being the best) to make the necessary number of beds with, turning the material two or three times within ten or twelve days from the time of mixing to allow the rank heat to escape. In order to allow of the hotbeds subsiding a couple of feet, they should be made 6 feet high and 2 feet wider and longer than the frame which is to be placed thereon, but in case of a hotbed being made large enough to take two or more frames longitudinally, a space of 18 inches between each will be ample. In forming the hotbeds, the fermenting material should be well trodden as the work proceeds, especially so along the centre, which, moreover, should be rather higher than the other parts, inasmuch as it is the hottest part of

the bed, and consequently the first to decompose and subside. Hotbeds should be made in a southern aspect, or in front of a wall or Laurel hedge planted for the purpose of breaking the north winds. The ground on which the beds are to be made should be higher than that surrounding it, so as to prevent an accumulation of water. Having placed the frame or frames, as the case may be, on the hotbed, sufficient fermenting material to make the depth at the back part of the frame correspond with that of the front should be placed therein, following this with a thickness of a couple of inches of short manure. If a surfacing of soil is put over this, Asparagus roots can be placed closely together thereon, covered with about 6 inches of light soil or sifted leaf-mould, and tepid water given to settle the soil among the roots. When the grass has pushed a couple of inches through the soil, it should be cut and stood on end in a 6-inch pot, resting in a saucer of water placed in a house where the temperature does not fall below 50° or 45° until required for use. When the condition of the soil indicates dryness, give sufficient tepid water to thoroughly moisten both soil and roots, and ventilate sufficiently from the time the Asparagus appears through the soil until it is cut to prevent its making a weakly growth. My experience of covering with a thickness of a few inches of leaf-mould is that the grass is thereby improved in quality, being cleaner, better blanched, and crisper. For Potatoes and Carrots add a layer about 9 inches thick of light garden soil and leaf-mould in the proportion of three parts of the former to one of the latter, mixing thoroughly therewith a few shovelfuls of fresh soot, more with a view to rendering the soil distasteful to worms and insects than fertilising it. This will result in the production of clean roots.

In making hotbeds for Melons and Cucumbers a different line of procedure must be followed, as higher bottom and top-heat is necessary to promote healthy growth than is required to produce first-rate crops of Asparagus, Carrots, and Radishes. This being so, the hotbeds intended specially for Melons and Cucumbers should be made just large enough to hold the frame, and in making them a few layers of old Pea sticks should be placed across the beds as a means of communicating the heat supplied by the freshly made up linings to the interior of the bed and frame. When the frame is placed on the bed put a shell inside, which should be 6 inches shallower than the box. The shell can be easily made by measuring the interior of the box or frame and making it 1 inch less all round, and, as I have already stated, 6 inches shallower, nailing the battens on the outer side of the shell, so that when it is fixed in the frame there will be a space of 1 inch between that and the frame, thus supplying a means of top-heat from the linings and bed. I will now endeavour to show how frames on hotbeds may be profitably used, in addition to the forcing of Asparagus in them as indicated above, by planting and sowing in them the following crops.

Potatoes now starting into growth should be planted two days after the soil has been placed in the frame, in rows 1 foot asunder and at 7 inches or 8 inches apart in the rows. The frames should from that date have sufficient air admitted to ensure a sturdy growth in the Potatoes, without which satisfactory results will not be achieved, and as soon as they have made a few inches of growth above ground a like thickness of soil should be placed between the rows. Potatoes thus planted will yield a supply of young ones fit for table about the end of April, when it should be continued from produce obtained by successional planting. They will require little, if any, water at the roots during the interval from December to April. If the soil be not considered sufficiently rich for the production of moderately good-sized tubers, a sprinkling of Peruvian guano may be advantageously incorporated with it. Similar advice is applicable to Carrots. Early Nantes Horn is the best for early use, and of this sow the seed thinly in drills about 1 inch deep and 1 foot asunder, and between these may be similarly sown rows of Wood's Frame Radish. These frames, like those containing Potatoes, must have sufficient air given

from the beginning to prevent their occupants making a weakly growth. A little Cauliflower, Cabbage, and Lettuce seed may be sown thinly in these frames at the same time as the Carrots without in any way interfering with the welfare of the latter crop, inasmuch as the seedling plants can be pricked out in a pit containing a gentle bottom-heat or under a few old lights in a sunny border as soon as they are large enough. The Radishes also will have been removed for salading before the Carrots require more room. As soon as the plants are large enough to handle they should be thinned out to 2 inches apart in the rows, and afterwards be thinned out as required for use.

Longford Castle.

H. W. WARD.

KITCHEN GARDEN.

WINTER VEGETABLES.

ONE of the inevitable results of the long-continued severe frost will be the loss of a large number of what are usually termed hardy winter green vegetables. Even if the greater portion of Broccoli, Borecole, Brussels Sprouts, Savoy, and other Cabbage do survive this trying period, they will be greatly crippled and checked in growth, and, for a time at any rate, a scarcity must prevail, in the markets especially. A great mass of snow, varying from 16 inches to 20 inches in depth, rendered it an extremely difficult matter to find the previously badly frosted vegetables, and those grown at a considerable distance from either a town or railway station could not for several days be moved in quantity—the blocked-up state of the fields and roads rendering it necessary to employ three horses where perhaps one had previously been sufficient. For several or probably ten years past wholesale buyers and retailers have had matters much their own way, very frequently buying perishable vegetables at their own prices. The growers' turn has now come, and those who are fortunately in a position to send fairly large quantities of the different vegetables I have previously named to the markets will realise highly remunerative prices. A hard winter is really a godsend to the growers. The prices for Turnips, Onions, Leeks, and Carrots will most probably have ere this been trebled, these being in great demand at innumerable soup kitchens, and many crops of Turnips, Thousand-headed Kale, sprouting Broccoli, which not unfrequently are fed off by sheep, will now find their way to the markets. My sympathies are to a certain extent with the growers, but consumers generally are to be consoled with in the present state of affairs.

One effect of this hard weather will be the bringing into greater prominence other vegetables suitable for winter consumption, and which are more neglected than they ought to be. Foremost among these I would place Jerusalem Artichokes, than which no more reliable winter vegetable can be grown with so little trouble. They very frequently find their way to the table of the wealthier classes, but are very rarely seen in the gardens or on the tables of the owners of medium-sized places. They are easily cooked, and, if properly served, prove a most agreeable change to the usual routine. At a tithe dinner which it was my privilege to attend recently, most of the farmers present were agreeably surprised with the Jerusalem Artichokes as sent to the table by a good cook, and I must say they were thoroughly enjoyed by all who tried them. They were cooked after the following recipe: Trim and wash the Artichokes; cut off the end of each quite flat, and trim the other end into a point. Boil them in milk and water and lift them out the moment they are done. Drain and place them upright

in the dish in which they are to be served, and serve with either good white or rich béchamel sauce. They are also very nice mashed and made into rather thick fritters, and Artichoke chips, made and cooked exactly as Potatoes are often treated, give a good variety. The attention of raisers of novelties is being turned to Jerusalem Artichokes, and we shall soon be able to plant and raise less deep-eyed tubers, a white-skinned variety having been also recently brought into prominence. This vegetable will stand more rough treatment than almost any other kind, but it pays well for fair treatment.

Salsafy and Scorzonera are fairly popular, but probably will be more appreciated this winter than for some time past. There are six or more ways of preparing these for the table, and in good hands a very tempting dish can be formed. They are not often sent to the table in a fried state, but they are very tasty when prepared after this recipe: Wash and scrape off the dark outside skin of the roots, cut them into lengths of 3 inches or 4 inches; boil them till tender; then drain them. Make some French batter; throw the bits of Salsafy into it; take them out separately and fry them a light brown; drain well from the fat, sprinkle a little salt over them, and dish quickly. Scorzonera is somewhat more bitter than Salsafy, and after being scraped should be soaked in water nearly or quite two hours prior to cooking. Both vegetables are raised from seed much the same as Carrots, a few rows giving enough roots for occasional use throughout the winter. Whether *Stachys tuberosa*, or "Spirals," as it is sometimes termed, will ever become popular is doubtful. Its requirements are of the simplest character, but as yet it finds little or no favour with any of the cooks that to my knowledge have been supplied with it. A dearth of other winter vegetables may induce them to take a little more trouble with the queer little twisted tubers, instead of allowing them to shrivel up as heretofore in the vegetable drawers.

Parsnips are what may be termed a poor man's vegetable, but why they should be excluded from the tables of the wealthier classes is not easily determined, unless it is because they are not sufficiently "high-class." Unfortunately for both employers and gardeners, cooks will not, as a rule, take much trouble with vegetables, these being left to the tender mercies of underlings, very many of whom cannot cook a Potato properly, and fail completely with Parsnips. If, instead of slicing up the latter, they cooked them whole in a small quantity of water only and till they were thoroughly tender, this not being accomplished much under one and a half hours, a very wholesome and excellent dish would be the result. Should they not meet with approval served just as cooked, Parsnip fritters would most probably find favour. The recipe for the latter, and which I have frequently seen acted upon, is as follows: Take three large Parsnips and boil them till tender; peel them and mash them very finely; add a teaspoonful of flour, one well-beaten egg, and salt to taste. Make the mixture into small cakes with a spoon, and fry them on both sides a delicate brown in good dripping or butter. Serve them up very hot and piled upon the dish. According to my experience, Parsnip fritters thus prepared form quite a delicate tempting dish, and if more often served would greatly add to the popularity of this extremely hardy and very easily grown winter vegetable.

Carrots and Onions are not nearly so often served as a vegetable on the dining-table as they might well be, and this, again, I blame the

cooks for. Half cooked they are positively unwholesome to many people, but if boiled till they are thoroughly tender the case is very different. By selecting medium-sized to small roots of Carrots and boiling them whole from one to two hours according to their size, they would turn out fit to eat, proving very tender and sweet instead of hard and indigestible, as they too often are when hurriedly cooked. By a little good management tender young roots can be had nearly or quite all the year round. Onions also should be uncut, only the outer coats being removed prior to boiling in gravy or a little water, the former preferably. Boiled till they are perfectly tender the flavour is mild and delicate. Nor are Leeks so much esteemed as a vegetable as they ought to be. They rank among the hardiest of vegetables, and can be most simply grown. Their sole use in many kitchens is for flavouring soups, but properly cooked they form an excellent dish, especially if prepared and served as advised in the case of Onions.

Celeriac, again, is much neglected, few using the roots for other than flavouring soups. If, however, they were boiled till quite tender in a little soup or gravy, they would form a really excellent vegetable, the flavour being distinct and pleasing. They are also very good when boiled and served up with white sauce, as recommended in the case of Jerusalem Artichokes. I consider Celeriac or Turnip-rooted Celery one of our best winter vegetables, and if the improved Continental varieties were more generally obtainable and grown in this country, they might become much more popular than at present. It can be kept during the winter under cover in common with Carrots and other roots. Turnips need no eulogy from me, and I will merely state that those who appreciate a tender, white-fleshed, mild-flavoured variety should grow Chirk Castle Black Stone extensively.

Ordinary Celery can be cooked and served as a vegetable in at least six different ways, and it ought to figure on the dining table in a cooked state very frequently this winter. It may be treated much the same as Seakale, care being taken to boil the best portion of each "stick" only and till perfectly tender, serving on toast with white sauce. Celery, whether it is to be cooked or sent to the table in a raw state, ought not to be placed in water for a short time only, water having a most hardening effect upon it, yet I have seen it in the butler's pantry for hours together in a tub of water. Celery with cream is decidedly good prepared after this recipe: Cut the white part of three heads of Celery into lengths of about 3 inches, boil it till quite tender, and strain the water from it. Beat up the yolks of three eggs, and strain them into half a pint of cream; season with a little salt. Put this and the Celery into a stew-pan, and place it over the fire till it boils and becomes thick, and then send it to table on toast. Cardoons are not much grown, and they certainly require more room and labour than the owners of small gardens can afford to devote to them. They prove of good service in some establishments, but it is not every cook that can succeed in sending them to the table in a tempting condition. The following would be found a simple recipe: Cut away the coarse outside of the Cardoon, wash it free from dirt, and lay it in cold water to harden; then boil it in milk and water till tender, drain it on the back of a sieve, cut each stalk in two, place it in a vegetable dish and pour white sauce over it. I. M. H.

Winter Tomatoes.—I inquired recently of one of our market growers of Tomatoes what he had done

with his plants, and he said, "We cut back hard in some cases, and to any strong new shoots in others, all the best of the plants in pots, surface-dressed them, and got them thickly into a few of the lower houses, where a good warmth can easily be maintained." He remarked that it hardly paid to grow market Tomatoes during the winter in the cold district of the metropolis. What with low temperature and fogs, with the inevitable soot sediment on glass roofs, the production of good fruit was too costly to be profitable. Even if his experience is of a practical kind, it is obvious that to obtain good Tomatoes between November and April is a difficult business, and only possible with profit in low houses and with command of ample warmth.—A. D.

HARDY COLEWORTS.

It seems doubtful whether of all the Cabbage tribe we have a sweeter or pleasanter eating vegetable than is the Colewort. Specially so are the small, firm heads after a spell of severe weather, because the flavour of Cabbages, either common or Savoy, is somewhat strong until the frosts have disappeared. Coleworts never seem better than when cut and cooked at once. It is a wonder that anyone should care to have large, strong-eating Cabbages during the autumn and early winter whilst good hardy Coleworts can be found in plenty. The season extends from the beginning of September until the end of March, long enough for any one kind of vegetable. It is but to sow and plant about three times to have the breadths coming in in succession and for a long season. Whilst the market grower, as a rule, prefers the Rosette, because the broad flat heads bunch effectively, the more conical hardy green resembling real Cabbages, but smaller, seems to be the best for private gardens. The metropolitan market growers get both strains in remarkably good form, many thousands of plants, covering acres of ground in extent, proving to be absolutely even and true. There is a leaden or bluish tint earlier in the winter on the Rosette variety, which, apart from the diverse form, shows its distinctness from any other of the Cabbage family. Usually the plants are put out at about 12 inches apart, but possibly are a little closer in the rows. This will give about 200 plants per rod, or at the rate of over 40,000 per acre, an enormous number apparently, but it accounts for the huge beds of seedling plants seen in the summer, the vanloads needful for ordinary planting purposes, and the many thousands of bunches of from eight to ten heads each which find their way into the market from one field only. The ways of purchasers are strange, so far as prices are concerned, for sometimes the returns are as low as 1s. per score, at other times they are 3s. or 4s. per score bunches. Just prior to the setting in of the recent hard weather there was little demand for Coleworts apparently, so low were the returns. Then with the advent of frost, and later on snow, up went the prices rapidly, and happy were those whose labourers had courage to face the frost, snow, and intense cold, and get loads of Coleworts for market. Coleworts are not long on the ground, and in that respect are valuable, because making a good succession crop. We rarely see good breadths of Coleworts in cottage gardens or allotments, and none too frequently also in more pretentious private gardens. None the less, these Coleworts merit universal cultivation. A. D.

Vegetable prospects.—Whatever the prospect of others may be as to green vegetables, ours after a few weeks is a very poor one. On looking over the patches of Broccoli, I observe that the greater portion of them has been killed by the frost. This applies to a large patch heeled over at the end of September, because the plants were growing too strongly. This will be a severe loss, as it was a good strain of Penzance, and this generally followed Snow's. Old Cabbage stumps are killed outright, and Savoy Cabbages are going rotten. Brussels Sprouts, where they are very forward, are rotting. One good point with this crop is that it does not suffer where protected by the leaves; hence the wisdom of not cutting off either head or leaves, as this is Nature's protection. Cabbage Lettuces are

killed to a large extent. Celery, where not protected either by very high or thick mouldings of earth, will suffer very much. We covered ours with long stable litter when the frost began. Cauliflowers were all killed very early in November. I lifted a lot of Veitch's Protecting Broccoli early, heeling them in, protecting from frost, and opening them when possible in the middle of the day to keep them fresh and growing. By so doing I have enough to last well into January. Spinach I never saw injured so much, all the large leaves being quite destroyed.—DORSET.

Keeping Celery.—What "Rural" endeavoured to show was that Celery was best left uncovered or totally unprotected against frost, as he stated that covering did more harm than good, which, I should say, is opposed to the experience of growers, as we all know what frost does for the heads of the plants standing up out of the soil, as they are killed down to that level, and rot is sure to follow and ruin the whole. As for Celery grown for exhibition, no one thinks of keeping that through the winter, and it is quite new to me that liquid manure has any injurious effect on the plants, or that they can well be too highly fed, as it is the quick growth that gives the tenderness to the stems and makes them crisp and juicy in the uncooked state, instead of being hard and fibry as the starvelings are. The best Celery for standing the winter and for salad is the dwarf kinds, such as the Sandringham, as in that and others of similar habit the leaves are close and the stems short, and when earthed up there is but little of the top exposed to the weather. The big sorts are only fit for cooking, and as they stand so far out of the ground, they invariably get injured and decay where the frost takes them.—S. D.

Remarkable Mushroom growing.—The sanitary inspector for the suburban district of Edmonton has just brought to light a case of remarkable market gardening. From information received he visited a dwelling-house in the district under the control of the Edmonton Local Board of Health. On approaching the building steam coming from the ventilating grating was visible, and a very offensive odour was perceptible. Entering the house, he found that some ten or twelve loads of manure had been placed in a cellar beneath the dwelling rooms, and he learned from the occupier of the house that this manure had been brought from London and deposited in the cellar to form a bed in which to grow Mushrooms. In reporting the circumstance to the local authority the inspector remarked it was evident that the owner thought more of rearing Mushrooms than of the health of his wife and family, and added that never in the course of a wide experience had he seen or even heard of such a case. A notice requiring the removal of the offensive and health-destroying heap was served promptly, and its requirements were duly complied with.

Winter Parsley.—When at Maiden Erleigh in the autumn, I was particularly struck with a fine bed of curled Parsley growing on a west border in the kitchen garden. When calling there a few days since, whilst all around was covered with a deep coating of snow, and frost of some 20° was being felt, I noticed that this same bed of Parsley had been so far regarded that around the sides stout strips of wood had been fixed, whilst over the top, stakes and strips of wood supported mats and canvas, while Fir branches laid over these supports kept off snow and some little frost. At the higher portion of the temporary protection behind, movable panels enabled the gardener to obtain free access to the Parsley, so that so far as this useful herb was concerned, Mr. Turton was quite independent of the weather—a very happy condition of things in any garden, especially when such fierce winter weather prevails. The finest of Parsley is without doubt obtained by the practice of dibbling out into rows, 1 foot apart, from the spring-sown seedlings. Not only does Parsley invariably come more fully curled when so treated, but the admirable amount of space given to each plant enables robust growth to be formed, which is too often denied when Parsley is left in the seed bed. In all

gardens where Parsley is in considerable demand in the winter a bed should specially be planted for winter use, and it should be so planted with an eye to convenience to being protected either with movable frames or by some temporary erection. A worse thing may be done than dibbling up a few scores of strong plants into 6-inch pots, so that these plants being kept in warmth may be kept growing through very hard weather.—A. D.

Parsnips, late sown.—Last year there appeared in the columns of *THE GARDEN* some notes recommending the late sowing of this vegetable. I have often sown Parsnips much later than the time recommended in the gaps where the first seed had failed to come up. This last spring I sowed my main crop in March in two different gardens, and in both instances the seed came very indifferently. I moved the ground with a fork in the vacant places, sowing again from the same bag of seed; this time the result was just the same. Finding I should have a short supply, I determined to sow again on fresh land and from fresh seed. This was done in the first week in June, and the seedlings came up splendidly. Having been sown on freshly-trenched ground, the roots grew rapidly, and in the first week in December I tried these late-sown against the early ones, and although not so large, they are cleaner and quite suitable for the kitchen.—DORSET.

CHRYSANTHEMUMS.

SINGLE CHRYSANTHEMUMS.

I AM by no means alone in expressing a desire that a class or classes for single Chrysanthemums should find a place in the next schedule of prizes of the National Chrysanthemum Society. I think many of them are very pretty indeed, and becoming more sought after for cutting. Generally they are very free, and notwithstanding the growing popularity of the Japanese varieties, the single types have a future before them. A pure golden centre seems to me to be indispensable to setting off to the best advantage the marginal florets of whatever colour, and this should be insisted upon in the direction of improvements. Some have dull, greenish-yellow centres, which are not attractive, but I do not say discard them at once, but in proportion as progress is made in the direction of the pure golden centre in combination with pleasing, bright, or delicate colours on the marginal florets; forms lacking these qualities can be discarded.

If a class is made for single varieties, they would be most effective shown in bunches of a few blooms; and if they could be staged in specimen glasses, one variety in each, they would appear less formal than on the ordinary stands. An experiment might be made with a class for a dozen bunches in not less than four or six varieties, and one for half a dozen bunches, two or three varieties of each being required. Four or six blooms would make an attractive bunch, and I am sure the public would be interested in the section. Variety is much needed in our Chrysanthemum exhibitions—not merely variety in the way of type and colour, but in the method of showing the flowers. Large double Dahlias and Chrysanthemums have their admirers, but to the general public they present to view a series of formal and monotonous lines of flowers, and something in the way of bunches of single flowers tastefully displayed comes as a refreshing novelty. Single Chrysanthemums are being grown for table decoration, in the composition of which they play an important part in the autumn, and their employment in this way will be certain to lead to a growth in the public favour. I have seen some very pretty bouquets made wholly of single Chrysanthemums.

As there are fifty or more good named varieties in cultivation, there should be no difficulty in getting a good competition. Such varieties as Admiral Sir T. Symonds, yellow; Ada Owen, yellow and orange-scarlet; Exquisite, pure white; Effie (Delaux), deep crimson; Fatima, deep purple-bronze; Figaro, rosy magenta; Guiding Star, yellow; Lady Churchill, terra-cotta; Lily Owers, brownish

salmon; Lovely, lilac-pink; Miss Cannell, pure white; Miss Ellen Terry, bright magenta; Miss Mary Anderson, pure white, passing to pink; Mrs. Sutton, magenta-rose; Prince of Yellows, bright golden yellow; Rose Owen, red; Souvenir de Londres, crimson-red; and Silver Star, pure white, are all bright and effective.

In the centenary edition of the catalogue of the National Chrysanthemum Society the types of Chrysanthemums are divided into ten sections, and the last of these is the single Chrysanthemums, a list of twenty-six varieties being given. The compilers of the catalogue remark that "the single varieties differ so much in the form of the blooms that they could be readily divided into several sections, but for the present it has been thought desirable to include them in one group."

R. D.

Chrysanthemum Maggie Mitchell.—This is a very useful Japanese variety for late flowering. True, the blossoms are not particularly bright in colour, being of white or blush-white hue, more or less marked with lilac. This variety produces very freely secondary blooms, that is to say, after the terminal flowers are past smaller ones are pushed out often for some distance along the stem and again make a goodly show, besides being extremely useful for cutting. The plant is unusually dwarf for its class, and this is a great advantage when grown in bush form. I fail to see any difference between this variety and Miss Clara Harris, as grown by me.—H. P.

Chrysanthemum Delie.—This French-raised variety was sent to me last year by M. Phatzer with a good recommendation, and it has proved valuable, especially for the production of late flowers. It is one of the narrow-petalled Japanese section, resembling somewhat Bouquet Fait in character, except that the petals are not fluted nearly so much as in that variety, which is noted for that peculiarity in form. The colour of Delie is very pleasing, the base of the petals being pale gold, the remainder mottled and striped with brick-red, which deepens towards their points. This variety makes long peduncles, which serve to show off the flowers individually when cut in clusters on one spike.—E. M.

Chrysanthemum Martha Harding.—Some Chrysanthemums stand the dull foggy weather better than others, one of the best being Martha Harding, whose flowers keep long fresh and bright. It forms a very effective bush specimen where very little disbudding is carried out, for though the growth is rather thin, the distinct-looking foliage is well retained, and the bright-coloured flowers are borne in large clusters, well supported by their stalks. The colour of the flowers is bright yellow, tinged more or less with orange-red. Besides the above name it is also known as Thomas Todman. This variety, which was sent out in 1885, is rather shy in the production of suckers, and the young plants during their earlier stages appear to be weak, but they gain vigour afterwards.—H. P.

Chrysanthemum Volunteer.—This is one of the varieties which is subject to considerable variation in both colour and shape of the flowers caused by the time the buds are formed. So marked is this, that those persons who are not cognisant of the vagaries exhibited by some sorts would scarcely believe that the two flowers, which are quite distinct both in colour and formation also, were from the same plant. When early crown buds are selected, say about the middle of August, the blooms resulting from this bud are pure white, the florets long and slightly twisted at the points, some also being forked. Well developed blooms of the kind named are very showy. Buds which form later than the date named give flesh-pink-coloured blooms; the florets in the centre curl inward, forming almost a half ball. The close nature of the folding florets detracts considerably from the graceful appearance of the blooms, rendering them far too heavy for a Japanese variety.—E. M.

Chrysanthemum Beauty.—This incurved variety, which was introduced as long back as 1852 by Mr. J. Salter, is seldom found in collections

now-a-days. When seen in good condition it possesses much merit, and as an exhibition flower is very telling in close competition, especially with judges who are acquainted with the difficulty experienced in obtaining even presentable blooms, let alone first-class ones. The cultivators around Liverpool as many as fifteen years since were wont to produce this variety in fine condition. The fault which cultivators commit in its growth is that of placing it in too large pots, it being at the best but a weak grower; generally, too, the buds are "taken" too early, this producing very rough and pale coloured blooms, which scarcely incurve at all. Buds to produce perfectly incurved blooms of the right colour—which is bright pink—should not set before quite the last days of August or the first week in September. The beauty of this variety is the great breadth of the petals, and the natural manner in which they incurve to the centre of the bloom. Although Beauty does not rank with the Queen family in point of size, it makes a capital middle-row flower. The growth is tall and rather weakly.—E. M.

CHRYSANTHEMUMS FOR EXHIBITION.*

ONE of the first things an intending exhibitor has to do is to ascertain how many plants can be properly housed, and also how many can be well grown through the summer. Better results will be secured from three hundred plants that have been well attended to than from double that number partially neglected. The selection of varieties is another important matter; but with the valuable additions we have had of recent years it is far easier to obtain a good selection than formerly. The beautiful new Japanese seedlings have so enriched the collections that it makes us wish for new incurved seedlings in addition to the valuable sports we have in that class. Perhaps the most convenient way to ascertain which are the best varieties for exhibition is to take the National Chrysanthemum Society's catalogue for a guide, and then note the varieties in the winning stands at the exhibitions. Good novelties possess much interest, and should be added when possible. Directly the exhibitions are over, when the varieties seen are fresh in the memory, make the list for the following season, marking against each variety the number of plants you intend to grow. Additional cuttings should be inserted to allow for losses and weak plants. It is much better to have a choice of plants in the spring, and be able to reject any that are weak or not quite satisfactory. The strong competition of the present time should induce the exhibitor to grow specially for the classes in which he has a chance to win. It is much better for him and for the exhibition too. A grower who has a small number of plants stands little chance of winning a prize in a large class; but by growing a few plants each of the best varieties and entering the smaller classes, he is much more likely to be successful. Large exhibitors, too, are more successful in the end by not attempting to do too much. Having determined on the number and varieties to be grown, and so commenced for the season, make due provision to protect the plants from checks of all kinds. The Chrysanthemum is subject to so many checks, that constant attention is required throughout the year. Injury arises through suddenly exposing the plants to cold draughts, especially if struck in heat, by allowing them to become root-bound before repotting, and by the soil becoming dry at some period of their growth, or by excessive use of chemical manures. I will detail a few points of the system of culture I have followed with a fair amount of success.

CUTTINGS.

These are inserted at the end of November and the beginning of December, and are placed in a cold pit. I have inserted cuttings much later with good results, but it is convenient to have them early, and to be able to clear out the old stools. I prefer strong and sturdy cuttings about 3 inches long, taken off level with the soil in the pot in preference to those dug out of the soil or stem

* Paper read at the Centenary Conference of the National Chrysanthemum Society by Mr. C. Gibson, Morden Park, Surrey, November 13, 1890.

cuttings, although stem cuttings are used occasionally when others are not to be had; 3-inch pots are used, placing one cutting in each pot. A crock is placed over the hole of each pot, and the pot is filled with soil, consisting of half loam, half leaf mould, and a fair amount of sand. The base of the cutting resting on a little silver sand, the soil is made moderately firm, and is then ready for the pit. Any good varieties that have deteriorated for more than a season are obtained from a fresh source, where they can be depended on being true to name. A change of stock is always desirable where good exchanges can be made. The cuttings are placed in a cold pit, or with only such heat as is desired from a Melon bed made the previous spring, and are arranged a few inches from the glass. The cold pit has an inconvenience in the covering it requires, but I think the cuttings are improved in constitution by the cool treatment, though it would be injurious to cuttings taken out of heat to place them in a cold pit. Where large blooms are grown it is necessary to use fire heat for two or three weeks to protect them from damp, and in my opinion a cool after-treatment is beneficial to them when the cuttings are hardy and vigorous. As the cuttings are struck I remove them to an adjoining pit, where they are gradually inured to air, and when well rooted they are ready for

POTTING.

The strong-growing varieties are placed in 6-inch pots, the weak growers in 4-inch pots. The following I consider weak varieties: In the incurved, Empress Eugénie, Barbara, Mrs. Heale, Mrs. W. Shipman, Lady Hardinge, Nil Desperandum, Princess Beatrice, Cherub, Princess of Wales, Miss M. A. Haggas, Miss Violet Tomlin, and Mrs. S. Coleman. In the Japanese, Meg Merrilies, Ralph Brocklebank, Japonais, Mme. John Laing, L'Adorable, Criterion, and Jeanne Délaux. The shift into 6-inch pots is a large one, but it succeeds well with me. The plants are well watered before potting, and the potting material being in a moist condition they do not require water for some time, and the roots quickly take to the new soil. The pit is kept rather close for a few days, the plants being damped over the foliage occasionally on bright mornings. When the soil is becoming rather dry they are given one good watering, after which the plants are separately watered as required. There is danger of the weak varieties not rooting quickly into the 6-inch pots, the soil becoming heavy and possibly dry, and that is why the smaller pots are used, but they are transferred into the 6-inch pots as soon as they are fairly rooted, and not allowed to become root-bound. The soil at this potting consists of two-thirds loam, one-third leaf-mould, a free addition of sand, and a 6-inch potful of bone-dust to each two bushels of soil. The pots are carefully crocked, and a little rough turf placed over the drainage. As the plants become established in their pots they are gradually hardened until the lights are left off night and day. The final shift is given from the last week in May until the second week in June, placing the strongest growers into 10-inch pots, and the others into 9-inch pots. The soil is made up of two parts stiffish loam, half part of well decayed cow manure, half part leaf-mould from Oak leaves, a liberal amount of sand, and a 6-inch potful of bone-dust to every barrowful of soil. A little soot and wood ashes are added, the whole being well mixed together and placed under cover for use. No detail in connection with the growth of the *Chrysanthemum* is considered of more importance than draining the pots, and it is quite equal in importance to the composition of the soil. Well crocked pots allow all superfluous water to escape. The free passage of air keeps the soil sweet and assists the formation of healthy roots, capable of assimilating liberal supplies of liquid manure at a later stage. The soil is well rammed as potting proceeds, and the pots are then set out in a position open to the sun, but sheltered from high winds. They are placed in rows 8 feet apart to allow plenty of sun and air to reach them to assist in ripening the wood, and they are arranged on boards to prevent worms entering.

MANURES.

Many artificial manures are recommended for application. For the use of amateurs, and where the use of natural manures is objectionable, they afford valuable aid when used with care. For those unable to get a good supply of natural manures, and for application during a long spell of wet weather, they are beneficial. I have had the best results from natural manures obtained from a cess-pool with the drainings from cowhouses and pigeries, to which is added a little soot. After extended practice I am convinced a continued excessive use of artificial manures is one of the causes of damping in the lower florets of light-coloured blooms.

TAKING THE BUD.

This is a mystery to the beginner, and requires a good deal of judgment. It is difficult to specify exact dates, because varieties differ so much, and localities also. Light or clay soils, hill and vale, as well as the part of the country the exhibitor resides in, all affect the time and manner of taking the bud for a given date. Seasons, too, vary, so that the course one season might have to be altered the next. During the past season many buds showed early in July. These were run on to terminals, were taken the second week in August, and have given fine blooms, where another season, with the terminals later, they would be useless for exhibition. The other buds were taken earlier than usual, but the cool weather we had in August kept them in check, and the blooms were somewhat later than usual. As a rule, I commence taking the bud the second week in August, and have generally finished the first week in September. The finest blooms for exhibition are generally obtained from crown buds taken the third week in August, but in the case of Boule d'Or the crown buds can be taken at the end of July, because they require so long a time to expand properly. Flowers from terminals after the first week in August do not attain exhibition size, consequently may as well be taken for early blooms. Although some of them may be too early for exhibition, a few good blooms are always acceptable for other purposes.

A few additional words will, I hope, enable those unacquainted with the subject to understand what "taking the bud" really means. If the plants have been grown as advised they will be from 18 inches to 3 feet in height at the end of May, according to the varieties. At the end of May and early in June they will be making their first "break," that is, at the top of the plant a bud is formed which stops that growth, and three shoots form. These start away together and make a long or short growth according to the varieties. When the growth of these shoots is completed by the formation of another bud, it has to be decided whether this bud shall be reserved, or the plant be allowed to make another growth. This demands an acquaintance with the peculiarities of the varieties. If it is decided to reserve the bud, the three shoots around the flower-bud are removed as soon as it can be done with safety, leaving only the flower-bud. This is called "taking the crown bud." If it is decided that taking this crown bud would be too early or likely to cause deformed flowers, the flower-bud is removed with two of the shoots, and the best shoot allowed to make another growth. At the apex of this other buds are formed, the best is preserved, the others are all carefully removed, and this is called "taking the terminal bud." I have found the buds of most incurved varieties to come from the plants not stopped. In the natural break the shoots start evenly together, but the condition of the wood as to firmness influences the artificial break. I once stopped half my plants of incurved varieties to try the system, but the result was so convincing it was never repeated.

Varieties run on to the terminal bud in a sunny position are Barbara, Refulgens, Mabel Ward, Eve, and the Teck family of the incurved, and Grandiflorum of the Japanese. Other terminals taken in a position not quite so hot are Comte de Germiny, Stanstead Surprise, Mlle. Lacroix, Etoile de Lyon, Lady Lawrence, Carew Underwood, and Baronne de Prailly, of the Japanese, and Jeanne d'Arc incurved.

L'Adorable and M. Tarin making short breaks have been taken on the third break. Japanese stand stopping much better than incurved. Before we had better varieties, Elaine, Bertier Rendatler, and Thunberg were obtained by stopping in April. Edwin Molyneux and Mrs. F. Jameson amongst the newer varieties have come well from plants that have been stopped. In these cases early blooms lose their freshness, and terminals lack size and substance, but by stopping them they are obtained at the right time for exhibition.

HOUSING THE PLANTS.

Attend to this in good time, removing under cover the earliest as soon as they show their florets, and following up the others every alternate day until the stock is housed. Large numbers of early blooms damp through the large buds becoming saturated before being housed. The first week in October is the time most of the plants are housed, unless the weather is threatening.

KEEPING THE BLOOMS.

This is sure to engage the attention of exhibitors. I have tried various ways, but have found no plan better than allowing them to remain on the plants. The early ones are placed in one house, or at the end of a house by themselves, the temperature cool and the house airy, with enough warmth in the pipes to evaporate undue moisture. When the blooms are nearly developed a piece of tiffany is fixed over the glass to prevent the cold and moist air injuriously affecting them by night and the sun injuring them by day. Blooms kept in this manner have often surprised me in the length of time they have kept for exhibition.

DAMPING.

The early buds are most subject to "damping." Heavy winds and rains battering the large buds before they are housed is often the cause. Continued foggy weather and too much artificial manure cause the lower florets to decay quickly. Low night temperature with much moisture followed by bright sunny days results in hundreds of blooms being lost in a few hours. The best preventive is to have a small fire constantly, except on sunny days, with ventilation more or less at all times except during heavy fog. Where the temperature is not allowed to fluctuate too much, the blooms keep much clearer and preserve their freshness for a long time. Some varieties are more subject to damp than others, and should be accorded the driest position in the house. Empress of India, Queen of England, Lady Hardinge, Mrs. W. Shipman, Mlle. Lacroix, Ferdinand Feral, and Mme. C. Audiguier are with me the most subject to damp. Prince Alfred and Lord Wolseley should also be placed in as dry a position as possible, coming early into bloom, and likely to go quickly at the lower part of the bloom.

INSECTS AND DISEASES.

Numerous insects attack the plants in various stages of their growth, but they can be generally overcome with timely attention. They are subject to green fly in all stages of their growth, but these are readily destroyed by dusting with tobacco powder. Immediately the plants are housed they should be well fumigated to destroy any aphides secreting themselves around the buds. Blooms stand fumigation so well that I have never found any injury arise from it. A maggot attacks the plants in May. It is readily detected by the manner in which it encloses the top leaves of the plant in a web. They should be searched for occasionally and destroyed. Earwigs are troublesome, especially among the blooms. They should be trapped through the summer by Bean-stalks cut in lengths and placed among the plants, or inverted pots with a little dry Moss. The cuckoo spit insect has been unusually prevalent this season, and destroyed many buds; it nips the stem and causes the bloom to heel over and cease swelling. The only plan I know is to catch them, which is sometimes a troublesome matter, as they are so lively, but their numbers are reduced. When mildew attacks the foliage sulphur should be applied, and this immediately arrests it.

PREPARING FOR THE SHOWS.

Where it is intended to exhibit, the schedules of

the societies must be carefully read and noted, otherwise mistakes readily occur through not meeting the conditions, and lead to disqualification. It is not desirable to send the entries until nearly the time for closing, because many losses of the blooms may occur from various causes, and the exhibitor may be unable to compete in the classes he intended. No more classes should be entered than the exhibitor has every reason to believe he can compete in. I knew one exhibitor who used to enter very early, and in more classes than he could fill, and boast of his number of entries. All this entails work on the secretaries to no purpose, and leads the society into additional expense in providing accommodation. Managers of exhibitions should fix the closing of entries as late as is consistent with the proper working of the show. Exhibitors are anxious to enter certain classes, and are keeping their blooms for it, when perhaps a change to wet and foggy weather ruins a number of the blooms, and if no margin for losses has been allowed for, nothing can be done but cancel some of the entries. Where this does occur it should become more the general rule to give notice to the secretary the day before the show, or perhaps a clause in the regulations to the effect that a fine would be imposed if notice was not sent would mend matters in the entry for competition.

The Chrysanthemum has given those with an inventive turn of mind scope for using their abilities in discovering aids to the best manner of setting up for exhibition. Many forms of cups and tubes have been brought out to assist the exhibitor to raise his blooms and set them up to best advantage. Holders for tickets with the names of the blooms at the back of the stands seem to be on their trial now. The large varieties of Japanese blooms leave no space for the name to be seen on the board, and unless they are in a conspicuous position the names have to be passed, or the blooms have to be pushed on one side every time we wish to find the name, injuring the blooms and also the effect, as well as taking up a great deal of time when, in a crowded exhibition, others are perhaps waiting to get near. Tickets fixed in front of the stands are too low down, and are liable to be moved by visitors rubbing against them.

The various requisites for exhibiting should be examined and in readiness. A support from a board, or leaky tubes, or an insufficiency of them, may cause much delay at the last moment. The best way to reach the exhibition, times of trains, &c., should be fixed beforehand, so that when the time arrives for setting up the blooms the whole attention can be given to it, and not divided by matters that should have been seen to before. As a rule the blooms are prepared the day before the exhibition, commencing with the incurved because they take the longest time to prepare. Incurved blooms vary in the length of time they require. If clean and well grown they take a much shorter time than many people imagine. In some seasons the Queen family come with scaly centres, and then they are rougher and take more care. When cutting, look carefully over each variety; cut only those that are required, and select solid deep blooms, with broad florets and fresh. Two pairs of tweezers are required; one long pair to remove any damaged florets and deformed ones at the base low down amongst the florets, as if these are not removed they prevent the others going into proper position, leaving hollows, and spoiling the symmetrical proportion which adds so much to the beauty of an incurved bloom. With the short pair arrange the florets in as regular a manner as possible, commencing at the centre of the bloom. Take pains to do it well, as they are much admired, and some that profess to dislike the method must inwardly prefer their appearance.

Japanese blooms are cut in the afternoon of the day before the exhibition. The colours are arranged by day, so that they have the same light as when judged. If arranged in the evening some colours look different. Take Sunflower, for instance, which loses its effect at night. Select fresh, large, well-coloured blooms with their centres well up, and as many of the true Japanese as possible when

in their best condition; I mean such varieties as Boule d'Or, the Dragon type, Meg Merrilies, Ralph Brocklebank, Stanstead White, &c. Varieties in all classes should be shown in their true character, and distinct where distinctness is required by the schedule. Sports are especially liable to vary, and should only be shown in their true form. Where there is a doubtful bloom it should be left out and a safe one substituted, to avoid the risk of being disqualified. In arranging the stands the large blooms should be placed in the back row, the medium in the middle row, and the smaller ones in front; each row should be made level at the top by raising the low one or lowering the high one. All should be well set up from the boards, as they gain much in effect by this method.

An early start should be made on the morning of the exhibition, so that time is given to see that the blooms have travelled safely, and everything ready for the judges at the appointed time. It is the duty of exhibition managers, exhibitors, and judges to be punctual. It is most to the interest of the exhibitors themselves, so that the judges may have the full time allotted to them at their disposal. If short of a quarter of the time through the unpunctuality of one or two exhibitors, and there is a large competition, with the prospect of the opening of the exhibition close at hand, it means hurried work, and hurried judging, is seldom satisfactory.

ORCHIDS.

LÆLIA ANCEPS DAWSONI.

A FRIEND, "J. S. T.," sends a flower of this Orchid asking whether it is a good variety. I look upon all the *L. Dawsoni* in cultivation as the same, as they are all from one importation, and the differences can therefore only come about through the strength of the plant. There is no doubt of "J. S. T.'s" being the true variety, and it is curious that, in spite of so many white forms of the plant which have more recently been found, none have equalled the one introduced by Messrs. Low and Co. through their collector Tucker. The flower now before me measures upwards of 4 inches across; the sepals and petals are all of good substance and pure white; the ground colour of the lip is white on the outside, streaked on the inside of the side lobes with purple radiating lines; in front of these are three fleshy yellow crests, between which and the front portion is a band of white. The whole front lobe is marked with rich deep magenta-purple, having a marginal border of white. Most of those growers possessing the white varieties of the *Lælia anceps* have complained of their not flowering freely. I believe these white varieties came from a new and hotter district than the typical plant, and I observe in places, where my advice has been taken, that the plants have grown more freely and are rewarding their owners with more spikes of flower. In fact all the white varieties of *Lælia anceps*, and some of the coloured forms which we now have in cultivation, require more heat, I think. I am of opinion that neither the coloured nor the white forms like much soil about their roots, but they must have an abundance of drainage. The following are a few of the best white forms:—

L. A. BALLANTINEANA is a new form which I saw in Mr. Sander's nursery last year, the lip being stained on the front lobe with the richest and most intense amethyst-purple—the lip when I saw the plant, then flowering for the first time, being rather narrow. I hope to see it again, however, in better form.

L. A. PERCIVALIANA is another beautiful form, the sepals and petals soft delicate rosy blush; lip large, three-lobed, white without, the recurved tips of the side lobes deep purple, having a few spots of the same colour lower down, the throat streaked more or less with crimson, the extreme tip of the

front lobe rich purple. Behind it is a zone of creamy yellow.

L. A. STELLA.—This is a fine bold flower of ivory whiteness, saving the interior of the side lobes of the lip, which are heavily streaked with deep crimson, the disc being soft yellow.

L. A. SCHROEDERIANA.—A lovely flower, the sepals and petals beautiful satiny rose, the petals slightly tipped with purple, recurved lobes of the lip bordered with purple, the front lobe rich deep purple, the disc being deep yellow.

L. A. VEITCHIANA.—A fine distinct form, the white sepals and petals flushed with lilac; the three-lobed lip streaked with soft rose at the sides, the front lobe being violet-purple with a yellow disc.

L. A. WILLIAMSIANA is a large pure white-flowered variety, the lip being coloured only in the throat, where it is yellow, streaked and lined with crimson.

The above are very superior forms, to which may be added *Sanderiana*, *Hilliana*, *blanda*, and *rosea*.
W. HUGH GOWER.

Cypripedium porphyrochlamis.—This hybrid, raised by Mr. Seden in Messrs. Veitch's nursery I think some six years ago, is a beautiful variety. The leaves are faintly tessellated and the flowers large and richly coloured. Dorsal sepal large, rich deep purplish-crimson, with a patch of light green at the base, from which spring a series of black veins, the marginal border white; petals somewhat deflexed, the lower part yellowish-green, freely spotted with small black warts, the top portion rich bright purple; pouch large, purplish-brown above, passing into green on the underside. It is a cross between *C. barbatum* Warnerianum and *C. hirsutissimum*, and one of the best and brightest of its class.—W. H. G.

Orchid show at The Hague.—The Netherlands Society for Horticulture have issued a schedule of an Orchid show to be held in May next. The show will be of an international character. Amongst the classes asked for are four for terrestrial hardy Orchids, which I hope will cause some interesting and beautiful objects to be staged, and although the prizes are not very high for an international show, it is to be hoped the results will be good, so that the society may be enabled to offer better awards another season. Hitherto I have seen but few Orchids in Holland, but the fact that an Orchid society is established in the country shows that these plants may have as good a time as the bulbs which the Dutchmen have made their own.—G.

SHORT NOTES.—ORCHIDS.

Odontoglossum Harryanum (C. B.).—A very pretty white-lipped variety, and the flower well open. It is a wonderful plant, but not now considered rare. It is a strange time for it to bloom. It appears to thrive well with other kinds of the same family, but not in the coolest part of the house.—W. H. G.

Lælia peduncularis.—J. Earl sends me a spike of bloom of this. It is by some called a variety of *L. rubescens*, but I knew it years ago under this name. In the form now before me the flowers have a very deep rosy-magenta eye; the rest of the flower is rosy-mauve. It is said to be a native of Mexico.—G.

Lælia alba picta.—From Messrs. Pitcher and Manda, of Hextable, comes a beautiful bloom of this species bearing the above appropriate name, the waxy flowers being suffused with rosy-carmine at the tips of the sepals and petals, and the lip being very brightly coloured. Some very elegant varieties of this sweet-smelling Mexican beauty, from amongst recent importations, are likely to appear.—W. H. G.

Masdevallia triangularis (A. F.).—This is the name of your pretty little flower. It was discovered about fifty years ago in Venezuela, but it was not known in cultivation until introduced by Mr. Sander some nine or ten years ago. The flowers are brownish-yellow, spotted with purple, with slender tail-like points of a darker brown. It is a native of Caracas and Venezuela, and requires a little more warmth than many species, especially in the winter months.—H.

CAWDOR CASTLE, N.B.

WE publish this week a view of a garden in Scotland which we hope tells its own tale, as the person who sent it said nothing about the garden, and we failed to find anyone who knew anything about it.

STOVE AND GREENHOUSE.

TORENIAS.

THIS has always been a favourite family with me. About the first flower show that I remember visiting, the beautiful *Torenia asiatica* was shown as a specimen. This was in the month of June. The plant covered a large balloon-trellis, and was densely covered with

peaty compost, not pressed too firmly, and the pots should be well drained. The plants will require frequent stopping until they have formed a good base, after which they may be left to spread according to circumstances. To flower them well they must be grown in a light open position, and during the summer-time an ordinary greenhouse will suit them well. During the winter they require a moderate stove temperature, but they must not be subjected to a dry atmosphere, or thrips will be troublesome. *T. Fournieri* is an annual species of erect growth; the flowers are a little deeper in colour than those of *asiatica*, and produced in great profusion throughout the summer. The seed may be sown early in February, and to keep up a good succession of flowering plants it should be sown at different periods. The seed pots should be placed on a shelf close to the glass in

*Torenia*s require careful attention in watering, being easily damaged by excess of drought or moisture. Green-fly and other insects must be kept in check. F. H.

Arrangement of stove plants.—The arrangement of stoves at this season of the year should, if possible, have more attention bestowed upon it than at other times. Now that the main part of the *Chrysanthemums* are over, more attention will be centred in the stove, from whence will now come the chief supply and the best display also. With a good provision of suitable plants, duly prepared in the summer and autumn, there should not be any great difficulty in making a brilliant show for the Christmas season. In order to dispose of the plants it may be necessary to crowd them rather more closely together; this for a few weeks will not do any great amount of harm. Most of this kind of stock being increased from



View in the gardens, Cawdor Castle, N.B.

its rich violet-purple blossoms. The note in *THE GARDEN* (p. 540) reminds me that this is one of the "good old things" which is sadly neglected at the present time. It is so very distinct and such a continuous bloomer, that it deserves a place in every collection of stove plants. Although its usual flowering season is during the summer months, it will bloom equally well at mid-winter, and either as a basket plant or in pots suspended from the roof it is very effective. Plants should be propagated annually from cuttings, which should be taken before there are any flower-buds formed. These will root freely under the same treatment as any ordinary soft-wooded stove subject. To make specimens quickly, two or three may be grown together in the same pot. They should be potted in rough, porous,

the stove, a piece of glass laid on the pot, and the surface of the soil kept moist. The seed will soon germinate, when the glass should be removed, and, as soon as large enough, the seedlings should be pricked off and later on potted three in a pot. If grown in a light open position this species will not require stopping.

T. flava, perhaps better known as *T. Baillonii*, flowers yellow, with dark blotches, is a desirable species, which may be raised from seed annually. This has more the habit of *asiatica* and makes a beautiful plant when suspended. As this is of rapid growth the plants may be grown singly. It is very effective, and forms a pretty contrast to the first-named species, and requires the same treatment.

Like all plants with fine thread-like roots,

cuttings every season, it is immaterial if a few are in a measure spoilt to attain the desired ends. What with *Poinsettias* in two or three varieties, *Euphorbia jacquiniæflora*, *Plumbago rosea*, and *P. coccinea*, *Aphelandra aurantiaca* Roezli (a beautiful dwarf plant), *Eranthemum pulchellum* (the most valuable of all blue flowers at this season, plants of which may be had in various heights), the chance of a few *Pancratium fragrans* and *Eucharis amazonica* with tolerable certainty, there is no scarcity of material to make a good show. Foliage plants, too, must be taken into account, but I prefer if possible not to mix them too freely with the flowers previously named. With a good supply of flowering plants in the stove I deem it advisable to reduce the atmospheric moisture, so that the flowers may be of better substance and last longer in good condition, or, in other words, to avoid damping off as far as possible. This drier course for a few weeks will not do the moisture-loving plants any

harm, but rather tend to increase their vigour when again made congenial to their particular needs. Orchids, too, would last better under the drier course, and as these play an important part wherever grown in a successful manner, this is a point worth noting. With a diminution in atmospheric moisture it is possible also to reduce the temperature 2° or 3° all round, and that, too, with advantage during the cold and dark season of the year. In this way the stove is made more enjoyable to those who pay it a visit, with not so much dread of taking a chill and its consequent results. If the glass is in any way dirty, either outside or inside, lose no time in cleansing it. The occupants of the house will then look much brighter, and their well-being will at the same time be better secured. Where climbers are at all over-thick, thin out some of the superfluous growths.—J. H.

Ruellia macrophylla.—Among the numerous winter-blooming Acanthads must be mentioned this *Ruellia*, which forms an upright specimen of free growth, clothed with rather large leaves. The flowers are of a curved, tubular shape, from 2 inches to 3 inches long, and of a bright scarlet colour. They are borne in large spreading panicles, so that a vigorous plant in full bloom is very showy. Like the rest of its class, it is easily propagated and grown, while it quickly attains flowering size. If the cuttings are struck early in the spring and grown on during the summer, they make good flowering plants by the autumn and winter. Besides this species there are now in bloom *R. macrantha*, whose rosy purple blossoms are veined with a deeper colour; *R. Herbsti*, with lighter tinted blossoms; and the low-growing much-branched *R. Portellae*, the flowers bright rosy pink and borne throughout the autumn and winter. *R. Herbsti* is also known as *Dipteracanthus Herbsti*.—H. P.

Grevillea alpina.—Many of the *Grevilleas* will flower in a greenhouse for months together, and this is no exception to the rule; while, what is more, it seems to bloom as freely during winter as in summer. *G. alpina* forms a low, compact, much-branched bush, clothed with rather hairy lanceolate leaves. The flowers, which are borne in terminal racemes, as in many of the others, are of that peculiarly curved shape common to most members of the genus, and at the lower part crimson, the upper greenish white, but at this season are less brightly coloured than in the summer. That very distinct and ornamental species, *G. Preissi*, also flowers from the autumn till the spring, so that it is now in some places blooming freely. This forms a much-branched bush, whose long slender shoots are somewhat sparsely furnished with elegantly divided leaves, and terminated by closely-packed clusters of blossoms. The flower of this is pinkish, but the most conspicuous feature of the inflorescence is the long red style.—T.

Fine-leaved Begonias.—The woodcut in THE GARDEN, Dec. 20 (p. 581), shows to what excellent use the fine-leaved *Begonias* may be put, and in no situation are they more telling than in a fernery growing in separate masses, as I can testify by those we have here, some of which are over 3 feet through and in different positions, three being on a level with the floor of the house, and others up on the rock and under or alongside of the waterfall, and as these last-named do as well as any, I was surprised to find it stated that they should be planted where they do not get much moisture. Instead of this harming them they seem to revel in it during the summer, as then the water is frequently running and they are splashed and wetted continually or during that time, and make roots all up their stems, seeming to live on the drippings without caring for soil. Although they want a certain amount of light, they will do well with less than most plants, as some of ours are 15 feet or more from the glass and in luxuriant health. These ornamental-leaved *Begonias* are sometimes seen in stoves, and though they do not mind the heat they do not require any, as all that is necessary to have them in first-rate condition is to keep a temperature anywhere above 40° during the winter, and our thermometer is often lower than that, as we have *Camellias* in the conservatory the fernery

leads to, and it is not shut off. Another plant that looks well in ferneries is the spotted *Coltsfoot* (*Farfugium grande*), and that, too, will grow and flourish almost anywhere, as it does not require much light, and in a shaded position its foliage comes beautifully marbled and marked. This, like the ornamental-leaved *Begonias*, was in demand at one time, and was sent out at the same price as *B. rex*, three guineas a plant, and it is singular that both have so dropped out of notice, and I hope they will have a revival. For room decoration the two are valuable, as they are so suitable for vases, while their thick shining foliage renders them proof against dust. I have often thought if we could but get the bright scarlet flowers of the tuberous kinds on the silvery-leaved sorts of *Begonias* what a gain it would be, as the contrast and effectiveness would be great, but whether they will cross or not is a question still open.—S. D.

HANGING BASKETS FOR CONSERVATORIES.

FEW things are more telling in a conservatory or lofty greenhouse than well-furnished baskets, as when filled with a judicious selection of plants they are always effective. The baskets most suitable for the work referred to are those made of wire and round, and so wrought as to be ornamental in themselves. They should be painted with enamel, or other hard and durable paint, to prevent rust. Baskets so formed are what are wanted for the outside, as they ought to have a plain made one to fit in, with a shallow pan under to catch some of the water, which the roots of the plants will take up again, thus affording a more regular supply of moisture and entailing less labour.

In filling these inner baskets, the first thing is to line them with Moss, as otherwise the soil will drop or be washed through. The plants best adapted for growing in such receptacles and positions are the Ivy-leaved *Pelargoniums*, of which there are now a great many very beautiful varieties, and their habit is such that to show themselves off they need suspending, as then their long trailing branches can depend naturally without support or training. Being so little under restraint and so fully exposed to the light, they flower with great freedom, and make a fine show. There is also another *Pelargonium* now too seldom seen that should not be forgotten, viz., *Rollisson's Unique*, which is likewise a splendid basket plant, as it makes long trailing branches, and produces fine heads of brilliant blooms nearly the whole year round, and lasts long in perfection. By way of variety during the summer months *Achimenes* may be used. *Fuchsias*, too, at least some of the varieties, such as those that are pendulous or have long drooping branches, look well just above head height, as then the beauty of their blooms can be seen, and if climbers or other trailers be wanted, there are the *Tropæolums*, which will run up the chains and clothe them with beauty. For winter work *Ferns* are highly ornamental, as there are many of them that are specially adapted for hanging baskets, one of the most striking and showy perhaps being *Woodwardia radicans*. *Asplenium flaccidum* is another that is suitable for small baskets, and so is *Lygodium scandens*, or to put in with others, while the varieties of *Nephrolepis* are charming. For warm houses there are many to choose from, such as *Gleichenias*, *Davallias*, &c., which must be elevated to be seen to advantage.

S. D.

Single Camellias.—The preference now given to single over double flowers has had a marked influence on the *Camellia*. In many places the single forms, such as the old single white and single red, with the semi-double kinds, of which *ochroleuca* and *Donckelaari* may be taken as examples, have been sought after. Where healthy stocks of considerable size exist, by re-grafting them large flowering specimens may be got up in a fourth of the time that it takes to grow young plants to a useful size. Where a change in the varieties is required, the heads of the plants to be grafted may be cut away to within 10 inches or 12 inches of the bottom. This should be done six or eight weeks before the sap begins to run, or it will

flow to such an extent as to drown the scions and prevent their taking to the stocks. If the heading down is carried out now the stools will be in condition for grafting towards the end of February. I have found the ordinary cleft grafting the best. Where the stocks are from 1½ inches to 2 inches in diameter at the point where the heads have been removed, half-a-dozen scions may be put in. Previous to the heading down the soil should be allowed to get a little drier than ordinary, and should remain in this state until after grafting. Up to that time the headed-down plants should be kept cool.—T. B.

The culture of Freesias.—As one who wishes to grow these Cape bulbs well and flower them freely, I have lately sought in the columns of THE GARDEN for any useful hints upon their cultivation. I have gone back as far as the number of THE GARDEN for July 29, 1882, where a coloured plate of *Freesia refracta alba* and *F. Leichtlini major* was given. I quote from page 94 of that date this paragraph: "With regard to culture, the great thing, as with other Cape bulbs, is to roast them well as soon as their leaves begin to die down." Again, lower down, "As soon as the leaves begin to wither stop all watering, put them on a shelf in the greenhouse exposed to as much sun as possible, and there let them dry up." Now I quote from your issue of December 13, 1890: "A continuously moist soil is absolutely necessary for *Freesias*," and "instead of drying them off when the flowering is complete, simply lessen the water supply, never allowing the soil to be anything approaching dryness." I have no doubt, as "E. J." says, "The general cultivation of *Freesias* is at the present time but very imperfectly understood by the majority of gardeners," and I should add will remain so amongst all those who get their knowledge of plant growing from reading instead of practical experience. May I ask those who have followed the two opposite lines of treatment to kindly record their success or failure.—A. LOCKE, *Danesfield, Walton-on-Thames*.

GARDEN FLORA.

PLATE 786.

DISAS.

(WITH A COLOURED PLATE OF *DISA RACEMOSA*.)

BOTH in the number and beauty of its species the genus *Disa* stands pre-eminent amongst the Orchids of South Africa. Varying to a remarkable degree in habit, foliage, and floral structure, the hundred or more species known to botanists constitute one of the most interesting of all the genera in this family. To gardeners it is one of the most tantalising; although a few species thrive perfectly under cultivation, many of the most beautiful and distinct are imported to this country to show their flowers once, or perhaps not at all, and then gradually decline. It is to this genus that the only really blue Orchids that have been grown in England belong. Without entering into the several sections into which the genus has been divided, it is enough for practical purposes to point out the two main divisions formed by the different habits. The first, which is the evergreen class, includes the most valuable from the gardening point of view. To it belong *D. grandiflora*, *D. racemosa*, *D. venosa*, and *D. tripetaloides*. The deciduous class, by far the larger in numbers, is but little known in cultivation, and embraces *D. cornuta*, *D. macrantha*, and *D. graminifolia*. Throughout the whole genus the most salient feature of the flower is the dorsal sepal. In prominence, structure, as well as in its great variability it takes the position occupied by the lip in the

* DRAWN FOR THE GARDEN by H. G. MOON, in the Royal Gardens, Kew, July 3, 1890. Lithographed and printed by Guillaume Severeys.

generality of Orchids. The lip itself is comparatively small and inconspicuous, but retains a greater degree of uniformity throughout the different sections than any other part of the flower. All the species have either tubers or tuberous rootstocks. By far the greater proportion of Disas are found in South Africa, but some occur as far north as the Kilimanjaro Mountain and even Abyssinia, whilst three species are found in Madagascar.

D. GRANDIFLORA.—Not only is this species undoubtedly the finest of Disas, but it is regarded by many as occupying the first place amongst all terrestrial Orchids. Owing, however, to some peculiarity of constitution, which causes it to grow and flower with perfect luxuriance in some localities, whilst in others (under what are ostensibly identical conditions) it always remains unsatisfactory, it is very doubtful whether it can ever become universally cultivated. It is certain, nevertheless, that it might be much more generally grown than it is at present. Its culture is so simple where its peculiar climatic requirements are met, and the richness and brilliancy of its flowers so marked, that in places where it succeeds it is always one of the most valued of indoor plants. Before the flowering period, the leaves, which are dark green, lance-shaped, and pointed, are arranged in a dwarf tuft, but on the flower-stem are set at intervals, and are reduced to bracts near the top. The spike is 1 foot to 2 feet high, usually bearing from two to five flowers, but occasionally as many as a dozen. Each bloom is 3 inches to 4 inches across, the lateral sepals, which are the most striking parts of the flower, being a bright carmine-red. The upper sepal is 3 inches long, hooded, and of a deep rose colour veined with carmine. The variety *superba* is larger and even showier. The flower-stems sometimes reach upwards of 3 feet in height, and the larger and more numerous flowers have a more crimson shade. This species is most plentiful on Table Mountain, but it extends to the east and north of that locality. According to Sir John Herschel, it grows on the banks of streams and on the margins of pools of standing water formed by the drainage of the boggy slopes of the mountains. The roots are often immersed and the plants frequently enveloped in the cloud-mists for a week or fortnight together. The temperature occasionally falls below freezing point, and is sometimes as high as 90°. A variety found eastward of Table Mountain has the lateral sepals tinged with orange, and the upper one is rosy purple. Seedlings of this Disa were raised many years ago by the late Dr. Moore, of Glasnevin.

D. RACEMOSA.—Coming next to *D. grandiflora* in beauty, this species may be said to exceed it in general usefulness. It is perfectly happy in situations where that species refuses to grow, and is both easily grown and readily propagated. The habit is the same as that of *D. grandiflora*, although it never attains the size of the finest specimens of that species, neither are its flowers individually so large. They are borne, however, in greater abundance, and I have frequently counted over a dozen flowers on a spike. On the strongest plants the spikes will measure 18 inches in height, the flowers opening in slow succession, and thereby rendering the flowering season of long duration. The sepals are about 1 inch long, the upper one being concave, and the side ones spreading; the colour is a beautiful rose intersected with purplish veins. The petals and lip are small and of a more crimson shade. The species was introduced to Kew in 1887. It is found on the eastern side of Table Mountain, extending from there as far as Grahamstown. It grows in moist, grassy places and on rocks by the side of watercourses, where during the wet season it remains submerged for several weeks. The only material it has to root in is a deposit of decayed vegetable matter, yet it grows so thickly as to form a green carpeting to the stones. It flowers during July and August. Very nearly allied to this species is *D. venosa*. It is distinguished by the back sepal being more angular, and the side sepals more rounded, but the colour is almost the same. It grows on the lower plateaux of Table Mountain,

and has, I believe, been introduced by Mr. J. O'Brien.

D. TRIPETALOIDES.—Although this pretty and distinct little species was discovered over a century ago, it was not until 1889 that it made its appearance in this country, when it was introduced and flowered by Mr. O'Brien. It has thick fleshy roots and narrow, lance-shaped leaves, 3 inches long and arranged in a rosette. The flower-stem is 1 foot or more high, and bears about a score of blooms. These are 1 inch across, white, tinged with pink, and dotted with rosy-purple. The dorsal sepal is helmet-shaped, the base developing a short spur. Although this species is far behind those previously described in showiness, it is nevertheless a pretty and dainty little Orchid, and as it grows and flowers with the greatest freedom under the same treatment as they require, it is well worth growing along with them.

D. MACRANTHA.—The beautiful species known under this name is extremely rare. A coloured plate of it, prepared from a plant which flowered the previous year at Glasnevin, was given in *THE GARDEN* for June 5, 1880. It is also figured in the *Botanical Magazine*, t. 6529, as *D. megaceras*, but it now appears that the proper name is *D. crassicornis*. It grows in Natal and in other parts of Eastern South Africa, and has been found at an elevation of 4500 feet. When in bloom it is upwards of 2 feet high, the spike being erect and of the thickness of one's finger. The flowers are both large and beautiful. The hooded dorsal sepal measures 4 inches from the tip to the end of the spur; it is white, spotted with pale purple, the long remarkable spur being greenish white. The lateral sepals are decurved and the petals are semi-erect, both being white splashed with purple. The lip is small and tongue-shaped. Of the true *D. macrantha* very little appears to be known. It is a name given by Thunberg to a plant of which he has left no authentic specimen, and of which no living example has been found.

D. CORNUTA.—This species is widely distributed in South Africa, occurring on Table Mountain from the base to the summit, and spreading from there as far as Grahamstown. The flower-stem is a foot high and many-flowered, the leaves being lanceolate, pointed, and marked with reddish brown spots at the base. The flowers are an inch or more in depth, scarcely so wide; the dorsal sepal is hooded and covers the petals and column, being of a dull violet-blue with the curving spur green. The side sepals are white, and the lip velvety purple-brown.

D. GRAMINIFOLIA.—This is the famous blue Disa of the Cape, and is one of the most beautiful species. It grows on Table Mountain at 1800 feet to 3000 feet altitude. The leaves are very long and narrow and quite Grass-like. The flower-stem is 1½ feet to 2 feet high, and bears the brilliant blue flowers towards the top, each flower being an inch in diameter. It is perhaps better known under the name of *Herschelia cœlestis*.

From the cultivator's standpoint, Disas resolve themselves into two well-marked groups requiring very different treatment. Those belonging to the evergreen section (like the first three species above mentioned) may all be treated like *D. grandiflora*. From the description given of their habitats, it will be seen that it is essential they should be treated as cool, moisture-loving plants. They may be grown either in frames or in ordinary greenhouses, but always in positions where a free supply of fresh air is passing about them. Although it has been proved that they are capable of withstanding a few degrees of frost, the temperature in winter ought not to fall below 40°. The best time to repot is towards the end of the year, using a compost of fibrous peat and Sphagnum with an addition of fine crocks and charcoal. *D. grandiflora* may be potted fairly firm, but I prefer to have the compost rather loose about the roots of *D. racemosa*. In all these kinds it is certainly a mistake to press the compost hard. They must always be kept

moist even in winter, and during the active growing period from March onwards they should be kept saturated. On the hottest summer days it may be necessary to water three or four times, pouring it on them overhead. The most luxuriant Disas I have seen are grown in Messrs. Backhouse's nursery at York, where they are planted out in an ordinary greenhouse, and where numerous named varieties are grown, differing in shades of colour as well as in the shape of sepals and lip.

However closely these directions may be followed, I am afraid it is unavoidable that there will be failures with *D. grandiflora*. Owing to local peculiarities of climate or water, it is almost impossible to get it to thrive for any length of time in some places. Mr. Owen Thomas, of Chatsworth, one of the most successful growers of this plant, attributes his success in a great measure to the large rainfall and moist atmosphere of his situation, and to the water being soft and draining from the peaty moors. With *D. racemosa* and *D. tripetaloides* the reverse is happily the case, and I advise all those who have failed with *D. grandiflora* to give them a trial. *D. cornuta* may be grown in the same house as the others, but it should be potted in ordinary peat and sand. After flowering it loses its leaves, and should be kept rather dry for some time. *D. graminifolia* and the class to which it belongs also require a compost of ordinary sandy peat. They may be grown in a cool, airy, but not very moist frame, and after growth is finished should be kept perfectly dry until the flower-spikes appear.

W. J. B.

FLOWER GARDEN.

PERENNIALS AND ALPINES FROM SEEDS.

WHEN nearly every operation in the hardy plant department is, by reason of the severe weather, at a standstill, seed sowing may be taken in hand and given the attention it justly deserves, for frequently it happens that insufficient importance is attached to this matter, with the result that many a crop of seed is lost. The first thing to be done will be to carefully overhaul the seeds which have been saved during the year and place them in batches, one of which may be the larger seeded kinds, as Lupines, Hollyhocks, and the like, which may be sown in drills out of doors. Another should be composed of such kinds as experience has shown will be satisfied with ordinary treatment, and a third should be made up of all those rare and small-seeded kinds for which individual treatment is an essential detail. This, of course, reduces my remarks to the last two, so far as present sowing is concerned at least. The second group, or such as are content with ordinary care, should include only those known to germinate quickly, as, for example, the scarlet Geum, *Lychnis fulgens* and *chalcœdonica*, *Heleniums*, *Michaelmas Daisies*, *Cranesbills*, *Campanulas* (such as *latifolia* and *persicifolia* forms), *Gaillardias*, *Cornflowers*, *Tritomas*, *Irises*, hybrid *Potentillas*; all such as these may be sown in the usual way in well-drained pots or boxes of light sandy soil, and be covered with half an inch or less of soil according to the size of the seeds, pressing the soil firmly to produce an even surface. Where only small lots have to be sown, pots are preferable to boxes, and in the case of the rarer kinds boxes should not be employed at all, as, unless made very strong, they frequently decay before the seeds have time to put in an appearance, a fact alone which points to an unusual time elapsing

before germination commences, and, indeed, of some of the most beautiful among rare alpine plants this is very true, and has been the cause of many rare seeds on the very eve of germinating being thrown away, while a more intimate acquaintance with individual species or varieties may have avoided such a sacrifice.

At the present moment, with all the frost and snow of the present winter, the soil should be the first thing to engage attention, and, with this in view, secure some good rich loam, light and sandy preferred, also some half-decayed leaf-soil, and some peat and good sharp grit or sand. If obtainable, some old mortar rubbish will also prove useful. Get some of each of these under cover and free from frost, after which pass each separately through a half-inch sieve. The next thing to be done, and to my mind an important item, is to get the soil in the right condition, that is, sufficiently dry for use and at the same time free of all insect life. To do this effectually, there is nothing to compare with well baking it, a matter best done in the ash-pit beneath the boiler fire, and if thoroughly baked, not only all insect life is destroyed, but weed seeds also, the latter often extremely tiresome in seed pots and pans. This baking process I have adopted for some years past, not only in the case of soil required for seed sowing, but frequently for manure infested by worms, also for soil abounding in wireworm. This process at this season quickly renders the soil fit for use, and if in the baking it becomes dust-dry it is easily moistened again; whereas the manifold advantages arising therefrom must be obvious to all. With the soil thus ready at hand, the work of sowing may be undertaken at will. Some clean 5-inch and 6-inch pots will be requisite (I prefer pots to pans or boxes for choice alpine plants), and if new soak them in the water tank for a few minutes before using them; this will prevent their unduly absorbing moisture from the soil after the seed is sown. Fill them to one-third their depth with clean crocks, and cover these with rough turf or similar material to keep them open and clean. Now take two parts of the loam and one part each of leaf soil and sand and mix together and fill the pots to within an inch of the rim, making it very firm; afterwards pass a portion of the same soil through a fine sieve and put a thin layer on the surface, making all quite level and firm. Such as this will suit a large number of alpine plants as the dwarf Campanulas, dwarf Phloxes, Silenes, Lychnis Lagasce, Aubrietias, Arnebia echioides, the species of Primulas, the rarer Columbines, Drabas, hardy Cyclamen, Dianthus, Linaria, Iberis, Houstonia, and many more; the only difference which I make is in covering the seeds with soil. For instance, such things as Primulas, the finer-seeded Campanulas, herbaceous Lobelias, &c., I never cover with soil at all, but merely place a piece of darkened glass over them, and as signs of life appear gradually inure them to full light. Then, again, for Gentians, Androsaces, crustaceous Saxifrages, and similar things, peat and old mortar rubbish may be added at the rate of one-third the bulk, while for Liliums, peat, loam, and sand in equal parts. The following are among those which take a long time to germinate: Gentians, Anthericums, Chrysobactron Hookeri, Primula nivea, seldom a trustworthy plant from seed into the bargain, Æthionemas, various Liliums, Hellebores of the niger section, Hepaticas, Trollius, Astilbe, Dodecatheons, Cyclamen, Anemone alpina and sulphurea, Asclepias, if not fresh seeds, also Dictamnus, and others of equal importance will frequently produce a plentiful crop after the seed has lain dormant

for quite two years, even when sown directly it is gathered; it will not be safe therefore to throw away any such under the period named. For Hellebores and Hepaticas I prefer sowing in well prepared soil in the open ground, and when sown covering with boards or slates. These latter will stay evaporation and keep weeds in comparative check, besides effectually keeping away intruders, such as dogs and cats. These boards may be lifted from time to time to see if any seedlings are appearing. In the case of choice and small-seeded alpine plants, it is of the greatest importance to keep a uniformly moist surface, and that without the use



The American Aloe (*Agave americana*) in bloom.

of the water-pot or syringe; this is best accomplished by placing the pots in saucers or shallow pans, filling these occasionally with water as required. The soil is thus kept moist by absorption, the supply being easily regulated; the pots should be covered with darkened glass and be placed in a cool spot, and under this treatment the attention necessary even for so prolonged a period will be reduced to a minimum, and is much the simplest and safest method for raising choice seeds with success that I know of. E. J.

Helionopsis umbellata, like its near ally *Helonias*, is one of the most charming early flowering bog plants we possess. It was introduced from Formosa by the Messrs. Veitch about 1884, and flowered for the first time the following year. Its

usual time for blooming is early March and April, and when strong and in a suitable situation it is very effective. The leaves are in rosettes, lance-shaped, with abrupt points; flowers several to a stem, the segments deep rose, with dark blue anthers. It has proved perfectly hardy, and is very easily managed. Our plants for such situations are by no means too plentiful, and a desirable addition like the above should at least receive a trial.—K.

THE AMERICAN ALOE.

(*AGAVE AMERICANA*.)

In this country the American Aloe is generally known only as a quaint-looking exotic, and as such is used for purposes of contrast in the flower garden during the summer months. It grows to a height of from 6 feet to 10 feet, the flower-spike often reaching from 18 feet to 25 feet high. The belief that the plant flowers only once in 100 years is now exploded, as it will bloom according to the treatment it receives at from ten to fifteen years of age. It is indifferent to drought, and is at home in warm and moist climates, as well as in the driest wind-swept regions. The colour of the foliage of the type is glaucous green, but there is a variegated form the margins of the leaves of which are yellow. There is also a variety called *striata* with yellow-striped foliage, and a third variety called *medio-picta*, which has a band of yellow running down the centre of each leaf. This last is perhaps the most beautiful, but all the forms are grand plants for the flower garden in the summer, and for the conservatory during the winter months.

Pinguicula alpina does not appear to be so well known in gardens as its near allies, *P. vulgaris* and *P. grandiflora*. It appears to be still plentiful in bogs in the Isle of Skye and at Roschaugh, in Ross-shire, although I have only seen it twice in cultivation. It seems to be plentiful in a few districts in Switzerland, where it is found in the crevices of dripping rocks rather than in boggy ground, and always in the vicinity of glaciers. Its pretty white flowers, with bright yellow throat and curious, glistening, succulent leaves were always conspicuous, and one could not help remarking how local it was, though plentiful where found. Plenty of water during spring and summer, with protection during winter, when the plants form bulbils, from birds, &c., will be its chief requirements. In winter, however, it will be better if the bulbils are kept comparatively dry as well as protected.—K.

Iberis stylosa is a charming dwarf rock plant barely 2 inches high, but producing such numerous corymbs of pretty rosy purple, sweet-scented flowers as to at once mark it as a desideratum. De Candolle gives it under the name of *Hutchinsia*, and under this name it is also figured in the *Botanical Magazine*. Tenore calls it *Thlaspi stylosum*, but I believe it is a true *Iberis*, closely allied to *Iberis olympica*, and perhaps not distinct from *I. spatulata* as a garden plant. It is a true perennial, though perhaps not a long-lived one, and will be all the better if young plants are raised periodically from seed. To be effective it must be grouped, which will not be found difficult, seeing how easily it may be raised from seed, which is produced in abundance. A dry place on the rockery will be found the best position. Free sandy loam to which has been added a quantity of fine leaf soil suits it well.—K.

Houstonia coerulesa (Bluet) is a general favourite with all who grow alpine plants. Few plants of so humble growth are so much admired on our rockeries during the summer months. Innocence, dwarf pink, and Venus' Pride are local American names for this pretty gem, and under the latter it is still known in the Washington district. In Philadelphia it is called Quaker's Bonnet, and in many other States American Daisy. The Hous-

tonia is most conspicuous in English gardens by its long flowering season; indeed the difficulty is not, as in many cases, to get it to flower, but to get it to stop flowering. It rarely does so, however, until the plant is so weakened as to be almost useless the following season unless properly handled. It should be taken in hand about the end of August, divided into small pieces, and planted in rich vegetable soil. By next season these will have made good tufts, and will go on flowering as vigorously as ever. The form in gardens is milky white, but it has been said that a real blue exists; if so, it would be a great acquisition.—K.

Iris chinensis, or, to follow Professor M. Foster in his interesting article in *THE GARDEN*, Vol. XXVIII (August 1, 1885) *Iris fimbriata*, may perhaps be worth one more trial before all idea of flowering it in the open be abandoned. It certainly flowered in the open with me last May, having been planted out in October, 1889. Now, though the winter was a mild one, we all remember the 20° of frost in March, and as the flower-buds must then have been in a forward state, it looks to me as if, given the power to form the flower germ, we may expect flowers in spite of ordinary winter frosts. The problem then that remains is, can we find a locality and treatment sufficiently favourable to induce the formation of the flower germ during our feeble English summer? Seeing that the flower spike out of doors was superior to anything I could attain under glass, this is, I think, worth a good trial, the result of which, if there be any result, I hope to report later on.—H. B. ROWAN, *Colchester*.

Heuchera sanguinea.—Certainly the finest plant in this genus, and one of the most beautiful introductions of recent years. It was collected in the porphyry mountains of Llanos by Dr. Murray, who is said to have brought the roots home in an open basket. All the plants bloomed the first season. Great doubts were at first expressed as to the vivid descriptions given by the introducer, but these were dispelled as soon as the plants were strong enough to be seen at their best. As a rock or border plant, however, it still wants something, and rarely flowers so freely as when grown in pots. It seems to require breaking up and replanting every year, and this treatment I have found answer admirably with the plants under my care. It seeds freely, but the only gain from raising these was much more robust specimens, with larger flowers, generally of a washy and altogether undesirable colour. By keeping on selecting, however, something may be gained, if only a taller and more robust variety with the brilliant flowers of the type.—K.

Jankaea Heldreichii, lately introduced by the indefatigable Max Leichtlin, of Baden-Baden, to whom plant lovers generally owe so much, has proved of equal hardness with its near ally, *Haberlea rhodopensis*. It is altogether a prettier plant, the silky leaves, in dense rosettes, resembling nothing so much as those of *Salvia argentea*. In a young state the leaves are entire, their shape hardly discernible owing to the long silky hairs; the mature ones are, however, crenated, as in the *Haberlea*. It is much better planted out, as in pots in a pit our plants are losing much of their character, while those on the open rockery are just as beautiful as when first introduced. The flowers are violet-purple, one or two being produced on each stem. Collecting it appears to have been a very difficult matter, and was only successful after much danger.—K.

Trees retaining their foliage.—A number of young Elms in front of my house still wear the whole of their leaves, although these, of course, are withered. The same is the case with most of my Rose trees and with a large Quince. As to the Peaches (outdoor), I send you a small spray, which shows the same condition of things. Is not this retention of foliage unusual? As to the Elms, their vigour last summer and the dark colour of their leaves were very noticeable. I attributed this to the liberal supplies of sewage with which they were regaled. The dietary of the Peaches, Quince, and Roses was similarly enriched. It should be

added that the situation here is a most exposed one—the windswept apex of a high ridge. I do not know what extreme of cold we have had, as my minimum thermometer does not register lower than 8°—24° below freezing; but on coming here from London the other day after some weeks' absence, I found that the index had gone down to this point on some occasion or other.—T. W. ERLE, *Millhall, Cuckfield, Haywards Heath, Dec. 23, 1890.*

TREES AND SHRUBS.

THE VARIEGATED DOUGLAS FIR.

(PSEUDO-TSUGA DOUGLASII STAIRI.)

THERE are so many worthless so-called variegated Conifers that one requires to be on his guard and not bring prominently into notice what would, perhaps, be far more worthy of its place on the rubbish heap than to be planted for any distinct ornamental value it might possess. That there are dozens of variegated Conifers of no value whatever—neither being ornamental nor constant in colouring—I had some time ago a good opportunity of finding out on an estate where all the forms, good and bad, were collected together.

The Douglas Fir above referred to is certainly a tree that the raiser may well feel proud of, for the variegation is constant and well diffused, while what is of as much value, the constitution of the tree does not seem to be in the least impaired, and that, unfortunately, cannot be said of every variegated Conifer. Too often variegation is very inconstant and blotchy, while in other cases decline of the tree's constitution seems to have brought about a sickly yellow tint amongst the green, which is erroneously styled variegation. Not so with the Douglasii in question, for out of a number of specimens examined the rate of growth quite equalled the parent type under exactly similar conditions. It is pleasing indeed to see the branch tips of this Spruce in spring, they resembling, particularly when viewed a short distance away, those of the variegated *Acer Negundo*. Generally speaking, the trees are almost of a light yellow tint in spring, the young growths, for a time at least, quite hiding the last year's darker tints.

There are many uses to which such a tree may be put, the rich colour offering a marked contrast to almost any other Conifer that could be named. Like the parent tree, this handsome form does best in a low-lying and rather sheltered situation, and where the brittle leading shoot is preserved from rude blasts and heavy winds. The worst fault I have to find with the Douglas Spruce is this aptness to get broken over during stormy weather. I have tried it in all positions, but only to find that in order to develop good specimens shelter from high winds is of first importance. Few soils come amiss to it, even rough gravel with but a foot or two of loam atop producing large healthy trees; but alluvial deposit suits it well also, as a number of stately specimens along the banks of the Ogwen, in North Wales, clearly point out. The chances are that what the parent tree does best in will also suit its child; so by treating this somewhat rare, but distinct and handsome variety as we would the normal form, there need be little fear of its succeeding. When better known there is sure to be a good future in store for this variegated Douglas Fir, and that it well deserves it I unhesitatingly admit. A. D. WEBSTER.

Dwarf Bamboos.—I have to thank Mr. T. Smith for replying to my question and assuring me that there is such a Bamboo as *B. nana* otherwise than one to which the name could not possibly apply as a synonym or anything else, namely, *B. viridiglaucescens*. The description given of *B. tessellata* seems to accord with one of which we have several tufts, but whose name I did not know. Its great defect, however, is what Mr. Smith calls its peculiarity, in the withering and dying of a broad margin all round the leaf. The effect is hardly equal to that of a variegation, as in a variegation there is always a semblance of life and the colours

are often striking and effective as in the forms of *B. Fortunei*, but in this Bamboo, if ours is *B. tessellata*, the leaves look as if they had been scorched by heat or injured by frost and cold. It would appear to be a kind that we can easily dispense with, especially as good dwarf kinds seem on the increase. Perhaps Mr. Smith would oblige me with a short description of the new *B. palmata*, which he praises highly. I have not seen it, and am anxious to know whether it in any way resembles the kind we call *B. Ragamowski*, which has very large, long, broad leaves, and spreads quickly by means of stolons, as *B. palmata* is said to have done during the past season. There is no doubt that both dwarf and tall Bamboos will be more extensively planted in the near future, and it is to be hoped according to Mr. Smith's idea, *i.e.*, of one kind in a group.—A. H.

PINUS MONTANA.

THE various Mountain Pines known in gardens by the specific names of *Pumilio*, *uncinata*, *Mugho*, and their varieties are classed in Messrs. Veitch's manual of the Coniferae under the collective title of *Pinus montana*, and that is perhaps the better plan in dealing with this group, as these so-called species and varieties are much alike, and a considerable amount of variation is to be found among seedlings, even when they are the produce of a single plant. The Mountain Pine is a native of the Alps, Pyrenees, and Carpathian districts, and in the higher parts it only attains the dimensions of a low spreading shrub, while in the lower districts specimens of it reach a larger size. In this country its habit is usually that of a large, spreading and much branched bush, with short, stiff, very dark green foliage, thickly set on the branches, while some individuals behave rather peculiarly by pushing out a few of the main branches (that are produced from the lower part of the plant) almost horizontally for some little distance, when they then take an upward direction. A very valuable feature of the Mountain Pine is the rich tint of its ample foliage, which colour is maintained despite severe weather in the winter or sharp frosts in spring, which last are so injurious to many Conifers. However raised or exposed the spot this Fir is quite at home, and where the soil is shallow the roots spread for a considerable distance. In a fairly moist spot it makes more rapid progress than where the soil is dry, but even on gravel it will, though of slower growth, still retain its deep rich colour. As the Mountain Pine is so accommodating, there are various purposes for which it may be employed; for instance, it has been planted as a shelter to game, its dense spreading habit being for this purpose an advantage. Next in the larger arrangements of rockwork the dwarf forms may be advantageously used, while the strong ones supply one of the very best of Conifers for isolating on a small lawn. Perhaps, however, the most effective way to treat these dwarf Pines where space is available, such as on a medium-sized lawn, is to form a group of them planted near enough together to allow each specimen to assume its individual character. In this way the dwarf and more branching kinds can be employed for the outside or edging of the group. The cones of the Mountain Pine show as great an amount of variation as is to be found in its habit of growth, for some are ovoid in shape, while others have the scales on the exposed side very much lengthened and recurved, thus forming a somewhat hedgehog-shaped cone. The plants in which this last character is very pronounced are usually considered to be either *Pinus Mugho* or *uncinata*, while the more regular shaped cone belongs to *P. Pumilio* or *montana*, but, as above mentioned, these Pines vary greatly. T.

Distinct varieties of the Scotch Fir.

There are many well marked forms of the Scotch Fir, there being, in fact, almost as great a divergence from the normal form as in the Norway Spruce (*Abies excelsa*), another of the commonest European Conifers. Regarded from an economic standpoint, some forms (of those that attain tree-

like dimensions) are greatly superior to others, one of the best being that known as the Highland Pine (*horizontalis*), which, especially for bleak and exposed positions, is preferred to that obtained from the woods of Central Europe. Considerable individual variation is, however, to be found among seedlings from whatever source they have been obtained, and even if the product of the same tree some are as timber trees better than others. Among those of no economic value, but as ornamental or curious Conifers, must be included the following: The Golden Scotch Fir, now at its best, is a close compact, yet bushy form, whose foliage towards the end of the autumn assumes a deep golden tint, which is retained throughout the winter, till on the return of spring the specimen returns to its normal green hue, and remains in that state till autumn again sets in. Another variety (*argentea*) is also noteworthy from the colour of its foliage. In this the leaves are of a silvery grey tint, and very bright soon after expansion, so that it is during the summer very effective. The Silver Scotch Fir is far more vigorous than the golden-leaved form, and appears likely to attain the dimensions of a good-sized tree. In the variety *pendula* the branches droop more or less, while a direct contrast to this is furnished by *fastigiata*, whose branches are almost as closely adpressed to the trunk as in the case of the Lombardy Poplar. It is certainly a very distinct and striking form of the Scotch Fir. Another variety (*globosa*) forms a dark green globular bush about a yard high, which ranks with the dwarf variety of the Weymouth Pine (*Pinus Strobis umbraculifera*) among the smallest of the true Pines.—T.

SHRUBBY WILLOWS.

THESE are of great value in ornamental planting, although unless in well-arranged grounds they are seldom seen, their worth being but little understood. Planted in clumps here and there amongst masses of Evergreens, several of the species of shrubby Willows are almost as effective as the much-sought-after kinds of Dogwood, and of far greater value, as they succeed where the latter will soon die out. Be the ground damp or dry, low-lying or of great altitude, the soil rich or poor, the Willows rarely refuse to grow. Then there is such a diversity in size, shape, colouring of leaf, and general habit of the plants, that one has only to choose what is most desirable and plant accordingly. They will grow where the ground is hardly passable from damp and stagnant moisture, in positions in which most other trees refuse to grow, except the Alder and deciduous Cypress, as also where fully exposed on a jutting eminence to the most cutting blasts. With all these good qualities, one is apt to wonder why some of the finer and more distinct kinds of Willows are not more generally planted.

THE BAY WILLOW (*Salix pentandra*) is a most valuable low-growing tree with broad, shining foliage of good substance. It may be kept to almost any required dimensions by pruning, and a clump or mass of it beside a lake or pond has a most telling effect, particularly against a background of tall-growing Evergreens.

SALIX LUCIDA is another handsome small-growing form, that when in full leaf and viewed from a distance can hardly be distinguished from some of the Laurels, so ample are the thick leathery leaves. It does well in masses of, say, five plants in each, and is all the better for being allowed freedom of growth, the fine easy form being then shown off to perfection. Where the ground slopes upwards from the road these Willows have a great advantage, much of their beauty being hidden by planting in low-lying ground or where the eye only catches a glimpse of their upper halves.

THE GOLDEN WILLOW (*S. alba vitellina*) is one of the handsomest of deciduous, low-growing trees. What a wealth of tint it produces can only be fully appreciated by paying attention to the tree when lit up by a glint of sunshine in October or November. For planting in clumps here and there amongst other low-growing trees or large shrubs it has certainly no equal amongst hardy deciduous subjects, the beautiful golden hue of the bark, easy swaying nature of the branches, and pleasing contour being admired by all. It is as hardy as a Privet, and, like that plant, too, will grow almost as well in old brick rubbish as in the best of soil.

Then half its value lies in the fact of its being quite as interesting and beautiful when deprived of its foliage as when in full leaf in the month of May. More than once have I urged planters through THE GARDEN columns to pay attention to this golden-barked tree, for it undoubtedly deserves far more attention than it has ever yet received.

THE PURPLE OSIER OR WILLOW (*S. purpurea*) is a small, neat-growing, though somewhat stiffly outlined shrub, and one that grows freely anywhere. The bark of this native species is purple or dull red, but effective and lasting.

S. FUSCATA is another shrubby or small-growing Weeping Willow, and a most valuable plant for associating with any of the former. It is of American origin, and is now largely used grafted at 3 feet or 4 feet from the ground, as a weeping form being peculiarly graceful, and in early spring one of the prettiest of the large family to which it belongs.

Another well-known pendulous variety, also of American origin, is the Fountain Willow, which forms a neat specimen, particularly when worked standard high. Being of a trailing habit when left to Nature the branches are somewhat difficult to manage, shooting out here and there in a rather uncouth manner. Frequent and slight pruning of the longer and more straggling branches will prevent this.

The above list of shrubby Willows would be incomplete without two little gems that are grown as rock plants, viz., *S. reticulata* and *S. Sadleri*. Rarely rising more than a couple of inches from the ground level, *S. reticulata* quite charms one with its prettily veined or reticulated leaves and neat prostrate habit; while *Sadleri*'s form is of taller growth with lighter foliage, a more lax habit of growth, and is withal a valuable plant for rock-gardening.

A. D. WEBSTER.

Biota elegantissima.—This form of the Chinese *Arbor-vitæ*, which is during the summer of a rich golden hue, assumes a reddish-brown tint in the winter. Many other Conifers also change their colour during the winter, notably *Biota meddensis*, *Cryptomeria elegans*, *Thuja Vervaeana* and other varieties of the American *Arbor-vitæ*, the Red Cedar (*Juniperus virginiana*), *Retinospora squarrosa*, *R. ericoides* and *R. dubia*.—T.

Pinus tuberculata.—This is a native of California, the home of many Firs, several of which are hardy in this country, while, on the other hand, many are tender. Among the hardy or at least fairly hardy species must be included *Pinus tuberculata*, which forms a very distinct specimen, especially suitable for planting where space is limited. It dislikes cold and draughty spots, and is consequently seen to the best advantage where sheltered from the full force of the northerly and easterly winds, and in a well-drained soil. It has when not more than 10 feet or 12 feet high the appearance of a mature tree, usually forming a freely-branched specimen, clothed with rather long bright (not dark) green foliage, which as the tree becomes older is clustered towards the ends of the branches. An appearance of age is when young imparted to this Pine by the freedom with which cones are produced even on small plants. These cones, which are at first borne in clusters on the main stem, are about 5 inches or 6 inches long and 2 inches in diameter. They are straight on the inner side and curved on the outer, this latter feature being the result of the scales, especially towards the base, becoming very prominent, and deeply divided from each other; hence giving rise to the specific name of *tuberculata*. After a time the cones are borne on the principal branches as well as on the main stem, and as they never drop a singular effect is produced. Not only do they remain permanently attached to the tree, but for years the scales do not open, and thus the seeds are retained. *P. tuberculata* was first discovered by Dr. Coulter along the coast-line, but was introduced into England, in 1847, by the Royal Horticultural Society, through their collector Hartweg, during his last journey to America. At the same time he discovered *Pinus muricata*, another of these medium-growing Firs. *P. tuberculata* is in a wild state said to be one of the most restricted as to range of all the Californian Coniferae, but where found at all it is usually quite plentiful. The peculiarity of retaining its cones unopened has been referred to as an admirable adaptation of the tree to

the fire-swept regions where alone it is found. After a grove has been destroyed, the ground is at once sown lavishly with all the seeds ripened during its whole life, and which seem to have been held in store in case of calamity. Then a young grove immediately springs up out of the ashes.—T.

MARKET PLANTS.

THERE are many large market nurseries in the vicinity of London, and one of the most rising is that of Mr. G. May, whose nursery at Upper Teddington reflects the increasing love for plants and flowers that has shown itself within the past few years. It is chiefly, we might almost say wholly, for cut flowers, and the fifty-two houses, several of them 128 feet long, by 21 feet wide, are filled with comparatively few things, but all, of course, in the greatest demand at the present season. Usually at this season there is a wealth of bloom, but the recent foggy and dull weather has had the effect of checking the expansion of the buds, and the fog effectually kills the opening flowers. The effect on the Callas was disastrous, but most flowers suffer from the sulphurous fog that makes London and its suburbs a place to avoid in the closing days of the year.

Orchids, perhaps, are most quickly touched, so much so, that in the nurseries around London it is impossible to see a good display for this reason alone. Against such odds, at present insurmountable, the market grower and the gardener have to fight, but it hurts Mr. May, perhaps, much less than many other growers, as this nursery might be almost called a Fern nursery, though market flowers in general are not neglected. The nursery is divided in half by a public road, and in the newer division there are several houses, each about 108 feet in length, and of proportionate width, filled entirely with Maiden-hair Fern (*Adiantum cuneatum*), whilst in the older portion there are two immense structures filled with nothing else, besides *Stephanotis* planted out to run over the rafters. Many thousands of specimens are here to be seen, and in the spring the effect of the soft green young fronds is delightful, a feature worth journeying many miles to see in its fullest beauty. It is a small forest of Ferns, seedlings springing up wherever there is a grain of soil to support life, and covering the bare earth beneath the stages with a glossy green growth. It is only from such a remarkable collection of *Adiantum cuneatum* that one can judge of the demand that exists for Maiden-hair Fern, and this is simply of one kind. No other is grown, save a few *A. farleyense*. New varieties sent out with big descriptions are ignored, and the old *cuneatum* still remains the most useful of all Ferns for cutting, by reason not only of its lasting properties when cut, but also for the beauty of its rich green fronds. As everything is for cutting, there are no specimens, of course, what the gardener desires. The houses are heated to a high degree, and the Callas are grown three in a pot, in rich soil, and each house of them contains about 2500 plants. When the majority are in full bloom, i.e., just before a hard cutting takes place, there are few finer displays of vigorous growth, both of leaves and flowers. Very few were in bloom on the eve of Christmas; the fog had done its work; and the absence of sun for practically a month prevented the development of the flowers. Little can be accomplished in market growing without sunshine, even Carnations, that open best under adverse influences, giving much below their usual supply of bloom. The "*Malmaison*," as the big-bloomed *Souvenir de la Malmaison* is called, suffers badly; but the large house filled with nothing but this fashionable flower

promises well for a display later in the season. Each house is devoted to one thing, so that it can be treated in temperature and cultivation according to the time it is wanted in bloom and its general requirements. There are several houses of the Tree Carnations, and this is a plant that is now grown extensively. Only a few sorts have a place, and those mostly with long wiry stalks that can be readily cut. A good market Carnation is one of bold distinct colour, free growth, and sending up on long stalks a wealth of flowers, each of fair size (if sweetly scented so much the better) and non-splitting in the pod. A flower that bursts its calyx, as many of the types that are to be seen on the exhibition board tied round with matting to keep the dangling petals in place, is valueless. The varieties are the old *A. Alegatière*, *Miss Joliffe*, one of the most popular of all, compact in habit, dwarf, and providing a free supply of rich salmon, neatly shaped, and non-splitting flowers; *La Belle*, white, one of the freest of all; and *Pride of Penshurst*, a good yellow, amongst the self tree varieties. The old *Clove Carnation* is a favourite with all, and the desire is to obtain flowers of the same rich colour and fragrance at a season when it is absent. Mr. May has, we think, an exceptionally useful kind in *Uriah Pike*, an ugly name for such a charming thing, but the variety itself is a distinct gain. The habit is strong, similar to that of the old *Clove*, compact, and the flowers appear freely on erect, strong stems. The colour is rich clove-crimson, the scent also distinctly clove, the petals broad, and the calyx non-splitting. Even in such weather as we have recently experienced there was a good show of well-formed flowers.

Niphetos Rose is one of the stock varieties. More flowers are sent into market of this kind than of any other; and the many hundreds of plants of it, both planted out and in pots at Teddington, testify to the popularity of the drooping blooms; the pink-coloured *Catherine Mermet* is also cultivated largely. Then there are large batches of *Lilium Harrisii* and *L. candidum*, large bushes of *Gardenias* planted out, several ranges of pits filled with Spanish *Iris* for forcing, *Lily of the Valley*, and *Tuberoses*. The finest feature at present is the house of *Eucharis amazonica*. We have never seen a finer display, the plants large, in the richest health, and each carrying about five spikes of flower. Two dozen a day have been cut from this house for the last few weeks, and even just before Christmas it was a snowy mass of bloom. The specimens, for such they can be truly called, are seldom disturbed, and there is very little trouble from mite. Next to this splendid house is another of the same variety to follow on, the spikes just throwing up, and next to this is yet another to form a succession.

This Christmas season has been marked by a great dearth of flowers, as shown not only by a paucity of bloom in plant houses, but by the condition of the Christmas flower market. It is not only due, of course, to the absence of sun and cold, which have occasioned the use of much firing, but also to the fogs that throughout December destroyed all tender blossoms. This is a great and growing evil, so far without remedy. To all men it is hurtful, but to few so severely, financially speaking, as the grower of flowers for market, who has now to contend not only with home competition, but the supplies from the Scilly Isles and the south of France.

—The writer of the article on the "Christmas Flower Market" in a recent issue of *THE GARDEN* says that prices ruled high, but qualifies this statement by adding that they were scarcely high enough to prove remunerative in such an expensive

season as the present. *Chrysanthemums* made from 2s. per dozen bunches; *Roses*, 1s. 6d. per dozen; *Callas*, 8d. each. These are not high, but almost unprecedentedly low, prices, and were they to rule for a season or two, would stop the production of flowers for market altogether, for they do not leave the least margin of profit, but, on the contrary, growers must sustain a loss. The average price for *Chrysanthemums* in the Christmas week is about 5s. per dozen bunches; last year I made 6s. for same quality, for which this year I only got 2s. 6d. *Roses* should have made from 3s. to 4s. per dozen, and *Callas* from 9s. to 18s. per dozen blooms. Christmas and Easter are the seasons of the *Calla* grower, and if he does not make good prices then, there is but little chance of his doing so, for this flower is not so much in request throughout the winter as was formerly the case. It is easy to realise how great have been the labour and expense attending the pushing along of a house of *Callas* during this severe wintry weather, and the fact that there were few blooms in the market shows how difficult it has been to get them. The blooming season is thus thrown back to a time when there is no great demand for the great bulk of *Callas*. *Callas* intended for Christmas cannot well come in before February, especially if this weather lasts a week or two longer. Although *Chrysanthemums* only require to be kept from frost, it takes more fuel than many would imagine to bring safely through a month of hard frost a quantity of these useful flowers. I have not found the cut flower trade at all brisk through the early winter months, and possibly this might in any case have been a rather dull Christmas, but there can be no doubt as to the disastrous influence of the weather on the London markets. On the Saturday previous to Christmas, trade was fairly good, and looked promising for the Christmas week. But the severe frost on the 21st, and which continued all the following day, spoilt everything. It simply paralysed the flower trade.—J. C. B.

MARKET GARDEN NOTES.

CHRYSANTHEMUMS FOR CUT BLOOMS.—Prices for cut blooms have this year ranged very low. At the latter end of November not more than 2d. per dozen blooms could be got for good samples, and in the middle of the following month the same quantity made but 5d. per dozen; whereas last year they were making more than double that amount. This great difference in price may in a great measure be due to a sluggish demand, but I fancy that the good prices of last year have induced growers generally to increase the number of plants, and this would, of course, alone account for a diminution in price. The state of the weather has at all times an influence on trade, and for many years we have not experienced so much frost and fog in December as during the last month. With the thermometer below freezing point throughout the day for nearly a week there is naturally not the inducement to purchase flowers as in milder, open weather. To make matters worse, it has been both difficult and expensive to keep late blooms in good condition. Constantly firing for three weeks or more to keep out hard frost parches the air and causes the flowers to wilt before their time. Growers have, therefore, been placed in a dilemma; either the blooms must be cut and sold at a low price or be kept until better prices obtain at the risk of losing the freshness and consequently much of the marketable value of the flowers. White is not nearly so much in request as a year or two ago, being in demand principally for church decorations. Bright tints now are most popular, especially yellow, on which there has been a decided run this year, and the various shades of bronze and crimson. A very favourite *Chrysanthemum* with the London growers just now is *Source d'Or*, and it has so many good qualities that it is likely for years to retain its position as one of the leading market kinds. It blooms with much freedom, and the flowers are of that peculiar shade now much admired, and that is not too plentiful among *Chrysanthemums*. However fine any particular variety may be, it is of no value to

the market grower unless it has a vigorous constitution and produces flowers with profusion.

BOUVARDIAS FOR CUT BLOOM.—I am assured by those who should know that *Bouvardias* pay much better now to grow for cut bloom than to sell in pots. There are times when pot plants are not much in demand, but cut bloom can always be sold at a certain price. It frequently happens that a number of plants intended to be disposed in pots cannot be got rid of, and this would be a dead loss were it not that the flowers can always be bunched and sold off at some price. Under the best treatment *Bouvardias* will produce more than one crop of bloom in the year, and if they can be induced to do so, they are undoubtedly profitable. I am acquainted with a grower who has taken three crops of bloom from the same plants in the year. They bloomed the first time in the winter; they were given a dose of artificial manure, pushed along in a tolerably high temperature, and came into flower again in May. Then they had a rest, were cut back, and when they started into growth they were liberally manured. They made a very strong growth, and produced a quantity of fine heads of bloom the following autumn. The best prices for *Bouvardia* bloom are, of course, made in the dead of winter when flowers are always scarcest. In early autumn when there is an abundance of *Chrysanthemums*, *Bouvardias* are not much in request, and later on in spring there are plenty of *Roses* and other things for buyers to choose from. The exact time to pinch back for winter blooms is an important matter. Plants that are allowed to grow away naturally will come into bloom long before they are wanted. If stopped too early the best markets will be missed, and by stopping for the last time a week or ten days too late, there is a danger of the trusses not forming and they are sure to be wanting in quality. From the beginning to the middle of August is the period which may be safely selected for stopping for midwinter bloom. The bloom-buds will then be showing in October, and in a genial temperature they will be expanding in December, just when prices have an upward tendency.

MUSHROOMS.—A London market grower is now cutting *Mushrooms* that are making 1s. 6d. per lb., and which are produced in a very simple manner. Having several houses not in use during the winter months, he has utilised the space for *Mushroom* growing. The soil was taken out 2 feet deep and filled up with spent hops, on which the beds were made. They came into bearing a month or more ago, and are yielding all through this severe weather an abundance of good *Mushrooms*. The beds being under cover and heat being turned on to the houses, the growth of the *Mushrooms* has never had a check. There are doubtless plenty of places where they might be grown in the same way, and nothing can pay better. J. C. B.

Judging cards.—In *THE GARDEN* of Dec. 20 (p. 580), an illustration of a card sent by Mr. Cocker is meant to give to exhibitors "the why and the wherefore" of judges. The idea is good; but with regard to cut *Roses* would, I venture to assert, not prove to be thoroughly satisfactory. The comparative standard of *Rose* blooms at the time they are judged and at the period when viewed and examined by the public is sometimes reversed; very often, in fact, with *Chrysanthemums* and many other cut flowers. Mr. Cocker's card of individual merit would, I imagine, be interesting and instructive. How often on a blazing sunny day, or on a close muggy one, have *Roses*, rather wanting in substance, appeared (an hour or so after the awards have been made) thin, open, ragged, and forlorn, and yet at the time of judgment gained perhaps a high position in the prize list; whereas other boxes in competition have improved under the same conditions of heat and atmosphere. I well remember judging the local classes with Mr. George Paul and Mr. G. Prince at Wirral some years ago. A box of six came in at the last moment and it gained the first prize. After lunch, on going round the show, I unfortunately stopped opposite the place where this class was

staged, and still more unfortunately was wearing my judge's badge. "Were you one of the judges in this class, sir?" "Yes," I replied. "Then how came the first prize to be given to these?" my questioner retorted. Alas! all six of the blooms with bent necks and shrivelling petals proved that there was no water in the tubes. In fact, on examination, there were no tubes at all, but only little holes in the hollow inclined plane on which the blooms were staged. How about Mr. Cocker's card in such a case? And, as a matter of fact, surely such a card would be useful and instructive chiefly to those who were more or less tyros. Very often judges of Roses know that the second or third prize boxes will improve, while the first will go off; but our orders are to judge the blooms as seen when judged. I have no wish to throw cold water on Mr. Cocker's proposal—in certain cases it could be carried out advantageously, but in others prove misleading.—J. A. W.

THE WEATHER IN EAST ANGLIA.

POSSIBLY this last experience may prove the worst that the year 1890 has brought to horticulturists. The year has been one of special trial and uncertainty to all, of certain and heavy loss to many. And it has closed in fogs, frosts, and snow, with, in fact, most of the severities of a real old-fashioned winter. Throughout large districts of East Anglia we have recently had a month or more of wintry weather varying from 10° of frost to close upon zero, and in some localities close by rivers, zero or more is reported to have been reached. This is a serious matter under the most favourable conditions. But unfortunately the conditions this year have not been favourable to vegetation. The preceding season of growth was late. The early frosts caught fruit trees and Roses, and all other vegetation growing instead of resting. The result in too many cases was that the leaves and tender shootlets were shrivelled up as if fire had passed over them.

It may seem a small matter how or in what state the leaves doomed to fall so soon, in any case, fall. But it is not so by any means; for ripe leaves mean mature buds under their axils, and likewise hardy wood, that is wood that can bear with impunity from 20° to 25° of frost. Beyond that amount it would be an enormous risk to expose the majority of our fruit trees, Roses, and other useful and ornamental occupants of our gardens and landscapes. But immature, unfurnished growths and the late autumn may, must reduce by 10° or 15° the so-called hardiness of plants. If this be so, and it is, the outlook for a full toll of fruit and flowers from our gardens and orchards in 1891 is far from cheering. Generally our springs make or mar our fruit crops. To that very certain, though as yet contingent, risk we have already to add the certain and serious frost-bites of December, 1890. Under ordinary conditions even these might have done but little serious damage. But the results on green wood must prove serious, and, presuming that the wood escapes frost-bites and consequent canker and disease, the green wood can yield little or no fruit. The ratio of greenness when the early frosts first hit must prove the measure of its sterility. However genial or fostering the spring may prove, even spring showers and sunshine are powerless to fetch blossom or fruit out of the unfinished immature buds of the preceding autumn. And so each time and season must need do their own work in horticulture if the fruit and flower baskets are to be filled throughout the year.

Neither are we yet—December 23—out of the wood—that is, through the winter. And next to the severity of frosts, their durability is the most telling factor in their power of destruction. Under a persistent succession of blows from the frost hammer, the plants seem to lose "heart and hope"—in a similar way that the hardest stones are worn through by continuous droppings—until health and even life succumb to the reign of cold.

But let us hope for better things for 1891. Already we have had more than enough of old-fashioned winters before Christmas, with their sweeping severities. What more probable than that the new year will sweep them all away. It may also reveal the fact that the area of immaturity was narrower and less than was feared, and that our ripened fruit trees, bushes, Roses, and other plants have held their well-filled garner of embryo fruitfulness and beauty in safety against the cold, and in due time will gladden and enrich horticulturists with their full-grown products, and so save us from the misery and loss of a third year of leanness.

D. T. F.

NOTES OF THE WEEK.

Daffodil Countess of Annesley.—Herewith I send for your inspection some flowers of this fine early-flowering trumpet Daffodil. The bulbs were potted up in September last, and removed early in November to one of the plant houses having a night temperature of from 40° to 45°. It may not be generally known that this fine, vigorous-growing Daffodil can be had in bloom with very little forcing at Christmas-time.—G. RYAN, *Castlewellan*.

National Chrysanthemum Society.—The midwinter exhibition of this society is announced to take place at the Royal Aquarium, Westminster, on January 7 and 8. How far the wintry weather has operated in the way of keeping or otherwise, late-blooming Chrysanthemums will be demonstrated on this occasion. It is to be earnestly desired that all growers of the flower will co-operate to make this exhibition as successful as possible.

Severe weather.—Twenty-seven degrees of frost were registered here on Monday morning, December 22, by one of Negretti and Zambra's standard instruments on wood frame at 4 feet from the ground, accompanied by a thick heavy rime, always so trying to vegetation. The thermometer did not indicate less than 20° of frost all that day. Six inches of snow lie on the ground—the year's rainfall to date, 19.50 inches, being over 8 inches below the average for the past nine years.—W. CRUMP, *Madresfield*.

Confusing names.—In the current number of the *Revue Horticole* a coloured plate is given of a new Rose named *La France* of 1889, obtained by M. Moreau-Robert, *Chemin de la Treille à Angers*. It is a seedling from the variety *Marie Henriette*, which in 1882 was crossed with *La France*. It appears a bold, showy flower, the colour deep crimson-red, and from the description is strongly scented, but not objectionably so. But why call it *La France* of 1889? It is unlike that famous variety, and the similarity of the two names must produce confusion. There is no dearth of simple expressive names for flowers.

Cyclamens at St. Margaret's.—One of the most successful growers of Cyclamens is Mr. J. May, *Gordon Nursery, Isleworth*, a few minutes' walk from St. Margaret's Station. He cultivates practically nothing but Cyclamens, and hundreds of plants, arranged in the low-pitched houses, show the remarkable strides that have been made with the flower. The old type was straggling, the flowers thin and small; now the plants are compact, broad in leafage, and produce strong bold flowers, displaying an interesting, if as yet limited, range of colour. The rose-coloured variety, deepening at the base, is delightful; then we have rich crimson, almost blood colour, blush, and shades of pink, but the finest of all is the pure white, which is an exceptionally handsome flower. It is large, well shaped, and of the purest white, in some instances the petals increasing so as to make a double bloom, but not "double" as if deformed. It is distinctly beautiful, and longer lasting for this greater substance and vigour. A group of this in one of the houses was as fine as anything we have seen in the plant way this Christmas, in spite of the fog and absence of sun. Splendid masses of leafage are produced, the plants, grown in 4½-inch pots and crowded with short sturdy stems, being much more striking than those that are frequently seen in 6-inch pots. In such an array as this there is, of course, much variation in the leafage, and few plants differ so much in this respect as the Cyclamen. Sometimes it is notched at the edge, and heart-shaped or broad, leathery, and wholly

deep green. One was distinctly variegated, every leaf being of a decided greenish-yellow, not displeasing, but novel, and in its way pretty. One fair-sized plant carried a dozen flowers of perfect shape and remarkable size. As the plants are all seedlings, of course many variations will occur, but the great point is to guard against imparting ashy tints to the purples and roses; it gives a deadness to the bloom by no means pleasing. Bright colours, distinct, decided, and telling are what Mr. May aims at, together with freedom of bloom and robustness, both in constitution and stem. These qualities he has obtained, and we look for many good things amongst the hundreds of little seedlings that are to follow those now in bloom. The seed is sown in August, and it takes fifteen months to get a good plant. A cool temperature is given and the usual routine followed until the buds show, when they are put in a warm house to bring up quickly and evenly the head of blossom. When this is done at an early stage the flowers are not drawn up and weakly.

Cattleya Percivaliana alba.—One of the few plants in existence of this rare and beautiful variety is now in full bloom in the collection of Mr. Hicks Arnold of Summit, N.J., and it carries three handsome flowers well formed and of snowy whiteness, except a rich orange stain in the throat. Each sepal is broad and flat, the petals round and furnished with a fine fringe. The lip is also broad and delicately frilled. The plant occupies a basket, and is suspended near the glass throughout the year. The ordinary form of *C. Percivaliana* is now enriching many collections with its showy blossoms, and is gaining popularity among florists as a useful and free-flowering species for cut flowers. It is very easy to cultivate, and in its native home is found growing at 4000 feet to 5000 feet elevation on rocks fully exposed to the sun. Three, four, and sometimes five flowers make their appearance on a spike and remain a month in good condition. It will thrive well either in a pot or basket in a compost of good fibrous peat and a small portion of clean Sphagnum with ample drainage. After the flowering period is past water should be sparingly given to ripen the new bulbs. During the summer months, the growing period of the plant, it should have a temperature of 65°. A few degrees higher will prove beneficial, and a gradual reduction of water as the new growths approach completion will induce them to flower.—A. DIMMOCK, in *Garden and Forest*.

The large-leaved Magnolia in the house.

—I cannot understand why it is that one so seldom sees the branches and leaves of the *Magnolia grandiflora* used as a decoration for the centre of a dinner-table or in a sitting-room. They require a large clear glass vase that holds plenty of water, and no house where picked flowers are loved, cherished, and admired should be without a large collection of all sizes of the Munstead vases. *Magnolia* leaves with their beautiful curves, drawn by Ruskin when quite a young man in his "Modern Painters," are also most decorative in colour, with their shiny bright green leaves lined with red-brown-copper coloured down. They last a month in water if the stalks are well peeled, and this simple process is of the greatest importance with all plants of a shrubby nature—Lilacs, Laburnums, Rhododendrons, Azaleas, Daphnes, &c.—and the reason why this makes them last three times as long in water is obvious enough, and yet the practice is seldom carried out by young people, gardeners, or butlers, who otherwise arrange flowers in water fairly well. The thick bark on the stalk prevents the branches from absorbing enough water to keep the leaves and flowers alive. It is a little trouble, but repays one well, though very destructive to finger and thumb-nails. A strong old knife peels them well and quickly. Even Roses cut naturally with long branches and leaves and buds are much better for barking the part of the stalk that is in the water.—M. T. EARLE.

Cattleya exoniensis from Perth.—I enclose a new year's greeting from Woodlands, Perth, in the form of a spike of *Cattleya exoniensis*. For the last six years this plant has flowered regularly be-

tween Christmas and new year. Nothing has been done to induce it to bloom at this period. It is always kept at the warm end of the Cattleya house and well watered. There are nine bulbs on the plant, all with leaves averaging about 2 feet long, bulbs and leaves together.—W. MACDONALD, *Woodlands House*.

* A beautiful spike of five flowers, sweetly scented; the colour rich, especially the deep crimson-purple of the lip; the sepals and petals rose. It is one of the finest hybrid Orchids ever raised, and we have to thank Mr. Dominy for it. Its parents are *C. Mossiae* and *Lælia purpurata*.—ED.

Snow as a protection.—After four weeks of continuous frost, some of it very sharp, it is interesting to test the protecting power of the 6 inches of snow on the ground. I lately walked over a common at Dorking—a cold, wet district, yet on trying the ground with a stick, it was apparent that a very thin crust, and in some places none at all, of the ground was frozen. The Grass, however, is a further protection, for all places where the ground was bare were as hard as stone, but the snow and Grass together are a perfect protection.—A., *Dorking*.

The Cutler Testimonial.—The occasion of the re-election of Mr. Cutler for the fiftieth time as secretary of the Gardeners' Royal Benevolent Institution affords a fitting and appropriate opportunity to the gardeners of the United Kingdom to give expression to their gratitude to him for the splendid services he has rendered to the poor and unfortunate of our craft for the long period of fifty years. The prejudice which at one time existed among some gardeners against subscribing to this excellent charity has almost passed away. Let me then make an earnest appeal to my brother gardeners to show their appreciation of our old and faithful servant's successful services by contributing as their means will allow to the testimonial now being raised to him by his friends, and which is to be presented to him on the occasion of his re-election on January 15. —OWEN THOMAS, *The Gardens, Chatsworth*.

Turner Memorial prizes for 1891.—A meeting of the trustees of the above was held on December 9, at which the sum of £30 was voted for prizes next year, to be distributed as under: It having been decided to hold an exhibition of Carnations and Picotees in July next in the gardens of the Botanic Society, Birmingham, under similar conditions as the northern and southern sections of the National Society, to take in the midland growers, the trustees have voted £10 to the prize list. They also give £10 for the purchase of a silver cup as a special extra prize for the collection of fruit at the Edinburgh international exhibition on September 9, 10, and 11, which, in the opinion of the judges, may be deemed most worthy of the award. The sum of £10 has also been voted to the Royal Horticultural Society as part of the amount for two sets of prizes for naturally-grown plants of Chrysanthemums at the meeting on November 10. There was a good competition for the prizes offered last season, for which £27 10s. was paid as follows: £10 for Roses at Tibshelf, £10 for Dahlias at Edinburgh, and £7 10s. for seedling Tulips at Manchester.

Veitch Memorial prizes.—The trustees have voted the following medals and prizes for 1891: To the Royal Caledonian Horticultural Society, one medal and £5 for the most meritorious dish of fruit in the exhibition; one medal and £5 for the most meritorious Orchid, or stove, or greenhouse plant in flower in the exhibition; one medal and £5 for the most meritorious and interesting hybrid fruit or plant in flower in the exhibition (in this class the word "hybrid" means a cross between two distinct species). In every case the subject is to be selected from the exhibits of amateurs or their gardeners competing in any of the classes. To the Grand Yorkshire Gala, one medal and £5 for the most meritorious Orchid, or stove, or greenhouse plant in flower, to be selected from the exhibits of the amateurs or their gardeners competing in any of the classes. To the Crystal Palace Autumn Show, one medal and £5 for the best collection of 12 distinct kinds of vegetables.

To the Royal Horticultural Society, one medal and £5 for the most meritorious collection of fresh cones with foliage of hardy conifers grown in Great Britain. To be competed for at one of the autumn meetings.

B. S. Williams Memorial Fund.—The committee having decided to close this fund on Saturday, January 17 next, they beg that any still intending subscribers will kindly remit the amounts to either of the hon. secretaries, Mr. J. A. Laing, the Nurseries, Forest Hill, S.E., and Mr. A. Outram, 47, Moor Park Road, Fulham, S.W., or to Mr. H. J. Veitch, 544, King's Road, Chelsea.

INDOOR FLOWERS.

EVERY flower is precious in the darkest and dullest time of the year when the days are so short and dreary. It is useless to think of getting anything from outdoors for some weeks. The snow, as I write, is deep and the ground is hard with frost, and we shall have to wait till the warmer sun brings forth the earliest flowers—Aconites, Primroses, and Snowdrops. I have had a look round vinery and greenhouse to see what flowers can be supplied to make Christmas cheery indoors while the frost is on the pane, and the snow is on the ground. Christmas Roses are just now in great beauty. The old *Helleborus maximus*, found almost universally in quaint farmhouse gardens, where the mania for bedders never reached, has been pretty for some weeks. It is not always easy to procure this plant, as *H. niger* has been so much more cultivated for sale. And the latter has this great advantage, that it comes later: in fact, with me it is only just coming out, while *maximus* is beginning to go off. But the foliage of this common Christmas Rose is by no means so bold nor are the flowers anything like so handsome as those of *maximus*. I must put *Hellebores* down amongst crotchety plants, which will flourish or refuse to flourish according to their own wayward whims. One thing is essential, as everyone knows who is fond of *Hellebores*; let them alone. Another essential, if in pots, is that they should be grown in sandy loam well drained. Christmas Roses last long when gathered, and look exceedingly well with sprays of Maiden-hair Fern. I am pleased to see how well Chrysanthemums are still lasting, notwithstanding the fact that a good deal of heat has necessarily been put on to save the lives of other precious things in the same house. They are still (Dec. 20) a mass of beauty in their varied colours, and will furnish an ample supply of flowers for our Christmas decorations in church and for house decoration at home. What should we do without them? By degrees we have come to depend on them for brightening up our houses in the midst of November fogs, and for filling church vases in the early months of winter. But, alas! there is nothing to succeed them; nothing so abundant, so beautiful, so easily cultivated. No doubt they can be prolonged in bloom during January with care and with suitable accommodation. I am obliged to make a final gathering at Christmas-time. Next in usefulness to the Chrysanthemum at this time of the year is the still more beautiful Arum Lily. The foliage of this Lily is always graceful, and it is useful in small pots, in which it can be more easily forced. But to see it in perfection it must be grown in 14-inch pots, in which it rapidly makes magnificent specimens, throwing up gigantic flowers in the midst of its rich and luxuriant foliage. I cannot get such plants to flower before March, but there is no time in the whole year in which they are more useful than at Easter. I have always found great difficulty in keeping the leaves fresh in water. But the flowers when gathered require their own leaves to show off their full beauty and gracefulness.

I come next to a flower more beautiful than either of those above mentioned—*Eucharis amazonica*. I have had a profusion of bloom from them this year. They are all grown in large pots and succeed remarkably well. When the pots get too full of roots the plants are divided, and put into good fresh loam with plenty of sand. When growing they are put into strong heat, that

is in the early months of the year, and they have a good deal of guano water during that time.

We have never had any trouble with the nasty white worm, which often proves so destructive to this beautiful plant. The *Eucharis* has been giving me a constant supply of its lovely flowers for more than three months. Few things give such a profusion of flower; nothing, in my opinion, exceeds it in beauty.

Then there are the Orchids, which flower at this dull season, *Lycaste Skinneri*, *Lælia albida*, *Odonoglossum Rossi majus*, and others. The last is a perfect gem in its way, and gives no trouble if it is kept moist with plenty of Sphagnum Moss. A fair sprinkling of scarlet Geranium, always useful notwithstanding its bad habit of dropping its petals, *Primula obconica* with a profusion of flower, which is its normal condition, a few early flowers of *Primula sinensis*, and an auratum Lily, which is just unfolding three flowers, make up the remaining things now in bloom in the greenhouse and vinery. But in room decoration, Ferns and Palms must ever hold an important place, and they give but little trouble. The Phoenix tribe can be easily grown from seed. The fruit of different kinds can be bought in the shops and eaten, and the hard seed sown. In this way I have some stately plants of *Phoenix dactylifera*. They are certainly slow growing things at first, but it is pleasant to watch their growth. They can be placed in rooms in situations where the more spreading fan-like fronds of *Latania borbonica* would not be suitable. The beautiful *Seaforthia elegans* always looks well, but is not so enduring in the matter of cold or gas as the two former. Of Ferns, the two most useful for indoor decoration in pots I have found to be *Pteris tremula*, which is very hardy, and the Maiden-hair Ferns. But I must add to these *Asplenium marinum*, which adapts itself so well to indoor life, though it seems to present such a contrast to the fresh breezes which blow upon it so vigorously in the sea caves, which are its native haunts.

A GLOUCESTERSHIRE PARSON.

British Fruit Growers' Association.—At a recent meeting of this association arrangements were made to hold conferences on fruit during 1891 at the following places: Dublin, in August, in conjunction with the Royal Horticultural Society of Ireland; at Cardiff, also in August, on the occasion of the Cardiff Horticultural Society's show; at Edinburgh, on one of the days of the international exhibition in September; and at the Crystal Palace, Sydenham, in the same month. The dates and programme will be announced later, and invitations from several other important centres are under consideration. Committee meetings will be held in the Horticultural Club room, Hotel Windsor, Victoria Street, S.W., at 5 p.m., on Thursdays, January 8, February 5, March 5, April 2, May 7, June 4, July 2, August 6, September 3, October 1, November 24, and December 17. Suggestions and offers of assistance at the conferences named above should be sent to the hon. sec., Mr. Lewis Castle, Hotham House, Merton, Surrey.

The Allotments Act in Lincolnshire.—At a meeting of the Holbeach (Lincolnshire) Board of Guardians recently, important action was taken under the Allotments Act. It was resolved to purchase some land for providing allotments in the parish of Fleet to the extent of £500, the price being over £70 per acre. In the parish of Saracen's Head, Whaplode, near Holbeach, it was found that the authorities were unable to secure allotments by voluntary means, and a committee was appointed to select suitable land with a view of the compulsory clauses of the Allotments Act being enforced.

Lathyrus sylvestris is being advertised as a probable useful forage plant. Is there any chance of such being the case?—MUNCHES.

Societies and exhibitions for 1891.—A list of these is given in our advertising columns.

BOOKS RECEIVED.

"The Honey Bee: Its Natural History, Anatomy, and Physiology." By T. W. Cowan. Houlston and Sons, Paternoster Square, E.C.

"The Journal of the Royal Horticultural Society." Part 3, Vol. XII.

WOODS AND FORESTS.

TREE GROWING IN TOWNS.

MANCHESTER.

TO THE EDITOR OF THE GARDEN.

SIR,—I am prompted to write this by an allusion at p. 570 of *THE GARDEN* to the Hollies in the tubs which had “for some time past disfigured Albert Square” in Manchester. It is not very clear here whether it is the Hollies or the tubs that disfigure the street, but I suppose the Hollies are meant. The above sentence is only a mild example of what has been said of late in the Manchester daily papers by certain horticultural critics, for there is no two opinions about the pleasure the Hollies and Aucubas, &c., have given to the public in the town, or of the hope entertained by the same that the experiment may succeed. Before speaking of the trees, you must know that, according to their own admission, some of the best horticulturists in Manchester were consulted, and asked to join the Town Gardening Committee and give advice and assistance at the beginning, before any steps were taken or expense incurred, but these horticulturists declined on the plea that the committee did not require their services, and because they did not want to interfere in the matter. Since then, however, they have not hesitated to tender their advice, unasked, by means of letters and lectures addressed to the public, after the Town Gardening Committee had worked hard and done its best to try at least to make the streets more pleasant in the way indicated, without the assistance of those who refuse their help, but who now come forward to find fault, and suggest that the trees be “carted away to the rubbish heap,” and much more to the same effect. Everyone acquainted with the workings of municipalities knows that there are often “wheels within wheels” and much personal feeling, and I state these facts, which I gather from the Manchester papers and your gardening contemporaries, by way of an introduction to the subject.

As regards the trees or bushes themselves put down opposite the infirmary and elsewhere last August or September, I think there is no reason at present to suppose they will not succeed. When I saw them not long ago they looked as well, if not better than such subjects usually do immediately after transplanting, because I believe they had good balls and good roots. I am informed that Mr. Anderson, late of Meadow Bank, and now landscape gardener, has superintended the whole of the work, and there are few abler gardeners in Manchester or anywhere else. Manchester has a pretty fair rainfall, about 35 inches, and with a swill from the street hose now and then the leaves should not get so dirty, and the various shrubs permanently planted out in the infirmary grounds, and only divided from the new shrubs in tubs by a railing, thrive fairly well without any particular attention. It is admitted by experts in Manchester that the injury to trees in that town is caused principally by the sooty deposit on their leaves from the chimneys when the soot specks are impregnated with sulphurous acid. The latter does not, however, appear to prevail to a serious extent, and is being still more sensibly reduced by the action of the corporation in regard to chimneys of factories from which such vapours mostly come.

Mr. Findlay in the lecture, of which you gave part, lays stress on “the minute sooty particles deposited over the surface of the tree, so that respiration was impeded and debility

followed as a matter of course.” Now this “sooty deposit” and “impeding of the respiration” is an old story and a stock argument that needs to be critically analysed, and one wonders to see men making use of such arguments in a general way who have had the best opportunities of testing them practically. I here assert that a black sooty deposit, not excessively impregnated by injurious chemicals, does not injure trees to near the extent that some believe and say, and I could show you the most conclusive proof of it. Herewith I send you leaves of *Rhododendrons*, variegated *Hollies*, and *Aucubas* from plants that have never had a cleaner skin for from fifteen to twenty-five years than the leaves sent have, and I send them just after a month of splashing rain amounting to 5½ inches and a fall of snow. Take your white cambric handkerchief, moisten a corner of it, rub it over the leaf till you see the green, then compare the clean spot with the sooty portion; look at the soot on the handkerchief, and you will understand the chronic conditions under which the plants live and thrive, for they are healthy and have not a dead twig on them, and I could show you hundreds like them. Now these leaves are just like the leaves on the trees in the tubs in Manchester, and the smoke is the same, being from tall chimneys that burn coke and coal, and those who listened to the lecture in Manchester on this subject and applauded the allusions to the trees in the tubs ought to have known as much as this if their own observations had been worth a straw, for they have such sooty, yet lively trees in their own gardens before their eyes every day. The damage by soot deposits on trees is over-estimated, I am perfectly sure. It is something else besides the soot that has to be feared most, and where soot only is the worst enemy, no one need fear to plant certain subjects, provided they give them the necessary cultural attention.

In Manchester, however, it is not so much a question of the success of the present subjects in boxes there, and which are probably the least expensive item, as of trying to find out what can be grown in that way in order to give the more important thoroughfares a more pleasant aspect. The Manchester Town Gardening Committee, which, I understand, includes botanists, naturalists, gardeners, and others, are clearly not satisfied with the assurances hitherto given—that street decoration is impracticable, and mean to find out for themselves by real experiment. I do not think it is of much consequence whether or not the trees remain on the streets during the winter months, and if evergreen subjects do not succeed, I see no reason why the Planes should not be tried with a good prospect of success, provided a small quantity of suitable-sized specimens are kept in stock, and the alternate lots lifted and planted in the tubs every spring. This process would keep the trees in good transplanting form and preserve them in health. This year the Oriental Plane, in one black town in this neighbourhood, was quite green at the end of October, when all other trees were either brown or leafless. I was so struck by this, that, having a small garden to furnish in the same town, I made up the largest proportion of deciduous trees of the same Plane, to the number of thirty or thereabouts.

LOOKER-ON.

Elm tree stems hollow.—In *THE GARDEN*, December 27 (p. 610), “B.” says:—

In cases of full-grown Elm trees having separated into two butts, between which a hollow is formed, and in which water lies till it gradually soaks into the stems of the trees and causes rot, so that in large trees the butt becomes hollow, would it be advisable

to bore a hole sloping through the tree, so that water could not lie? Old trees are probably beyond saving, but perhaps something might be done in the case of young ones.

Under similar circumstances I have drained off the stagnant water by boring a hole in a sloping direction to give it egress, as suggested by “B.” Another plan, after the water has been drained off, is to fill the hole with hot tar and gravel mixed, so as to form a solid concrete, and thus prevent the water from entering the hole. This is a very effective way of dealing with the matter, as the tar not only keeps out water, but likewise prevents the growth of parasitic fungi, which are apt to make their appearance under such circumstances, and therefore ought to be prevented. The gravel should be thoroughly dried on a kiln before being mixed with the tar. Another plan is to roof over the hole with a piece of tin or zinc in such a way as to prevent the ingress of water. The oscillation of the trees, however, is very apt to displace the roofing and give a deal of trouble, on which account I prefer the tar and gravel. All rotten wood, Moss, and rubbish should be cleaned out of the hole before filling it up.—J. B. WEBSTER.

POPULUS MONILIFERA.

SURELY a writer should be corrected who makes such a blunder as did Mr. Webster in *THE GARDEN* of November 29, where he speaks of *Populus monilifera* as “the black Italian Poplar.” It is a Canadian tree, and has nothing to do with Italy.—A TREE PLANTER.

* * Regarding this tree, Grigor, in his “Arboriculture,” says:—

P. MONILIFERA (the Necklace-bearing or Black Italian Poplar).—This Poplar is generally believed to be the same species as *P. nigra canadensis* of Michaux, or a variety of that tree. Its name Necklace-bearing is derived from the structure of the female catkins, resembling strings of beads. . . . Its upward growth under similar circumstances is equal to that of the Lombardy Poplar, while, on account of the strong side branches and larger leaves of the Black Italian Poplar, its girth is greater. . . . The tree is a native of the continent of America, and some are of opinion that it was introduced into Italy, and from thence into Britain. Its first introduction into this country was in 1772, from Canada, but its second introduction appears to have made it better known, and from which it is supposed to have taken its popular name.

With the exception of the Larch, no thriftier tree can be planted than this Poplar. In some parts of Ireland I have seen the small farmers establish a plantation of this tree in a short time by setting posts about 2 feet deep into the ground. These posts were cut from branches about 4 inches or 5 inches in diameter, and in lengths of about 7 feet, so that when planted 2 feet into the ground, the remaining 5 feet above ground formed the stem of the future tree. Such is the vitality of this Poplar, that I have never known any of the sets to die, provided that they were inserted at the proper time. When the sets are made firm in the ground, the work is then finished by placing a sod upon the top, where it is allowed to remain until such time as it gradually becomes destroyed by the weather. In this simple way I have seen many fine trees established along roadsides and for shelter belts. Sometimes Sallows or Willows are used in the same way and for the same purpose, but when it can be conveniently had the farmers always prefer the Poplar. This Poplar is sometimes called the poor man's tree, as its culture is simple and its growth quick. Its wood is used for a great variety of purposes about the farm. Poplar trees are liable to be attacked by different species of fungus and insect pests, and when such is the case, the better plan is to cut them down and make the most of them, as it is seldom they do much good afterwards.—J. B. WEBSTER.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

KITCHEN GARDEN.

NEW SEEDS THE BEST.

If we could rely upon all the seed sown germinating satisfactorily, and also feel certain of being able to save as many as may be required of the young plants proceeding from the same, seed bills generally might be considerably reduced. As it happens, there are so many difficulties and enemies to contend with that there is no certainty about anything doing well, and those who have had experience are well aware how necessary it is that good seed should be bought or saved, and a rather wide margin allowed for failures. It is the reverse of an economical, though a far too common practice to narrowly limit the seed bill. When all or by far the greater portion of the seeds are got rid of at one sowing, and the result be either a failure to germinate or a loss of the delicate seedlings, the readiest means of obviating the difficulty, viz., that of sowing again at the earliest possible date after the necessity for it becomes evident, is scarcely within the reach of the gardener. It is true more seed could perhaps be procured, but this is not always possible, and in any case there must be a loss of valuable time and perhaps some unpleasantness between employer and employed. Better by far order enough and to spare in the first instance, this ultimately being much the most satisfactory. Extravagance, however, I would strongly condemn, but no gardener ought to be held to have exceeded his powers and duty who orders ample seeds and pays a good price for the same. The latter condition is of greater importance than at first sight may appear. Cheap seeds are rarely the most economical in the end. It frequently happens that either they are old and do not therefore germinate properly, or else the stock is faulty. The coarser, commoner forms usually produce seed the most freely, and it is only the best of everything that ought to be grown in either large or small gardens. I have nothing whatever to say against the vendors of cheap seeds, and those who are satisfied with what they receive from such will naturally continue to send their orders to them. Competition has brought down the prices considerably all round, and those who take the greatest pains in selecting their stocks, and in saving, cleaning, and sorting the seeds ought and must be properly compensated for the same, or otherwise the quality of the article will soon deteriorate.

It is admitted that those who pay a good price for their supplies do not always get perfectly new seeds, but they are far more likely to have them than would be the case if cheapness was unduly studied. Old seeds or many that were not sold last winter and spring are largely distributed among the retailers of cheap seeds, and such and inferior varieties can be sold at a cheap rate. In some few instances seed kept, say, from the autumn of 1889 might prove better than that saved during the year 1890, but that saved in the former year was as a rule badly ripened, and it may be the buyers of cheap seeds will this year have a rather rude awakening as to the superiority of properly ripened new samples over those which have been kept for two or more seasons. The worst keepers are Beans, Peas, Carrots, Parsnips, and Rhubarb—

Onions, Leeks, Salsafy, Scorzonera, Cress, Radish, and various herbs exceeding these in longevity by about one year. Such kinds as Lettuce, Endive, Seakale, and Tomatoes keep fairly sound for three years, the last frequently longer; while Asparagus, Broccoli, Borecole, Cabbage, Cauliflower, Spinach, Beet, Celery, Parsley, and Cucumber will frequently retain their vitality for four years and upwards. Much in every case, however, depends upon the pains taken with seeds, excessive dryness and the other extreme—damp—being alike fatal to them. Unfortunately, those who buy their seeds are unable to determine the age of the respective kinds, and they must not, therefore, greatly narrow down their order because they happen to have a good many half packets of seeds left over from last sowing season. I have made that mistake more than once, but shall not repeat it. Why I so greatly prefer good new seed is, because this invariably germinates more quickly, and the seedlings grow away more strongly than is the case when old seeds are sown. More warmth is required to start old seeds than sufficeth for new samples, and, as a consequence, there is less risk to be run in sowing too soon. Even if the old seed does come up evenly, the plants being weak and oftentimes malformed, they are by far the most likely to succumb either to bad weather or insect attacks. I. M. H.

Pea American Wonder.—I grew this Pea the first season it was introduced to public notice, and noted that in point of earliness it was then a distinct advance. The following season I grew it again even more extensively, but it was not fit for picking, relatively speaking, so early as in the previous year. I mentioned this fact afterwards to a friend, and his suggestion was that the seed of the first year was possibly American produce; hence the comparative earliness. That of the following season, probably grown in this country, would not be ripened under so favourable conditions. This I thought was a feasible suggestion, and if such be the fact it should be taken into consideration by our large seed growers and merchants. Even if the gain in point of time be but a few days, those few days make all the difference, especially to those amongst us who are expected to have Peas fit for picking as early as possible. In one garden I remember Peas were often picked by the middle of May, and that now some twenty-five years ago. True, the situation was a most favourable one, but with all our reputed advance during the last quarter of a century it does not appear that much time has been gained in point of earliness amongst the first early Peas now in cultivation.—H.

Early Lettuces.—To all appearance, early Lettuces will be very scarce in some gardens owing to the present severe weather, especially where the autumn plantings were unduly forward on account of the mild weather experienced during October. Those put out later, on account of the smallness of the plants, will withstand the severe winter much better. In my own case I always make two or three plantings to guard against accidents. These succeed others in brick pits, so I do not anticipate a break in the supply, but to guard against any exigency, it is as well to keep past experiences in memory. To help on the supply, cold frames, in many instances, will be called into requisition, but without the use of heat this is slow work. When there is abundance of Oak or Beech leaves, or even others that will generate warmth, there is nothing better for the purpose, especially if there be at disposal any low brick frames which will allow of a depth of 2 feet of firmly trodden leaves. A layer of rich and fine soil to the depth of 6 inches must be provided for planting in. With a bed or beds of the above description the Lettuces will advance rapidly. The variety best adapted for early forcing is a good selection of the Early Paris Market. The seeds should be sown thinly in a box early in the present month. A vinery just started or some such similar structure is suitable for raising the plants, taking

care that the seedlings are grown on in the full light near the glass. Later batches may be forwarded under hand-lights, or, what is better, a contrivance similar to a long and low narrow frame. These are made by placing two 9-inch boards on edge a foot apart, and which are kept fixed together by neat crosspieces. A groove is cut out near the top edge of each board to allow of sheets of glass being fixed. The ends are left open if necessary for providing air. The Lettuces being planted in rows on warm and sloping south borders, they are easily covered as occasion requires. The Lettuces that have been covered are fit for cutting three weeks before the uncovered plants. Not only for Lettuces are these portable narrow lights available, but for Parsley, French Beans, early Peas, or any other crop which may require forwarding. For the late winter or early spring supply in the open air I am depending largely on Stanstead Park, a very hardy variety. Last winter this Lettuce stood the winter well, whilst by its side All the Year Round was rotting.—RURAL.

Chicory Witloof.—Chicory is much more cultivated in France than in this country, and why it is so, is difficult to explain, as it is one of the best winter vegetables we have, that is, when the large-leaved kind called Witloof is grown. It is an excellent substitute for Seakale in the winter months, and is easily grown, not requiring much room, while it can be forced with little trouble. For salad I prefer it to the older varieties. In Belgium the Witloof is much grown, and a large quantity is blanched in the summer months for salad. There is also another variety called Asparagus Chicory well deserving of cultivation, on account of its usefulness as a winter vegetable. This requires much the same treatment, and will, when placed in a little warmth, produce a lot of light green shoots much resembling Spinach. It is also good cut from the plants in the open, but as there are plenty of other vegetables in the autumn, I advise its being used as a midwinter vegetable. Common Chicory, a well-known variety also useful for salads, is of a looser habit than the Witloof, and not so good as a vegetable on that account, but for salads some prefer it to the large-leaved kind. When Chicory is wanted for summer use it requires to be sown monthly from April to September, and the leaves used as soon as large enough. The seeds should be sown in drills 18 inches apart or less, and the plants thinned to 6 inches apart. The leaves are readily blanched by covering them with an inverted flower-pot a short time before they are wanted for use. For the winter supply, May or early in June will be soon enough to sow, as by October or early in November the roots will be ready for storing. The roots should be lifted and stored in sand or fine ashes in a cool shed or cellar, and protected from severe frosts by litter or Bracken. A few roots may from that date be placed in a warmer place for the supply of leaves, but they come much better if given a few weeks' rest before forcing. Much depends upon the quantity required, and if wanted in November I should advise sowing in May and again in June, thus forming a succession that will keep up the demand for some months, and prove a welcome addition to the winter supply of vegetables.—G. WYTHES, *Syon*.

Sowing Cauliflowers in heat.—The severe weather will probably do much harm to Cauliflower plants, especially those not sheltered by glass and sufficiently protected. But there is plenty of time if sown in heat now to raise Cauliflower plants to set out under handlights in March or to plant in open situations the first week in April. They should be treated as tender annuals, sowing the seeds thinly in pans in the forcing house, and pricking off the seedlings into small pots singly when large enough, using light loamy compost from the time the young plants appear until they are moved into the cold frame. They should be kept near the glass, as in no other way can the necessary robustness of Cauliflowers be obtained. I consider Cauliflower plants pay better for this attention than the usual run of bedding plants will, and 400 or 500 plants, each in a 3-inch pot, which is the size I generally use, will not take up much room. The best early

Cauliflower is in my opinion Veitch's Forcing. It is not the largest, but the hearts turn in quickly and are beautifully white and close. Looking to the probability of there being a scarcity of late Broccoli this coming spring, it will pay those who have the room under glass to grow a few Cauliflowers in pots, and in 6-inch pots I have had nice little hearts of the kind named above when well supported with liquid manure. In addition to raising a stock of Cauliflowers for early work, it is also desirable to sow a few seeds of the late varieties now, only if much pressed for room, the Autumn Giant need not be potted off, as simply pricking the plants into boxes will get them early enough to turn in about the middle of August or possibly a little earlier, and they will do this if sown outside. The Autumn Giant comes in very handy should the weather set in hot and dry in July, and the Early London and Walcheren Cauliflowers run loose, open, and useless. The value of the Giant is not so much its great size (that is often a disadvantage) as the close heart which it produces under difficult conditions of weather and soil and its constant reliability; and this trustworthiness even in a vegetable is always a point of considerable value.—E. H.

ROSE GARDEN.

AMONG THE ROSES, JANUARY, 1891.

IN not a few districts over which something approaching to zero severities swept or rested for days or weeks, the Roses present a rather sorry spectacle. The Roses having been hit abnormally hard, have come out of the long conflict with frost, fog, and snow full of wounds, bruises, and gumming sores in embryo. In more favoured localities the Rose trees and bushes are but the marred and wretched ghosts of their autumnal health and beauty; for generally it is to be feared that December, 1890, has proved an exceptionally hard taskmaster to Roses of all sorts and sizes, while hitting many late and growing autumnal bloomers with killing severity. Unfortunately, it found an unusually high percentage of the latter. The dripping fostering weather of the last autumn led the plants into a trap by laying bare the citadel of their lives to the easy ingress of cold; the genialities of climate aroused them to an abnormal vigour and lateness of growth; and the 20° or more of frost caught them, not napping, but blooming or growing in dangerous profusion and beauty.

Had our Roses but been caught sleeping through the frost, they would have done well, and come out of it safe and sound. Unfortunately, their risk of danger is exactly the ratio of their wakefulness; for the tenderness of Roses and other plants depends less on constitution or native country than on their restfulness, and it cannot be too often repeated that condition rather than constitution regulates or modifies the cold-resisting powers of Roses or other plants. Hence it comes to pass that a Rose in a dormant state may pass through 20° of frost or even zero with impunity, and yet the self-same Rose may be injured past recovery or killed by 10° of frost or less when in partial or full growth.

Even the British Oak is far from hardy when growing, as was abundantly proved in hundreds of parks and plantations by an abnormally severe May frost, and, of course, this is equally or more true of fruit trees and Roses. It is important that the cultivator should never lose sight of those facts which furnish him with a motive for his efforts towards hastening and heightening fertility or maturity of wood and bud in the early autumn as the surest means of ensuring the safety of our plants against the

severest winter. It is well to bear this in mind this January, as furnishing the key to the serious injuries and many deaths that may be noted among Roses in certain cold localities. True, neither of these may be very pronounced at present, but the practised eye may already detect the frost-bites in or through the sorely smitten wood, the sure and certain forerunner of coming disasters. Of only the very hardiest Roses can it be safely affirmed that they have wintered well through the severities of December, 1890. It has hugged the Roses too closely and too long either for their comfort or safety. The long endurance of the cold spells of weather has proved as destructive as the severity. The persistency of frosts, fogs, and piercing winds undermines the vital powers of Roses as surely as perpetual dripping wears away the hardest stones.

Can anything be done to save our Roses now? Very little or nothing should be done while they continue in a frozen state. Every touch or cut on frozen Roses assuredly makes them worse. Fortunately, the roots of most Roses are quite safe under the snow. Every cultivator is familiar with the conservative powers of snow. Six inches or less of it is a frost-proof protection against the severest frosts experienced in our climate. To unfrozen Rose roots and collars all things are possible during the season of 1891, and to dwarf Roses on their own roots. Those who have taken the advice so often given in THE GARDEN to surface-mulch their Roses in the autumn either with a layer of dry soil, manure or porous litter, will have reaped a rich harvest of potential and actual safety. Roots and collars doubly protected will be doubly safe and potential of growth and blossoming during the coming season. As to the tops, Tea and other tender Roses are, as already stated, hardly hit. So soon as the weather breaks, however, the usual protection of Bracken should be given, if not already applied, for we may have a second or several returns; and in any case the frost-bitten plants are far more susceptible of injury than those uninjured. Considering the biting character of our springs, the advice, "better late than never," is especially applicable to the top protection of semi-tender Roses in January.

The same adage should also be applied to the mulching of the roots and collars of dwarf or other Roses, if that has not been done. It would be venturesome folly to trust to another snow to do this for us, through the next severe frost or the penetrating and bitter winds of boisterous March. Let us hasten to render them this safe and nurturing, as well as enriching, service at once. And we ought to do this the more promptly, as there is positively nothing else we can do just now for our Roses in the open air, unless it be the preparation of our beds and borders for fresh plants to make good the losses of this cruelly severe winter, which it may be hoped, for the sake of the Roses and many other subjects horticultural, may close with the dead year 1890.

D. T. F.

Seasonable floral arrangements.—My previous remarks had reference more particularly to early-forced bulbs, which are always a pleasing change, being, as it were, the first harbingers of the coming spring. To those named in the list should be added the Christmas Roses, which are very enduring in a cut state, being well adapted for rather warm rooms and unfavourable situations. These should be cut as soon as they are fairly well expanded, and they will then retain their purity for a longer time. These when arranged look well if associated with the bronzy foliage of Mahonia aquifolia. If this be not plentiful and early-forced bulbs are grown (from which some foliage

can easily be spared), this can be adapted to the purpose, that from either Tulips or Narcissi being the best. Primulas, both single and double kinds, will now be most valuable in a cut state where early-forced flowers are not so much depended upon. The double and semi-double kinds last the best, and give less trouble than the single ones, which, to be relied upon, will need the application of a little liquid gum. This, if used carefully, will not in any way disfigure the flowers, keeping the trusses much more complete for the first few days. The Primulas will frequently well repay for a re-arrangement after the first flowers have faded. These latter should then be picked off, seed-pod and all, then replaced in fresh water. The later flowers will frequently in this way expand, although naturally not of such size as the first ones. The foliage of the Primulas cannot be improved upon to associate with their flowers. I have lately seen some beautifully crisped foliage of a bronzy or brownish shade of colour; this, I noted, was being specially supplied for floral arrangements. It struck me that it was a capital idea, and a novel change, too; one leaf only, if used with a few double blooms, would constitute a capital button-hole design. The foliage best suited for cutting is that taken from plants that have been fully exposed to the light and air. This may not be quite so prepossessing as that of a brighter shade, but it lasts longer. Small fronds of that valuable old Fern *Nephrodium molle* are also very useful with Primulas when the leaves cannot well be spared. For small shallow vases the single pips with a good length of stem will prove extremely useful. Used in this way there will be a great saving compared with cutting the spikes.—J. H.

CHRYSANTHEMUMS.

SPOILING THE CHRYSANTHEMUM.

FEW of your readers who are lovers of the Chrysanthemum and who have read Mr. Shea's article (p. 543) will be inclined to agree with him when writing on size of bloom that "no good purpose is served by the extreme and sweeping views expressed by some of your correspondents upon this point." Probably had these views not been expressed, Mr. Shea's letter would not have been written, and an excellent exposition of the views of those lovers of Chrysanthemums who have sufficient knowledge of them to treat each and all in a discriminating way, so as to get the fullest beauty out of them without developing coarseness, would have been lost to us. Extreme views always leave something unsaid, and Mr. Shea appears to have put the whole case fairly. No one can gainsay that the great interest now taken in Chrysanthemums dates its birth from the advent of big blooms, and it would seem safe to prophesy that a return to the old system of growing and flowering the plants would be the death-blow to most of the Chrysanthemum societies.

A few of the fallacies which have appeared in this discussion are—

That large blooms can have no artistic merit, and that such flowers are mere ill-formed masses of petals.

That gradation as to height of plants is to be decried, but gradation applied to size of flowers as long as they are grown on sprays is deserving of commendation.

That tall thin plants are the worst of material for grouping or for showing their flowers, and that "specimen" plants "all round alike" are admirable.

That growing plants in the open ground is the correct thing, and that the flowers so produced are better than those from plants well grown in pots throughout the season.

That big blooms are not suitable for cut flower work, or lasting when cut, and

That big flowers suffer more from damping than

small ones do, the surrounding conditions being similar.

Taking these objections in the above order, I ask first, Who is to draw the line of limitation where artistic merit ends and lumpiness begins? If mere size be made an objection, then one channel leading to the charm of variety will be cut off, and many of our most striking varieties may as well be thrown away at once. What value would a spray of flowers of Golden Dragon have beside a well-grown single bloom on a shoot covered with its peculiarly bright green leaves, and who would say that the single flower is inartistic because of its size? Instead of the single flower being a meaningless mass of petals, it has a marked individuality, which is altogether lost in a spray of the same variety. Again, though Duchess of Albany (Jackson) lends itself well to the small and many-flowered system of culture, yet he who has not seen a large bloom when it is producing its numerous thread-like secondary petals, never seen in small flowers, has never known what the individuality of the variety is. The old Red Gauntlet, too, with its long drooping fountain-like petals and large yellow eye, when well grown as a large flower is most beautiful, but grown on the many-flowered principle it scarcely merits a second glance. These are only given as an example of many such. I quite fail to see why we should not have tall Chrysanthemums as well as short ones. The gradation of heights simplifies the matter of arrangement either in a house to themselves, a method preferred by many, or for grouping among other plants in the conservatory, as no help is required from empty pots or any substitute for them, without which dwarf grown plants would be too much on a dead level to be pleasing. Gradation in size of flower, too, is acceptable, but it is scarcely more common in sprays of flowers than in blooms grown singly. One thing, however, is certain, viz., that with sprays the centre bloom produced from the crown bud, naturally the finest, is in the great majority of cases crushed entirely out of shape, and hidden almost completely by the flowers on the terminal shoots which run above it.

Tall thin plants are very suitable material for grouping with other things or for the back rows of masses, and as most of the tall kinds have weak peduncles and the flowers naturally incline to a common front, they can be easily seen without the aid of steps. Steps might be kept to provide a vantage ground from which to view the specimen plants, which "can hardly be placed too far apart," and which "face every way alike"—in fact, those plants which are pinched and twisted and grown as unnaturally as it is possible to grow them. Many of the new and large Japanese varieties are naturally dwarf and bear their flowers erect, making good material for front plants, with, of course, some dwarf bush samples to fringe the groups.

Plants grown in the open ground, no matter how carefully prepared, never do open their flowers so well as those well grown in pots do, but are devoid of all character and never above mediocrity. The foliage may be good and the flowers suitable for some purposes if lifting is carefully done and the plants are well looked after with water and shade. Large flowers of Japanese varieties are well suited for cutting if the proper vases are at hand. Glasses to hold one or three are the best if the flowers are wanted to last as long as possible, as for these the stems need not be too long. It does not, however, matter how many flowers are placed in a vase provided the vase is big enough to allow each flower to stand out by itself and plenty of green used. The

only objection to big vases is that for these the flowers should have long stems and this takes away from their lasting properties; not more so, however, than is the case with sprays of smaller flowers cut with the same length of stem. This tendency of flowers cut with long stems to flag quickly is a grave objection to their being exhibited in a less formal way than is the custom, for if the exhibition of long-stemmed flowers was made a compulsory matter, it would seriously handicap exhibitors from a distance, and in any case the flowers at the end of a three days' show in a draughty hall would look very poor.

Big flowers do not suffer more from damping than small ones do; size of bloom has nothing to do with it. Given the surroundings that induce damping, it is more a question of variety than anything else, many varieties having constitutions which make them peculiarly liable to this decay of the petals. Unfortunately, those of the most striking colours, yellow excepted, are, as a rule, the worst in this respect. I will only mention one—Jeanne Délaux. This is a small or medium-sized Japanese which it is impossible to force into coarseness, and which I think would never be grown too big for even those who do not care for big flowers. In any case of damping, big flowers would have a decided advantage over small ones, for in the one case a few petals might be removed (without the aid of the much derided tweezers) and not be missed, while in the other the flower would be spoiled by such a loss, having nothing to spare. Signs are plentiful that there is a growing taste for the Japanese and Japanese Anemone varieties, and probably the majority of the admirers of the queen of autumn will not be sorry when the incurred varieties are used no more for exhibition than they are for decoration. At the same time the taste for the latter will be more likely to die a natural rather than a violent death, and it will be a long time before they are completely ousted from popular favour.

Livermere Park.

J. C. TALLACK.

SHORT NOTES.—CHRYSANTHEMUMS.

Chrysanthemums from the open air.—I have read with much interest the notes by E. Molyneux, in THE GARDEN of Dec. 6, on the above subject, and shall feel greatly indebted to him if he will kindly give the names of those kinds which he has found so successful against a wall outdoors.—ZITELLA.

Chrysanthemum Alice Bird.—The colour of the flower of this variety is of a rich buttercup-yellow. It belongs to the reflexed class, which in a general way is not popular. Though grown as bushes for decoration, many of them are very valuable, and among the best of them Buttercup or Alice Bird must find a place. The foliage is good, and habit of growth dwarf and sturdy.—T.

Chrysanthemum Boule de Neige.—Where the production of large blooms is not the only object aimed at, this is an extremely useful late-blooming Chrysanthemum, as it produces a great profusion of pure white flowers, that stand well either on the plants or when cut. It is, in the last catalogue of the National Chrysanthemum Society, classed as a reflexed, but the blooms are very little if any larger than some of the so-called pompons. A great recommendation is the short sturdy style of growth, the stems being very stout and the leafage ample, while the flowers are borne in great profusion well above the foliage. It may be readily grown and flowered in pots 5 inches or 6 inches in diameter. This variety was sent out by M. Lemoine, of Nancy, either in 1880 or 1881, so that it is by no means a novelty, but was comparatively unknown till Mr. Owen showed it in such good condition five years ago, when it was awarded a first-class certificate by the Royal Horticultural Society. To Mr. Owen we are also indebted for directing our attention to another valuable late-flowering Chrysanthemum,

viz., Golden Gem, whose medium-sized reflexed blooms are of a bronzy-yellow tint.—T.

BOOKS.

"THE GOLDEN FLOWER."*

SUCH is the title of the latest addition to the bibliography of the Chrysanthemum, and a very handsomely got up book it is. The work in form is a large quarto volume, 12 inches by 10 inches, bound in chocolate-rose coloured cloth and a light pale green India silk, with an elaborate cover design richly tooled in gilt after a Japanese style. The end papers are original in pattern, consisting of a small floral design intermingled with golden specks. Heavy, gilt-edged, highly glazed plate paper is used throughout the work, which consists of a frontispiece in chromolithography of a figurative subject, entitled "Princess Golden Flower," an introduction with a few details concerning the varieties illustrated and the flower in general, a prologue in verse by Louis Carroll, 15 choice coloured plates of Chrysanthemums selected from examples grown in a free, natural style, followed by poetry from the works of those writers already mentioned, and an epilogue in conclusion by Dr. Oliver Wendell Holmes.

The introduction contains the fullest account I know of concerning the importation into America of the famous "Neesima collection," of which Mrs. Alpheus Hardy formed part. Five of the varieties in that collection are depicted in "The Golden Flower." It may be interesting to quote the story as it appears in the book now under notice:—

The very remarkable if not romantic story of Joseph Hardy Neesima, whose name is connected with this particular group of Chrysanthemums, will bear repeating here. He was born in Yedo, Japan, February 14, 1844. His father belonged to the Annaka clan, one of the several hundred clans under the feudal system of Japan. When Neesima, who was disposed to studiousness, was about 20 years of age, he received from a friend a small tract called "The Story of the Bible," written by a missionary in China; this was the beginning of a new life for the young man, who now determined to learn more of the "Light which shone in the East." Accordingly he resolved to visit America—no easy task in those times when the strictest watch was kept over the people to prevent emigration. He left his home, however, and went to the seaport Hakodate, where he remained for a season planning a means of escape. It was a perilous venture, and discovery would have meant death; but, by the help of a friend, he concealed himself in a little boat laden with vegetables and other supplies that were being taken to an American vessel in the harbour bound for Shanghai. As they left the quay an officer who caught sight of the boat called out, "Who goes there?" The boatman replied, in unfurried tones, "Ore da" (It is I), and the unsuspecting officer let him pass. Mrs. Neesima often spoke of that moment of suspense as perhaps the most critical one in his life. Having reached the vessel in safety, the captain kindly received him on board, and he was concealed in a closet from officers who visited the ship before sailing.

There was another American vessel in the harbour of Shanghai at this time, belonging to the late Mr. Alpheus Hardy, of Boston. Young Neesima made himself known to the captain, and explained that he would be willing to do any kind of work without pay if he could only be taken to America, where he wished to be educated. . . . On his arrival in Boston, young Neesima was taken to Mr. Hardy . . . he told the young man that there "was a great light in the East" which would shine for him and his people, and he would try to put him in a position to learn more about it. Accordingly he gave young Neesima an education at Phillips' Academy of Andover, Amherst College, and the Andover Theological Seminary. At the latter institution he graduated in 1874. He was ordained at the Mount Vernon

* Verses by Edith M. Thomas, Richard Henry Stoddard, Alice Ward Bailey, Celia Thaxter, Kate Upson Clark, Louis Carroll, Margaret Deland, Robert Browning, and Oliver Wendell Holmes, collected, arranged, and embellished with original designs by F. Schuyler Mathews; illustrated with reproductions of studies from Nature in water colour by James and Sidney Callowhill, Alois Lunzer, and F. S. M. Prang and Co., Boston, U.S. America.

Church, Boston, in the same year, and at the Rutland Meeting of the American Board of Missions he made that memorable appeal for Japan which led to the establishment of the Doshisha (the "one purpose") School in Kioto, with which he was connected until the time of his death.

It appears that he visited America again in 1885-86, returning to Japan in November of the latter year.

It was a short time after this that he sent to Mrs. Hardy the collection of *rare* Chrysanthemums already mentioned as a token of his esteem and affectionate regard for her who had welcomed him years before as a son, and from whom he had received the kindest sympathy in his effort to gain a Christian education. A few years later and the sad news came from Japan of Dr. Neesima's death, January 23, 1890.

The coloured illustrations are beautifully executed, but will probably fail to satisfy the average grower of exhibition blooms. It is proper, however, to observe that the book is not intended for such, and the author expressly declares at the outset that the only view through which a clear perception of its simple scope may be obtained is that chosen by an artist—his point of view. Mr. Schuyler Mathews must be congratulated on the result, for in the whole range of Chrysanthemum literature—Asiatic, European or American—there exists absolutely nothing that can be compared with this work. Although the flowers illustrated were chosen from American collections, many of them are well known in England, and indeed some of them were raised on this side of the Atlantic.

The following is a list of the illustrations: Kioto, Medusa, Jardin des Plantes, Tokio, Laciniatum, Lilian B. Bird, Cullingfordi, Moonlight, October Beauty, John Thorpe, Peter the Great, Mrs. C. H. Wheeler, Ceres, King of Crimsons, Golden Dragon and Christmas Eve. Between each of these plates poetry suitable to the flower preceding it is given on a separate page. So far as possible the author has endeavoured to preserve a feeling of Japanese decoration throughout the book, and in this he has not failed, for in many of the instances the panels containing the poetical extracts have a distinct impress of Japanese art about them. In one other point, however, the book bears upon it the intention of giving it an Eastern tinge; in several of the plates, but particularly Moonlight and Lilian B. Bird, the flowers are in duplicate, one being full-faced and the other being painted from the back, showing the calyx and reverse of the lower petals—a curious style much in vogue with the Japanese artists.

As "The Golden Flower" is not a florist's book, it would be unfair to criticise some of the observations touching upon the history and classification of the flowers represented, but, making all allowance for climate, I do not understand how Jardin des Plantes can be described as a Japanese variety, although Cullingfordi and King of Crimsons, to an artist's eye, might, as they seem to have done, possibly come within that group. The book is a very expensive one, and will be of little or no service to the mere grower of exhibition Chrysanthemums, for there is not a word concerning cultivation from beginning to end, but to Chrysanthemum amateurs who are also lovers of pretty books, "The Golden Flower" will give pleasure in many a spare moment when the originals are out of season.

C. H. P.

The weather south and north.—I see in the pages of THE GARDEN that the weather in East Anglia, as recorded by my friend Mr. Fish, is and has been very severe for some time back, and likely to prove injurious to many plants we usually consider quite hardy. From other parts of England Mr. Fish's report is more than confirmed as to the severity of the weather, and on the Continent they have fared even worse. While this is so in the southern end of Britain, we in the north have had what may be termed an average winter up to date; on three occasions the mercury fell to 14°, giving 18° of frost. As a rule, from 10° to 20° of frost is what we have experienced here, and the place has the reputation of being a cold one. We have had a little snow on the hills, but

in the valleys none to last. Such crops as yellow and Swede Turnips standing in the fields are not injured. It is surely difficult to account for such great discrepancies in the weather in a small island, and especially when the coldest is experienced at the southern end. Three years ago on the last day of June I was purchasing a punnet of Strawberries from a cart in the vegetable market at Strathpeffer, in Western Ross, when a lady and gentleman came up and bought one. The gentleman addressed himself to me and said, "Here is a marvellous thing. I left my place in Sussex where I have a good walled garden yesterday, and I could not find a ripe Strawberry. I come 700 miles north, and find plenty of fine ripe Strawberries. If you are a Scotchman, can you enlighten me?" My reply was, "You have no right to expect ripe Strawberries as early in Sussex as here. We keep a great heating apparatus out to the west here, that makes the whole difference." He said, "Nonsense." I replied, "Have you never heard of the Gulf Stream that strikes our western shores, and from it a current of warm wind comes so far inland, giving a mild warm climate; hence the beautiful foliage of such trees as Arancarias and all the large tribe of Conifers around us." The result was that we struck up a friendship and have occasionally corresponded since. This mild influence from the Gulf Stream does not affect us here, and that we are more favoured this year than more southern parts must be from some other cause.—W. THOMSON, Clovenfords.

NOTES OF THE WEEK.

Eucharis amazonica at Upper Teddington

—In referring to the splendid house of this *Eucharis* in the nurseries of Mr. G. May, King's Road, Upper Teddington (p. 14), a mistake occurs regarding the quantity of flowers cut each day. It is mentioned as two dozen; whereas it should have been twenty-two dozen for the average.

Brugmansia sanguinea.—I send you a photo of *Brugmansia sanguinea*. At the time it was taken, some two months since, there were fifty-five blooms out at once; it may almost be called a perpetual bloomer. The old B. Knight I find only blooms in the summer, while this one, with a few plants, could be had nearly all the year round; besides, it is very richly scented.

—ROBERT FRISBY, Worden Hall Gardens, Preston.

* * * A good photograph of a fine plant.—ED.

Pear Chaumontel.—However good this may be with some it is never of any use here. I have trees on espaliers which usually crop, but the fruit never ripens satisfactorily. The same remarks apply to those grown in the famous Barham Court Garden, where Pears and other fruits have been given a good trial. Mr. Woodward recently showed me very fine fruit both as regards size and colour. The flesh was anything but good, and such I was told was the case generally. Possibly a warm south aspect might bring about the desired effect in a warm season. There is much in gathering the fruit. Early kinds always improve if gathered a little before they are ripe and placed in a cool fruit room, the fruits also keeping longer. Late kinds should be left hanging as long as possible, a few degrees of frost doing no harm. Growers, however, being somewhat timid of severe frosts, not unfrequently the Pears are pulled too soon, and in consequence they never ripen properly.—H. MARKHAM, Mereworth Castle, Kent.

Cypripedium Lindleyanum.—This little known and comparatively rare species belongs to the American section of the genus. It was originally discovered by Schomburgk, when exploring British Guiana, on the southern slopes of the Roraima Mountain, which has since become famous as the home of *Cattleya Lawrenceana*. It is one of the strongest growing of Cypripediums, the leaves being each over 2 feet long, 2½ inches broad, and of a bright green with a thin marginal line of yellow. Exclusive of *C. caudatum* and its varieties, the South American group has not the floral attractions either in size or colour of the Old World section of the genus, but although the present species is no exception to the rule, the flowers are very interesting, and by no means devoid of beauty.

They are borne on scapes 1 yard high, and each one measures 2 inches to 2½ inches vertically. The dorsal sepal is pubescent and light green, marked with longitudinal reddish-brown veins, the lower sepal being of the same colour, but larger. The narrowly oblong, deflexed petals are wavy and ciliated, and, like the helmet-shaped lip, are green, veined and netted with reddish-brown. A plant now flowering at Kew was sent there by Mr. Jenman, of the Botanic Gardens, Demerara, who found it growing on rocks.—B.

Cape Ivy (*Senecio macroglossus*).—According to Sir Joseph Hooker, this climbing *Senecio* bears the largest flowers of any species amongst the 900 or 1000 that constitute that immense genus. It is a native of Natal and other parts of Eastern South Africa, and was introduced to this country in 1875. The dark green, glossy, Ivy-like foliage, together with its climbing habit, have given rise to the popular name of Cape Ivy. Its handsome foliage and the abundance of bright yellow flowers it produces in midwinter make it very acceptable for clothing rafters and similar positions in the greenhouse. The twining stems are very slender, and except at the older parts quite herbaceous, the flower-heads being terminal, and from 2½ inches to 3 inches across. The ray-florets are pale yellow, and are usually eight in number, but vary from four to twelve. At Kew it is grown in the cool part of the Cactus house and in one of the annexes to the temperate house. Like most Cape plants, it wants a light position to flower freely. It prefers a rather dry atmosphere, and might therefore be used in positions where more moisture-loving climbers would not thrive. It is easily increased by cuttings, and will grow in almost any soil.

Anigosanthus breviflorus.—This is a name given by Mr. Baker to a plant belonging to *Amaryllidaceæ*, which had previously been placed under *Cyrtanthus* by Dr. Harvey. It was found by Krauss in Natal about fifty years ago, but its subsequent discovery in the eastern part of South Africa shows it to be rather widely distributed. It is figured in the *Botanical Magazine*, t. 7072. It is recorded as having flowered in July, but the fact of its being in bloom now at Kew, and its perfect development under the miserable conditions of the last month, point to its usefulness as a plant for the winter season. It bears an umbel of flowers on a stout peduncle 1½ feet high, much after the fashion of a *Vallota*; the flowers, however, are not so large, although they are more numerous than in the *Scarborough Lily*. The perianth is divided into six oblong parts, each of which is about 1½ inches long, the colour being a clear bright yellow. From eight to a dozen flowers are borne on the umbel. At this season the plant is destitute of leaves, but when in full growth each bulb carries three or four, these being narrow, strap-shaped and from 8 inches to a foot long. This species is sometimes found at elevations of 5000 feet and 6000 feet. It has been grown in an open border in this country, but requires protection from frost. It is probably best treated as a greenhouse plant. At Kew it is grown in pots in a compost of loam and silver sand.

Cyclamens at Isleworth.—One of the finest displays of *Cyclamens* we have seen this season has been at Isleworth, in the market garden of Mr. Warren, who has several houses devoted to them, and sends largely to market. The strain is excellent, the plants of good habit, and the colours of the flowers are distinct, varying from pure white, a most lovely flower, to the deepest crimson; the thousands of seedlings that fill more than one house show that it is reasonable to expect a greater variation in the colours than we have even now. Of course, severe frost and fog have played their part in the destruction of flowers of all kinds, but the Persian *Cyclamen* seems to suffer least of any, judging by the fresh and beautiful display to be seen at Isleworth. The pure white is the choicest, but the delicate rose, rich crimson, and other shades are all of value. It is unnecessary to refer to their culture now, as Mr. Warren will deliver a lecture on *Cyclamens* at the January meeting of the Royal Horticultural Society on Tuesday next, when we look for interesting and valuable particulars.

TREES AND SHRUBS.

IRISH YEW IN GARDENS.

THE appearance of these grounds all through the winter months fully bears out your ideas respecting Evergreens and graceful trees in a garden; in fact, I think these grounds, especially the garden called the "Terrace Garden," look prettier in winter than in summer, the varied greens of the shrubs forming a splendid contrast to the leafless trees in and around the grounds. The value of the Irish Yew in forming a principal feature in gardens, especially during the winter and spring months, cannot be over-estimated. These graceful and beautiful trees should certainly oftener find a place amongst our Evergreens than they do at the present time. Throughout every month in

fashioned garden, but it is uncommon. Its principal requisite is a shady spot to grow in, as given this it will thrive in any sandy or peaty soils. The Sweet Fern Bush, as this is called, forms a somewhat spreading, freely-branched shrub, reaching a height of 3 feet to 4 feet, the long, narrow, very deeply toothed leaves so much resembling those of a Fern as to give rise to the specific name of *asplenifolia*. Like its near relative the Sweet Gale, the foliage of this *Comptonia* emits a very pleasing fragrance when bruised or brushed by the hand. It is a native of North America, where it is found in shady woods, and from whence it was introduced early in the last century, but like many of the fine trees from that region its merits seem to have been overlooked of late years, and consequently, in common with many other desirable plants, most nursermen have given up growing them, as the demand is so limited.—T.

Transplanting Veitch's Ampelopsis.—Wishing to quickly cover a given space with this Virginian Creeper, and having some large plants al-

the branches will in one year be sufficiently rooted for removal, and the shoots from them will already cover a considerable space.—H. P.

LARGE-GROWING COTONEASTERS.

For all practical purposes, Cotoneasters may be divided into two distinct sets, including large-growing or tree kinds and shrubby species, or such as rarely rise more than a few feet from the ground. Of the former class, the well-known *C. frigida* and nearly allied *C. affinis* are excellent examples, while of shrubby species the pigmy *C. congesta* may be taken as a standard.

No more useful family of plants could be named than the Cotoneasters, and nearly every garden is indebted to them for one or other of its more ornamental aspects. For covering some unsightly building or mound, scrambling over rockwork, used as a wall plant, or planted out in clumps in the shrubbery, one or other of the Cotoneasters is peculiarly well adapted. Nearly all the kinds are remarkable for the rich display of bright coloured berries with which during the autumn and winter they are studded, while the prettily-shaped rich glossy leaves and occasionally beauty of flowers, like those of *C. frigida* in May, place the family high in the list of desirable decorative plants. Fortunately, the Cotoneasters are not neglected plants, but that they might in strict propriety be more liberally used than at present can hardly be denied. *C. frigida* is one of the largest-growing species, it not infrequently attaining the height of fully 20 feet, while, as it is well branched and bushy, it may be used for standing alone, or forming clumps of a few together. It might almost be described as an Evergreen, and is such, unless in bleak, windy districts, and even there fully one-half of the leaves are retained all the year round. Although usually cultivated for the wealth of bright red berries, yet the tree must not be despised as a flowering species, for in early summer, when laden with its short racemes of nearly white flowers, it can well hold its own with many a more flattered plant. The ripe fruit, however, constitutes the greatest and most lasting beauty of this particular Cotoneaster, for to see it in the depth of winter literally wreathed in berries is a sight not soon forgotten. If left unharmed by birds, they remain intact during the winter, and occasionally usher in the succeeding crop of flowers in April and May. The best use to which I have seen this particular Cotoneaster put was in massing, where clumps of it and other tall-growing shrubs were planted out along a sheltered glade in a rocky forest ravine that led to the mansion. Deep soil and the shelter afforded seemed in this particular



In the garden at Beauchief Hall. Engraved for THE GARDEN from a photograph sent by Mr. E. Sampson.

the year they present a varied appearance which entirely harmonises with all their surroundings.

The accompanying illustration depicts as its main feature two fine specimens of the Irish Yew at the foot of the terrace steps of Beauchief Hall, a mansion in the north of Derbyshire. The grounds adjoining this mansion contain several fine examples of this and other characteristic winter-foliaged trees. On the opposite side of the clump of Rhododendrons in the corner of the picture are a pair of Yews to correspond with the two seen, and the whole forms a very pleasing landscape. In all probability these Yews were planted about a century ago.

E. SAMPSON.

Beauchief Hall.

Comptonia asplenifolia.—This pretty little shrub may be occasionally met with in some old-

ready secured to a wall available for the purpose, I determined to try if they could be lifted and transferred to the new position. The greatest care was taken in lifting them, but as many of the roots had made their way amongst some brick rubble at the base of the wall it was impossible to get a ball of earth with them, or, indeed, any fibres worth mentioning. They were, however, carefully planted and secured to the wall which was to be covered, the result being in every way satisfactory. Care was taken that the plants did not suffer from drought afterwards, as they were watered during the ensuing summer whenever needed, and syringed occasionally. It is now two years since this was carried out, and while the plants made good growth the first season they grew luxuriantly last year, so that the space now is completely furnished. This Ampelopsis can be easily increased, but where only a limited number of good-sized plants are required a few conveniently situated branches may be layered, just tonguing them at the same time, and allowing the upper portion to remain attached to the wall. If this cannot be done, the shoots may be secured there afterwards. By this means most of

case to have worked wonders, for many of the Cotoneaster clumps were nearly 25 feet in height and unusually dense. The rocky situation, where many of the crags rose considerably higher than the plants, heightened the beauty and grandeur of the Cotoneasters, as it also did of some unusually large masses of our native Barberry and some of the more showy foliaged Hollies and several species of Pyrus. The nearly-allied *C. affinis* differs only in being of more tree-like growth than the latter, the leaves rather larger and the branches fewer and not so supple. When grown side by side the fruit of both plants is much alike, but if anything *C. frigida* is the handsomer plant, this probably from its more bushy twiggy habit of growth and smaller leaves. Both the above, but particularly the latter, are much frequented by birds in hard weather, the fruit at that time being greedily devoured. Pheasants, too, are fond of the berries, and I have seen the plant used freely in the more open parts of the woodlands where game-rearing was yearly carried on.

Though less known, *C. bacillaris* is a most desirable Tree Cotoneaster, for under favourable con-

ditions it grows as freely as either of the foregoing. It has a curious habit of growth in that at first the stems are erect and gradually branch off at the head, until a wide-spreading, bush-like habit is assumed. By far the most ornamental flowered of the genus, this rather rare species deserves to be more widely known, although it has the drawback, if drawback it be, of being deciduous. The berries are when fully ripe of a cinnamon colour, but produced in the greatest profusion. They are small, too, when compared with those of any of the former. Another semi-evergreen species of peculiarly neat arching growth is the small-leaved *C. nummularia*, which is readily distinguished even at a distance by its neat, small foliage and gracefully recurving stems; indeed, it much resembles in several points *Azara macrophylla*. It is a decidedly handsome, half-tree species, and to look to advantage only wants to be planted alone on the shady and sheltered side of the lawn. In the Box-leaved (*C. buxifolia*) we have another rather smaller-growing kind, of from 6 feet to 8 feet high when fully grown. Being of neat growth, with small Box-like leaves and of spreading habit, it should not be neglected by planters. Nearly allied to the well-known *C. Simonsi*, though of much taller growth, is the pointed-leaved form, *C. acuminata*, a large, rather straggling, but brightly berried plant. Hardly of an ornamental character, this species is best fitted for the shrubbery or game covert, but when well grown and attended to in pruning it becomes of neater growth than when left to its own free will, and being a free fruiter is ornamental and desirable. The pretty and generally cultivated *C. Simonsi* hardly comes within the limits of the large-growing set, and rightly should be classed with the small-growing or rather medium-growing shrubby section. It needs no description, being a favourite with everyone, and consequently it is widely propagated and sold at a small cost by most of our nursery firms.

These are some of the taller-growing kinds of *Cotoneasters*, but there are other equally meritorious forms that, not knowing, I have left alone. The shrubby section and prostrate kinds are many also, but their use is in quite a different line to that we are now dwelling upon. Being neat of growth, perfectly hardy, succeeding in the poorest of soil, and standing in the front rank of ornamental berry-bearing plants, it is little wonder that the *Cotoneasters* have found their way into almost every garden and shrubbery.

A. D. WEBSTER.

SHORT NOTES.—TREES AND SHRUBS.

Retinospora obtusa gracilis aurea.—This is one of the best of the many varieties of *Retinospora* to be met with at the present day. It is the pendulous character of the ends of the stems that gives such a distinct character to this *Retinospora*, added to which it is a valuable golden-leaved Conifer, as the clear yellow of the current season, is retained till growth again takes place, when it assumes the light green of the rest of the plant, and in their turn the new shoots take on the golden hue.—T.

The Umbrella Pine (*Sciadopitys verticillata*).—The account of this Pine in THE GARDEN, Nov. 29, is very interesting. It is one of those distinct kinds that deserve to be more freely planted. Some good plants are to be found in a few private gardens, notably one at Penney Hill, Bagshot, where many kinds of *Coniferae* thrive well. I understand this is one of the best in the country. Another good thriving plant is growing in the gardens at Glen Andrea, near Groombridge, Kent. This stands in a low, marshy position adjoining some ornamental water between some high rocks, in which this fine garden abounds. In this position it is very sheltered. If my memory serves me, it is from 10 feet to 15 feet high. I quite agree that it needs a peaty soil and a moist position to grow it to perfection. When residing on a hot, light soil I tried it, but it refused to grow satisfactorily.—J. C. F.

Myrica californica.—This species of *Myrica* is far more uncommon than either of its relatives, the Sweet Gale (*Myrica Gale*) or the Candleberry Myrtle (*M. cerifera*), and it differs from both in many well-marked features, not the least important being that *M. californica* is strictly an Evergreen,

while the Sweet Gale is deciduous, and the Candleberry Myrtle nearly so in some winters. The Californian species is a valuable evergreen shrub, of a free dense growth, forming a compact rounded bush seldom more than 8 feet or 10 feet high, though in a wild state it is said to reach a height of 30 feet to 40 feet. The leaves, which are about 3 inches long, are in colour and texture a good deal like those of the Sweet Bay, but they are much narrower. They retain their fresh green tint throughout the winter, and do not seem to be in any way affected by frost, but whether the sharp spell we are now experiencing will leave its mark upon them remains to be seen. Like its allies, the leaves give off an agreeable odour when bruised. It is one of the best of Evergreens for planting in dry sandy soils, but though known for several years, it may be sought for in vain in many nurseries. The native member of the genus, viz., the Sweet Gale or Bog Myrtle, forms a freely-branched shrub, well worthy of being more often planted than it is. A cool moist peaty soil just suits it, as in such a spot it will flourish, and when in this state the warm aromatic fragrance possessed by the entire plant is most agreeable. This character is also shared by the Candleberry Myrtle (*M. cerifera*), which is a native of a considerable tract of country in North America from Canada to Carolina.—T.

SNOW AND ITS EFFECTS.

THOUGH snow has fallen in most parts of the country, the depth has varied considerably, Somersetshire and bordering counties apparently getting the worst of it. On or about December 19 the ground hereabouts was covered with from 16 inches to 20 inches of snow, and at the present time (December 29) there is a greater likelihood of an addition to this depth rather than diminution of the same. Fortunately in some respects, and unfortunately in others, there has been no wind for many days, but if drifting is thus avoided, the other side of the picture shows innumerable valuable Conifers and other Evergreens badly weighted down with snow, and should this weight be increased the consequences will be most deplorable. It is my belief that very much snow is yet to fall, and, as usually happens, other parts of the country will have their quota of it to deal with. Should such be the case, timely precautions will have to be taken, as in our case, to obviate the effects of a heavy weight of snow on the trees as far as possible, or otherwise far greater trouble will have to be taken later on in order to restore them to something like their original appearance. In many instances timely precautions are absolutely necessary to save the trees and shrubs from being badly disfigured for life.

According to my experience, *Cupressus Lawsoniana*, *Thuja borealis*, *Picea Pinsapo*, and a few other species of dense, yet not too stiff growth are capable of taking care of themselves, or, in other words, are not often damaged by snow, but even these should be early lightened of it wherever heavy lodgments are observed. Nor are *Wellingtonias*, *Cryptomeria elegans* and *C. japonica*, *Picea* (*Abies*) *nobilis*, *magnifica*, *Nordmanniana* and *grandis*, *Thuja gigantea* (Lobbi), *Cedrus Deodara*, and common Yews often badly damaged by snow, but all the same the first opportunity ought to be taken of shaking as much of the snow as possible from them, or a few principal branches might be lost.

There are other Conifers and trees that are particularly liable to be disfigured by snow, and which it is sometimes impossible to save. Thus if fine old specimen Cedars of Lebanon are badly weighted down by snow, the chances are some of the finest limbs will break away. On all old trees the limbs assume a horizontal position, are very rigid, and densely clothed with foliage. To make matters worse, the wood is naturally of a very worthless, brittle character, and once a gap is made in a tree there is every likelihood of either heavy winds or snow still further disfiguring it. It is next to impossible to clear large specimens of snow, and those who are anxious to save their trees ought to take the first opportunity of calling

in the aid of a blacksmith. The limbs should be made to support each other by means of strong chains connecting them with the trunk. Nothing but iron chains will long save the older limbs especially, and fixing these will be money and time well spent. The bark is not easily damaged, but some sort of pad, leather preferably, should be placed between it and the iron chains, as there is certain to be much friction at times. Specimen Pinuses ought also to be lightened of snow, or limbs may split off. Very fine Evergreen Oaks are somewhat rare, and these again are liable to come to grief, unless the outer lower limbs are well propped up and some of the rest supported by chains. Hollies are strong in every way, and not often damaged by snow, but it is not advisable to run any risks with fine specimens of these, and masses of snow might well be detached from them by means of long poles. With us clumps of *Laurustinus* and *Aucubas* have been split all to pieces, the mischief being done before we could possibly lighten them of snow. Many dwarf Conifers, including *Thujas*, *Retinosporas*, and *Thujopsis dolabrata*, were similarly served, the snow spreading those of bush form widely open, laying them down to the ground, in fact. Irish Yews, again, unless kept well wired and tied up together, are badly disfigured in this district, and even those that did not open out were bent down badly by the snow, lightening them only partially aiding them to recover their erect position. *Cryptomeria elegans* rarely splits, but snow invariably bends the trees down badly, and it is no easy matter to clear them of it. Nor do they naturally straighten up again, and either long stiff poles or wires are needed for refixing them in an upright position. Many of the smaller Conifers and shrubs, where damaged by snow, will also pay for somewhat similar attention; in fact, unless they are well brought up together by means of stakes and tar twine, another fall of snow may completely ruin them. Neither would they, unless so treated, present a neat, attractive appearance during the year following. I. M. H.

FLOWERS OF 1890.

THE record of the year 1890 can be perused with satisfaction by the horticulturist of almost every degree, and the list of novelties shows an increasing interest in flowers of every kind, except, perhaps, the specimen stove and greenhouse plants that have sickened a public grown weary of "trained" things. It is now the era for the *Chrysanthemum*, *Orchid*, and hardy flowers, which are fast killing the bedders out and altering to an extent the complexion of summer exhibitions as well as garden and public parks. The exhibitions, meetings, and conferences of the year that has just passed have been many in number, interesting and useful, but the conferences have lacked interest, support, and proved in more than one instance conspicuous failures, for the simple reason that every exhibition at which a few papers are read, or possibly only one lecture is given, is called a conference. They have been overdone, and it is to be hoped that their comparative failure in 1890 will have the effect of checking the "supply" in the year we have just entered. One of the truest signs of active life is in the influx of novelties, which this year seem greater than ever, interesting in a high degree, and the result principally of home industry.

ORCHIDS, as an example, still excite the enthusiasm that has been accorded them now for many years past. There have been few splendid acquisitions from abroad, but the hybridist's work is showing itself now that the seedlings raised from seed years ago, when hybrid Orchids first became a rage, are flowering freely and quickly. The opening days of 1890 welcomed the beautiful hybrid *Dendrobiums* of Sir Trevor Lawrence, Bart., from the choice collec-

tion at Burford Lodge, and the closing days were brightened by the noble *Cypripediums* from leading firms. It has been in a sense a year of *Cypripediums*. The list of sterling "good things" is long, and includes such beautiful hybrids as *Lathamianum*, *porphyrochlamys*, *Aylingi*, *Lindenii*, *Youngianum*, *Antigone*, hybridum *Eyermaanni*, *Muriel Hollington*, and *Pollettianum*, besides others. Many of these are true acquisitions. They are flowers to be admired apart from their financial value, a vast stride over the earlier hybrids, in which *C. venustum* was a frequent parent, the prevailing colours brown and green. While *Cypripediums* of the same delicate beauty as *Niobe*, in which *C. Fairricanum* has played its part, and *Pollettianum*, which is more beautiful even than its parent *œnanthum superbum*, continue to be raised, there will be little fear of Orchids sinking low in public estimation. The time for very big prices may have passed, but with the introduction of such novelties a steady demand will always exist. There has been similar activity in other genera. The hybrid *Dendrobiums*, as *D. xanthocentrum*, *Juno*, *Luna*, *Aspasia*, and the New Guinea species *Macfarlanei*, are witnesses to the love which exists for such charming flowers. The most distinct is perhaps *D. Macfarlanei*, the flowers of the purest white, unusual in shape, and each measuring about 3 inches across. The sepals are pointed and narrow, different to the petals, which are broad, but narrowing sharply to the end. The only colour is on the lateral lobes of the lip, which are striped on the inner face with deep magenta, the outer surface at the margin being blotched with the same colour. New Guinea is a country that should yield many floral treasures, the species here briefly described obtaining its name from Mr. Macfarlane, a missionary there. We describe this species by reason of its absolute distinctness from any other kind, but such a noble form of *Dendrobium Wardianum* as *Schroeder's* variety, exhibited early in the year, also deserves notice. One of the most striking introductions of the year is unquestionably *Cymbidium Tracyanum*, which is closely allied to, if it is not a variety of *C. Hookeri*. Whatever its affinity, it is a bold, handsome flower, broad, massive, and of interesting colouring, the sepals and petals greenish yellow, lined with light red, the lip creamy white, spotted sparsely with red, the inner face of the lateral lobes marked with chocolate stripes. This occurred amidst an imported batch, and from the same district we may anticipate other arrivals. *C. Tracyanum* is one of the most notable Orchids of the year, and a rich addition to a useful genus.

Of *Cattleyas* there has been a large supply. We never remember a bigger list for one season, but there are many beautiful things added to our collections, thanks to the hybridist, as *C. Empress Frederick*, *C. Massaiana*, *C. Trianae marginata*, *C. Tautziana*, *C. intermedia Parthenia*, *C. Gaskelliana* (Cooke's variety), *C. Imshotiana* (the white-petalled *C. aurea*), *C. aurea Lindenii*, *Statteriana*, *O'Brieniana*, and the beautiful batch of *C. Warocqueana*, which seems to have a close affinity to *C. Gaskelliana*. It can be truly described as a beautiful Orchid, and if it flowers regularly in the late autumn, its value will be increased tenfold. It is as variable as *Gaskelliana* itself, many forms brilliant with colour, others soft and delicate in tone. This Orchid is by no means the least interesting introduction. The two great genera, *Cypripedium* and *Cattleya*, have given the longest lists of novelties, but there have been many other interesting Orchids, as the finely coloured forms of *Lycaste Skinneri* (Young's

variety), charmingly tinted with clear salmon on the lip, and *Regina*. The famous *L. Skinneri* has received a new life from the splendid varieties now in commerce. There is a boldness of form, massiveness, and variability in the colours, from the deepest blood-crimson to even bright salmon and blush in the flowers that have made them eagerly sought for, especially as this is one of the most easily grown of all Orchids. It is not many years since *Odontoglossum Alexandræ* was to the front, and though we have had useful varieties, there is not the same interest shown in the "spots" as formerly. The tide has turned in a measure to *O. Pescatorei*, as *O. P. melanocentrum*, Mrs. G. W. Palmer, and the *Tilgate* variety, all beautiful flowers of the kind we hope to see more of in the coming season. Then we have the beautiful *Phaius hybridus Cooksoni*, *Lælio-Cattleya Hippolyta* and *Proserpine*, the noble *Odontoglossum Wattianum*, illustrated by a coloured plate in *THE GARDEN*, May 3, 1890, the pretty small-flowered *Zygopetalum crinito-maxillare*, *Epiphronitis Veitchi*, *Sarcopodium Godseffianum*, besides others. The number certificated, or given "awards of merit," is of course, lengthy, but those Orchids that have been thus distinguished have deserved it, either by reason of the distinctive result obtained, as in the *Lælio-Cattleya Hippolyta*, or for the genuine beauty of the introduction.

The *Chrysanthemum* enthusiast has good cause for congratulation. The number of novelties, greater almost than ever, is the mere reflection of the interest that is now evinced in the flower. We may also say that the novelties have shown a higher excellence this year. There have been fewer Continental importations, and greater successes from English nurserymen and gardeners. We are sure to have to record the same condition of things next year. The tide has turned, and we are pleased to know that there is a promise of new varieties in the way of *Gloire de Rocher*, raised from English saved seed. Every class has had its additions. The reversion in favour of single flowers is slow, but sure; and things that not many years ago would be laughed at as monstrosities, the single *Rudbeckia* and *Sunset* for types, are now regarded with favour. A steady disinclination to give "size" the first place is setting in. It is seen in the certificating of such true little pompons as the orange-coloured *Marion*, and not before such judgment was wanted. Forcing pompons to the size of small incurved flowers should receive censure rather than praise. While we have to welcome such lovely things, bold, large, but striking both in form and colour as *A. H. Neve*, *Beauty of Castlewood*, *Cesare Costa*, *Anna Hartshorne*, *Puritan*, *M. E. A. Carriere*, *W. W. Coles*, *George Atkinson*, *R. C. Kingston*, the Japanese *Anemone* *Duchess of Westminster*, and *Annie Clibran* (the pink *Lacroix*), we have also to notice the steady rise in the incurved division, which some affect to regard as declining in public favour. The reverse is the case, and next season the flowers are likely to receive greater attention, especially if we have the introduction of any good novelties. *M. A. Haggas*, *Violet Tomlin*, *John Doughty*, &c., have a high place at the exhibition; in truth, we should not be surprised to find the two former as largely shown as any, except perhaps the *Queen* family.

There has been the same activity in the world of Roses. The *Bourbon* variety Mrs. Paul is one of the Roses of the future. We have constantly referred to it, and the coloured plate in *THE GARDEN*, Nov. 22, 1890, gives a better idea of it than mere description. Another brilliant novelty is *Salamander*, a deep crimson

Hybrid Perpetual, which won the gold medal, together with the variety above-mentioned, for the best Rose of the year at the show of the National Rose Society in July last. *Marchioness of Lorne*, the pretty little button-hole and garden flower *Ideal*, and *Captain Hayward*, besides others, have received some award during the past season.

Garden flowers have increased rapidly. The charming *Sweet Peas* of Mr. Eckford, and the *Dahlias*, *Pæonies*, *Gloxinias*, *Delphiniums*, and *Gladioli* have all marked the year 1890 with their beauty. The increase in this direction has been enormous, and testifies to the work of the raisers. Two flowers have appeared to the front more conspicuously than in previous years. These are the border *Carnation* and tufted *Pansy* (*Viola*), both now leading garden flowers. The new tufted *Pansies* are varieties of delicate beauty, especially *Hartree*, of the softest lavender shade, and the boldly coloured *Duchess of Fife*, represented together in a coloured plate given in *THE GARDEN*, Dec. 13, 1890.

We hope the Royal Horticultural Society will not encourage such vulgar creations as the variegated *Honesty*, or when there is a dearth of novelties give certificates to old and well-tried plants that everyone who cares for gardening is acquainted with. *Babiana rubro-cyanea*, and others that can be mentioned, should not have "certificates," but simply things that are in the truest sense new. This kind of policy makes the "certificates" too cheap, and they are valued accordingly. The lovely little *Iris Bakeriana*, the near relative of *I. reticulata*, and quite as fragrant and charming, brightens the early months of the year, also the dwarf *I. Bornmulleri*, both of which are represented in a coloured plate in *THE GARDEN*, May 17, 1890. Then we have had the nearest approach to a blue hardy *Primrose* in *Oakwood Blue*, and rich acquisitions to the ever-increasing of *Daffodils* in such sterling novelties as *Mme. de Graaf* and *George Engleheart*, the latter resulting from patient work in raising seedlings by the Rev. George Engleheart. A plant that has a bright future is the dwarf *Calla Little Gem*, and the yellow-spathed variety deserves a note for its distinctness, though never likely to attain the same popularity as the common kind.

Trees and shrubs are very rare, but the beautiful *Picea pungens argentea* and *Cytisus Scoparius Andreanus* are two notable arrivals. The *Broom* has already made its way into many gardens. Its hardiness, brilliant contrast of rich yellow and deep brownish-red, and showiness are sure to make it a general favourite. There is ample room for good trees and shrubs, not so much novelties, as we have a long list of beautiful things that are old, neglected, and unknown, each worth planting to beautify English garden scenery. Something may be done by more extensive exhibition of the best kinds, as has been done in the past year, but very little can be gained, however, of the beauty of a tree in the landscape from a bunch of leafy twigs.

A brief review must not finish without reference to the stove and greenhouse flowers. The *Callas* have received mention, and are likely to prove as useful as anything, but there have been many beautiful Chinese *Primulas* added to the long selection now at command, while we have to record several noble varieties of *Amaryllis*, *Fontin's* variety of *Lily* of the Valley, *Rhododendron Williamsi*, the dwarf pale *Phoenix Rebellini*, *Dracena Miss Glendinning*, and *Nepenthes Burkei* excellens and prolifica, besides other novelties. *Pteris serrulata gloriosa* and *Nephrolepis exaltata plumosa* are both tasselled forms, likely to prove useful, but the

utmost care is necessary before making awards to things that show a mere varietal difference, likely to disappear with cultivation, or that have too great affinity to existing types. It is impossible to exercise too great care in giving distinctions to new flowers and vegetables. The many Melons and Cucumbers so honoured are scarcely all so good as others long in cultivation, and a liberal bestowal of awards, whilst not tending to give greater value to the novelties that receive it, lessens the importance of the certificates in the eyes of the horticultural world. This applies to all societies, but we feel bound to say that the committee of the National Chrysanthemum Society has shown greater caution than hitherto, with the natural result that the awards have been placed at higher value by this conscientious discrimination to single out those flowers that are thoroughly useful and distinct.

EFFECTS OF FOG.

THOSE who have had no experience of a London fog and its deleterious effects can form little idea of what plant growers who come within reach of this most intolerable of all atmospheric conditions have to put up with. I do not believe that all the mischief which is credited to the fog is due to that cause. For instance, if some plants are allowed to get too dry at the root, which they are apt to do when strong fire heat has to be kept up, buds and leaves will fall off, this will be sure to be put down to the fog if there has been a foggy day within reasonable time of the occurrence. Again, a low temperature will cause tender foliage, especially Ferns, to become discoloured. And as the fog is more prevalent in frosty weather, it is generally attributed to that rather than the cold. I have, however, had sufficient experience to know that a London fog is one of the most destructive elements we have to contend with.

Fog is undoubtedly very destructive to Roses when in a growing state. I remember once having a house of Tea Roses, chiefly Niphetos, which promised well for a fine lot of winter blooms; but, alas, the fog came, and after two or three days' duration, the leaves began to fall, nor did this cease until the plants were leafless, the numerous buds in various stages of development eventually dropping off. I did not at first feel quite satisfied that the fog was the sole cause, but after further experience in the same direction I am convinced this was the reason. Bouvardias, though not quite so sensitive, will show indisputable evidence of the effects of fog. In some instances where it has been very dense and persistent, the plants have had the appearance of having been scorched. If sulphur had been burnt in the house, the effect could hardly have been worse. The smooth-leaved varieties are the first to show the effects; those with the rough or villose leaves do not suffer so much. I have also noticed this difference with Ferns. *Polystichum coriaceum*, which has thick leathery fronds and a smooth surface, suffers where more tender species with a rough surface remain uninjured. Most Ferns will suffer to some extent when fog is very dense and continuous, but as a rule they do not appear to be so susceptible as many subjects. It is with flowering plants that the mischief is most apparent. Carnations, although the buds may be quite ready to burst open, will not advance in the least degree during foggy weather, and if it continues bad for a few days the forward buds will damp off instead of opening. It is quite impossible to grow Mignonette within range of the London fog. In Sussex we used to have Mignonette in fine condition at Christmas, and I thought I might do the same near London; however I found I was mistaken. I have had it just beginning to come into bloom when the fog has made its appearance, and the result was that all the flowering spikes went blind, and side shoots have started out instead of the flower spikes making any further advance. In some instances I have seen the spikes run up without developing the flowers, and after a few days'

sun blooms will begin to appear at the point. In some instances I have seen the leaves suffer considerably as well as the bloom. I have had several disappointments with *Abutilons* full of bloom buds almost ready to open. A day or so of fog will fetch all the buds off. It was some time before I could account for the buds falling off in this fashion, but after several failures, and each time being after a fog, I put it down to that cause. Early forced *Genistas* will also drop their buds in the same manner, but with these, dryness at the root will have the same effect. Winter flowering *Begonias* suffer very much. I have seen instances where flowers and buds have all dropped off, and the foliage become much damaged, especially in the case of the fine old *B. insignis*, which produces such an abundance of bloom during the winter months. The old double white *Primula* appears to suffer more from want of light rather than the ill effects of the fog itself. It is only after a continuance of dull, dark weather that any harm is apparent, and then the flower-stems are thrown up, but the buds go blind; the foliage, however, does not suffer. Nearly all indoor plants suffer to some extent from the effects of the continuance of such dull dark weather as we have experienced lately; yet, as I have previously stated, a great deal of the harm may be traced to other causes. It is difficult to suggest any effectual remedy for this evil, but with care it may be mitigated to some extent. In the first place, the temperature should be kept as low as possible without risking injury from cold. Where much fire-heat has to be maintained, care must be taken that the atmosphere of the houses does not become too dry. A dry heat will render plants more susceptible to the poisonous effects of a London fog than anything else. By keeping plants inactive they do not suffer so much from the fog, and have more strength to start into healthy growth as soon as we get more daylight and purer air. F. H.

FLOWER GARDEN.

EREMURUS.

"*EDGEDALE'S*" notes (p. 479) very forcibly remind one of the fact that these beautiful plants are not nearly so well known or so generally cultivated as they should be. The cause, no doubt, is owing in some degree to their comparative scarcity, but even in gardens where one expects to find some of the rarer and most beautiful things, the planting of these grand plants has not even been attempted. From their habit of growth, all the forms being extremely handsome—some more graceful, from their greater height, than others—they are well adapted for planting in the warm sheltered glades of those gardens where hardy flowers and plants are grown in a natural and informal way. In such a home they can be associated with some of the finest of our hardy plants in bold groups, with a background of fine-foliaged subjects and choice shrubs. In planting, however, care should be taken to place the roots in such positions that they would not be overgrown or in any way shaded by other plants, so that the crowns should receive the greatest possible amount of sunshine during the ripening period previous to going to rest. These plants thrive admirably in deep rich sandy loam, such as would suit *Lilium auratum*, with the addition of some thoroughly decayed cow manure. My own plants were grown in a bed filled in 3 feet deep with a compost composed of good fibrous loam, sharp river sand, peat, decayed cow manure, and charcoal, with a well-drained sheltered situation facing due south. Once well planted, they should never under any circumstances be disturbed, as the roots are extremely brittle and very susceptible to injury. The surface soil above the roots to be kept clean by hand weed-

ing and to be enriched by occasional surfacings of old manure, leaf-soil, and a little grit, thoroughly broken up and incorporated together. Autumn is the best period for planting, an operation that should take place as soon as the young plants have ripened their growth, the sites having been well and deeply prepared some little time beforehand, so as to allow the soil to thoroughly settle before the plants are placed in their new home. As the whole family dislike anything like stagnant moisture, care should be taken to avoid this evil at the time of planting, which can in any favourable situation be managed by spreading out the roots of the young plants upon the prepared surface of the bed and covering them with soil in such a manner as to form a mound, which can be afterwards surfaced with Cocoa-nut fibre refuse to exclude frost. In any case it is a great advantage to keep the crown of the plant slightly above the surrounding soil. I found a plan adopted by Mr. Gumbleton, who is a most successful cultivator of these plants, to be an excellent means of protection during winter and early spring, especially at the latter period, when the young growth is liable to be injured by frost and the plants disfigured for the whole season, if not permanently injured. The shelter, in fact, is very simple and is easily managed—in the form of a hand-light elevated upon supports placed over each plant. As it takes some of the forms several years to become flowering specimens, they are consequently valuable, but difficult to move with success at that age. It is better, therefore, to begin with three-year-old plants, but as these are raised from seed care should be taken to obtain the plants from a reliable source, otherwise cultivators may find after waiting patiently some considerable time that instead of the beautiful *E. robustus* or *E. himalaicus*, they will find they have, as in my own case, the uninteresting *E. spectabilis* or some other species that they do not want and will not care for.

I had, unfortunately, to break up my collection, which was in the finest possible condition, before all the forms I had got together had flowered, owing to losing my garden. I, however, flowered the following, all of which are very beautiful, thoroughly amenable to cultivation in the manner indicated, and to be obtained either from the best hardy plant nurseries at home, or from at least two sources on the Continent:—

EREMURUS ROBUSTUS.—Beautiful peach, shaded lilac, tall, and very handsome. This is perhaps the most plentiful and best known form, and certainly one of the most easy to cultivate.

E. HIMALAICUS is a beautiful white form, introduced to cultivation by Mr. Gumbleton, and is one of the most lovely hardy plants in cultivation; in form and height like *E. robustus*.

E. BUNGEI is a much smaller plant than either of the preceding, producing somewhat slender spikes about 3 feet in length of a bright yellow colour.

E. OLGE is also a comparatively dwarf form, received with *E. Bungei* from Herr Leichtlin, and the latest of the four to flower, producing a handsome, dense flower-spike nearly 4 feet in length, densely set with handsome lilac flowers as large as a five-shilling-piece.

These four forms all flowered finely, and were thriving admirably in a Herefordshire garden, where with several others no doubt they were extremely happy. A most interesting account of this family, with a list of the species and varieties known to cultivation, may be found in Vol. XXIX. (p. 96) of *THE GARDEN*, which cannot fail to assist those who con-

template the introduction of these noble and beautiful plants to their gardens.

King's Acre, Hereford.

W. J. GRANT.

THE GIANT COW PARSNIP (*HERACLEUM GIGANTEUM*) IN THE WILD GARDEN.

THERE is no plant that conveys to the beholder more perfect ideas of exuberant health than the giant Cow Parsnip. Its cut and plaited foliage, raised on massive stalks, its flower-stem rising erect to a great height, its noble terminal umbel of radiating stalked flowers expanding in all their symmetrical regularity, mark this plant as one of no ordinary merit. Its proper place is in the wild garden, as shown in the illustration here given. If those who have a fancy for sub-tropical gardening would use this plant more frequently, they would obtain sure and certain results instead of, as is often the case, a series of semi-failures by the use of tender plants not half so beautiful and noble in foliage. It is also well suited for planting on an island in a lake where the water would arrest

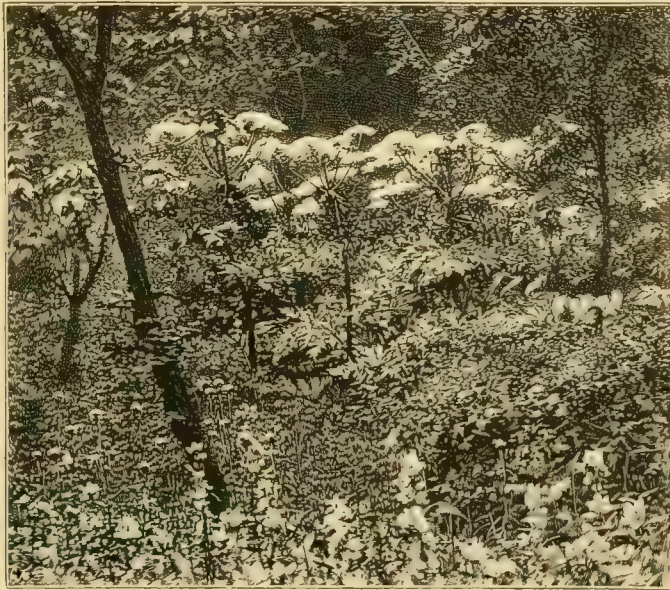
of their own, and whose taste of the beautiful in Nature has been too long neglected.

TUFTED PANSIES.

IN THE GARDEN, December 13 (p. 552), Messrs. Dobbie give us their experience of tufted Pansies as northern growers, while what I have to say will be more nearly associated with their cultivation in the south. It is a fact that on all sides if well and properly managed no plants possess such endless variety, such freedom of flowering, such perfect hardiness, and withal so cheap, so easily managed as these tufted Pansies. Occasionally we see fine clumps of some of the older varieties in the garden of the cottager or the amateur, more frequently it may be in the gardens of the rich and wealthy, but in public gardens, where such desirable subjects as these tufted Pansies ought year by year to figure, we find them rarely represented at all. Is it too much to expect that a few beds in our parks should be devoted to these tufted Pansies, which if given the most elaborate treatment and care would hardly cost a fraction of what so many of these carpet beds do annually for pinching, clipping, &c., while the enjoyment derivable from each is not to be compared for a moment. It has already been

manure from an old Mushroom bed, and scattering an inch or so on the surface to work in with the roots at planting time. Wherever practicable I plant in trenches or drills 2 inches or 3 inches deep. Especially do I follow this system on light, over-drained soils, with the object of earthing the young plants up as they grow; in fact, the more attention you pay in building up a good plant in the autumn the greater will be the reward in flowers in early spring. In this manner from October plantings I have had fine tufts before the end of the year crowded with young shoots at the base. About every fortnight I hoe them freely, and as any young growths appeared, I earthed them up with good soil, never allowing these young breaks to be exposed to the frost and wet at that season. The dense mass of young growth just below the surface that this treatment ensures is surprising, and I attach great importance to it in obtaining early flowers and plenty of them in the south. On very light soils, or soils much drained by sand, or gravel subsoils, the free use of cow manure cannot be over-estimated, and to its liberal use I attribute not a little of my success on our light soil. Cuttings, it should always be borne in mind, are infinitely superior to division, particularly if they are made of the young shoots stripped from the old stool with a heel attached. To annually obtain a supply of these cuttings, it will be necessary to plant out a reserve batch of plants for the purpose. About the second week in June, cut them back to within 2 inches of the soil. A month afterwards they will be bristling with young shoots, which are the ones for making the plants I have described. As soon as 3 inches long, scatter some fine soil and leaf-mould among the young growths, and keep well watered for a fortnight, by which time the majority will be making roots freely. A fortnight later they will be ready for planting in nursery-beds in a shady spot and in good soil, and as growth is renewed, pinch out the top of each to encourage the quicker formation of breaks at the base. By October some grand plants for putting into their permanent quarters, plants full of youth and vigour that will produce grand masses of their flowers by-and-by, will be obtained.

One point in their cultivation does not receive the attention it deserves, namely, the value of two or even three-year-old clumps, which in the north are more easily managed than in the south. In the south they can only be obtained by closely adhering to a generous system of culture throughout, deep digging and well manuring being of great importance, as also mulching the surface of the beds with short machine-mown Grass occasionally to stay evaporation, and a thorough soaking of water towards evening. Another item also worthy of notice where light soils exist is planting them in slightly sunken, instead of raised beds. Again, these tufted Pansies make quantities of new roots on the surface, or near it annually, and to keep plants in vigour and health for two or three seasons in succession, these roots must be encouraged, and the best way to do it is to cut the old plants well back each autumn, lightly forking the surface soil if possible, then mulching freely with soil and manure well rotted and in equal parts, working the same well in among the growths, so as almost to hide them. In favourable weather they may receive a good soaking of liquid manure occasionally; this is of much benefit in winter to old established plants. Let this be repeated from year to year, and the result will be masses of bloom, such as are rarely seen. Such plants, too, bloom much earlier than young ones, and continue to produce flowers in greater numbers also through the season. At one time I thought the collapse, or "going off," as it is termed, was due to growing them on too light a soil in the south, but a suggestion I received from Mr. Baxter, of Daldowie, bore testimony to northern growers suffering also from the same cause. Mr. Baxter's remedy was watering with lime water, which I repeatedly tried, and I dug lime freely in the beds, but all to no purpose. Soils, too, are so differently constituted, that while it may assist in some, it would be injurious in others. I find, too, that a far greater percentage collapse when the plants have been



Wild garden at Durham. Engraved for THE GARDEN from a photograph sent by the Rev. H. E. Fox.

its roving propensity, and where the tall stems might remain during the winter. The number of seedlings that spring up round the parent plant, and the vigour and rapidity with which they grow are surprising.

The Rev. H. E. Fox, who kindly sent us the photograph, thus writes in reference to the wild garden at Durham, part of which is here shown:—

The photograph which I send you shows a group of the giant Cow Parsnip (*Heracleum giganteum*) in the wild garden belonging to the Dean and Chapter, known as "The Banks," in this city. Owing to the intelligent and active interest of Canon Tristram and the care of the head man, Mr. Burnell, the walks by the riverside through the wild garden are beautiful beyond description. Rhododendrons and hardy Ferns, Foxgloves, and handsome foliaged plants with masses of Bellflowers are grouped with great taste and effect, and what was a few years ago an untidy and dirty haunt of idle lads is now a charming and peaceful resort for all classes, and no insignificant factor in the elevation and education of poor people who have no gardens

pointed out that these tufted Pansies may be grown in any style to suit the taste, but while this is so, there is no way of illustrating their freedom and beauty equal to planting them in large beds either alone or as a carpet for other plants; the latter an excellent way in the southern counties, inasmuch as a little shade is thus afforded them in the hot summer months. What these plants really love is a cool, moist soil of fair depth and moderately rich, and in such they thrive in a most remarkable manner. In northern districts they are naturally more at home under ordinary conditions than in the south similarly treated, and to bring them to perfection in the latter, special treatment is necessary.

For early spring flowering the cuttings must be rooted in July or August, and planted out in their places the first or second week in October, they commence blooming early in April, and to obtain these results I have adopted the following system: In heavy soils, that is, such as are liable to crack with drought, I use abundance of leaf soil, burnt ashes from the rubbish fires, and the like, to bring them into better working. I also select a dry time for digging, working in the above with plenty of short

raised from division than when grown from cuttings, and therefore again prefer the latter.

By accident rather than otherwise an excellent way of using these to advantage was suggested a few years ago. I had a bed of dwarf H.P. Roses, and round the margin I planted some Violas; these latter were pruned back as above described to stand for another year, with this result: they flowered much earlier the ensuing season, and produced lovely masses of their flowers, quite surpassing that of the first year. One variety, however, was quite conspicuous; this was Ardwell Gem, for it clambered among the Roses to about a foot high, flowering all the while and forming a perfectly dense bank of flowers, one of the most charming pictures I have seen. The lovely varieties, Duchess of Fife and Hartree, I am not yet acquainted with, though I should regard them as acquisitions. It is singular to relate of the "edged" varieties, and in particular of Skylark, that the lovely blue edge vanishes entirely in very hot summers, and returns again in the cooler days of autumn. I am not aware if this is the experience of northern growers of this variety. In conclusion, I may just add a few excellent kinds not mentioned at p. 553: Countess of Hopetoun, very fine pure white, sturdy, vigorous, and free; this is in this district very much superior to Snowflake, more continuous in flowering, and of greater substance; Mrs. Charles Turner, a model for growth and freedom of flowering, colour purple, an excellent bedder; Paragon, rich deep violet self; Queen of Purples, maroon-purple; Crimson Gem, rich crimson; Ethel Baxter, bright rosy puce, veined with a darker shade; Sir Joseph Terry, rich velvety black; True Blue, very compact and dwarf, good companion for the last named; Duchess of Albany, silver grey and mauve, a most charming flower; and Bullion, also mentioned by Messrs. Dobbie, deep golden yellow in dense masses and always in flower. My plants of this are now thick with buds and old flowers beneath a bed of snow. I know nothing to approach it in any way; it should be seen in masses in every garden.

E. JENKINS.

Hampton, Middlesex.

TWO VALUABLE HELLEBORES.

Two plants have behaved so excellently well in my garden just now that they deserve a word of recognition in your columns. I refer to the meritorious conduct of *Helleborus niger* var. *præcox* and *H. lacteus*, both of which I obtained from Herr Max Leichtlin. How much I owe him from a gardening point of view! How flat and stripped of all their glory everything here would be if I were to lose his aid!

The indebtedness of which I have spoken above was in this wise: Of course, it is a point with me to have flowers which are available for church decoration at the great festivals of the year, and this I generally manage with ease. Even at Christmas summer flowers are so often holding on in the Isle of Wight, that I can ask the ladies of the church to walk into the garden and to help themselves. But this year such a thing was put out of the question. I must confess that a frost of three or four weeks' duration before Christmas made the whole place look bare, and I was no better off for the most part than the florists and greengrocers of Ryde about a supply of flowers. But there has been one lucky exception to all this. *Helleborus niger* var. *præcox* and *H. lacteus* put in an appearance about three weeks or a month ago, and they then yielded the first-fruits of their full crop of blossom, which I gave to a children's bazaar. But they were very speedily sent back into retirement, and, owing to the great cold we have had here, they have lived on in a state of suspended animation from that time to this, and so they would have continued to do if it had not been for a slight relaxation of the frost about ten days ago. I at once put hand-glasses over them, and by means of coaxing and persuasion of every imaginable kind, by keeping the blossoms for a short time in water in a warm room, and slitting the ends of the stalks an inch or more upward, I managed to have several dozens of very presentable Christmas Roses, which

were just in time for the great occasion of the year, and at all events the font of my church looked much as it has looked on many previous Christmas Days, and an otherwise inevitable barrenness was redeemed. But I owe all that to *Helleborus niger* var. *præcox* and *H. lacteus*. No other Hellebore, with perhaps the exception of *H. maximus*, has turned a leaf. *H. angustifolius* is still sleeping tranquilly in her leaf-mouldy bed. Mme. Fourcade has not opened her eyes. The orthodox *niger*, which is generally well up to the occasion, failed me entirely, and my greengrocer friends in Ryde would have done just as well or as badly as I could have done but for this unexpected aid. The moral of it all is the following: Given only an ordinary year, say any one of the last twenty-five years, and *Helleborus niger* of common and ancient repute will pull you through in the matter of Christmas decorations without any failure at all. But let there be the strange occurrence for this part of the world of a three weeks' frost in December, and then *Helleborus lacteus* and *H. niger* var. *præcox* will come at once to the front, and be of the greatest value. In rather a great strait so far as my church was concerned, they pulled me quite out of the fire, or, perhaps I should more correctly say, out of the frost and the cold.

Some of your readers may be pleased to know that I have had a letter from Herr Max Leichtlin, in which he says that a paper of his on Fritillaries will be read at the meeting of the Royal Horticultural Society in March. He will easily set us all straight.

H. EWBANK.

SEASONABLE NOTES ON FLORISTS' FLOWERS.

WE are now in mid-winter with cold weather and frost frequently intense, but all the low-growing garden favourites are comparatively safe under their snowy covering. Even in frames the Auriculas, Carnations, Picotees, Primulas, &c., have not seen daylight since the frost set in, but 4 inches or 5 inches of snow now lie upon the glass, and I do not know of any better covering. In the open borders, Pansies, Pinks, Tulips are pushing through the ground. Carnations, Auriculas, &c., are much more secure now than they are in milder winters, when cold rains are succeeded by frosts week by week, the plants being sometimes thrown out of the ground and requiring frequent attention. For all delicate alpine plants no better protection could be devised than the present covering of snow. Therefore, while the frost continues, we will have no trouble with anything out of doors or even in frames. Of course, in our uncertain climate we must be prepared for a sudden change at any time. If a mild period sets in the whole collection will require looking over, beginning with the plants in frames. There are sure to be many decayed leaves requiring removal, and probably it will be necessary to stir up the surface soil in the pots. I hope that the long period of frost will do something towards destroying the troublesome *Auricula aphid*; it seems to shrink into nothingness during frosts. We may hope that the present season will be too much for it.

Amongst what may be strictly termed florists' flowers there are of necessity the following yet under protection, viz.: the Anemone, Ranunculus, Gladiolus, and Dahlia. As to the first-named, some may say that the roots should have been planted by this time. I used to plant the ordinary varieties of the garden Anemone in the autumn, but the winters recently have been unfavourable, and many of the small tubers have perished in the ground. Last season the Anemones were not planted until February, and I never had a better display. They were in full beauty about the third week in May, and as the folded cups opened to the first rays of the morning sun they were exceedingly beautiful, and so varied in colour—rich scarlet, crimson-lake, rich purple, blue and white, rose, and cream-coloured. The Anemone was a well-known garden plant when Parkinson wrote the "Paradisus," and he described as well as figured the following: double scarlet, double crimson velvet, double white, blush, blue and purple, rose,

carnation colour, &c. He recommended planting them to obtain a succession of bloom from August to April, and adds that those planted in February will flower from the middle to the end of May. This is certainly quite correct, as I have been able to verify. I think the Anemone likes a clayey loam in preference to sandy soil over gravel. The ground should either be deeply dug up or trenched and enriched with decayed manure. I have succeeded best when the manure has been from stables, where peat litter was used as manure. The more the surface soil is turned over and exposed to the action of the atmosphere the better. Plant out the tubers when the ground is in a dry state if possible, but whether it is dry or not, it is a good plan to place a little sharp sand under and over each tuber. When planting draw the drills 3 inches deep; 6 inches should be allowed between each tuber, and the rows may be 10 inches or a foot apart. Tubers planted in February start into growth at once, and none of them decay. The Ranunculus tubers may be planted a little later in the season, but they succeed well in favourable seasons if planted in February; but the best growth we have ever had was from tubers planted about the end of March. They are very small in a dry state, and more care is necessary in planting them; the surface of the bed should be fine, and a shallow drill must be made, so that when the tubers are put into the ground the crowns are about 2 inches below the surface. A moderately clayey loam suits the Ranunculus well, but I find that if the surface of the bed is made up with a good proportion of sandy peat, better and cleaner tubers are produced for next season's growth. The Ranunculus also requires a good supply of water if hot, dry weather sets in before the flowers open. It seems to be a moisture-loving plant, and seldom gives much satisfaction on dry, light soil. Mr. Simonite, of Sheffield, told me that the finest beds of Ranunculus he had ever seen were in a moorland district, where they were planted in the natural damp peat soil of the place. It is well to add that the tubers should be examined to remove any that have mould upon them. I lost hundreds last winter from mould, which attacked the tubers at the crown.

The Gladiolus does not require much attention at present except to see that the corms are not exposed to the frost. If the frost penetrates the room where they are they might be all destroyed; whereas if they had been left in the ground they would all have been perfectly safe under their snow covering. We also learn something from previous mistakes made by ourselves or others. I well remember when I was an apprentice, that the whole collection of corms had been lifted at the usual time, and each variety was carefully placed by itself in a flower-pot, and to make sure that they were safe from frost the gardener had them all placed as they were upon the brick-work setting over the hot-water boiler. The weather was intensely cold—just such as we have now—the boiler requiring extra heating; but it was too much for the Gladiolus corms. When we came to examine them in the spring, the whole of them could be crumbled up into powder by the hand. This blunder leads to the conclusion that too much heat may have the same effect as too little. I have always kept mine in a fruit room, from which frost is merely excluded, as anything like a high temperature is injurious to the fruit. Those who have seedling corms of a year's growth should preserve them in dry sand. Any of them, seedlings or others, that start into growth should be planted in pots, and in a season like the present they may be kept in a heated house; but usually, if the pots are plunged over the rims in a frame in cocoa fibre refuse, that is sufficient. I find that the small yearling seedlings have a greater tendency to start into growth than the large corms.

The Dahlia tubers are much more sensitive to frost than any of the subjects named above. I keep mine in a shed where the temperature is maintained well above the freezing-point by means of hot-water pipes, but the tubers may be stored anywhere, if frost is merely excluded. A cellar will do, and probably a dry cellar is the best place for them, as they are sometimes injured by being

dried too much, especially if the tubers are small. Those who require a large number of plants will soon think about placing the tubers in boxes closely together, and covered up to the crowns in some light soil or decayed cocoa fibre refuse. The boxes must be placed in any house where forcing is going on, but a high temperature is not desirable; probably it is injurious. I find that they do remarkably well in a vinery or Peach house where forcing has begun with a temperature of about 45°, or even less if the weather is very cold. The boxes are usually placed over the hot-water pipes, and the young growths soon appear. They can be taken off when they have grown about 2 inches, and roots form very readily if the 2½-inch pots are plunged in a little bottom heat. What are Dahlia pot roots? ask several correspondents. These are obtained during summer by striking cuttings from the old plants growing in the open ground. It is necessary to remove some of the shoots at any rate, and if they are cut through close under a joint, they soon form roots in frames even if there is no bottom heat. Each plant should be potted in a 4-inch or 5-inch pot, and be grown on out of doors until there is danger of frost, or they may even be left out until the first frost kills the leaves. By that time each plant will have formed a good tuber. These may be started later than the ground roots.

J. DOUGLAS.

THE WEEK'S WORK.

KITCHEN GARDEN.

FORCING ASPARAGUS.—The progress made by Asparagus has been exceptionally slow, top heat being insufficient, while the long spell of severe frosty weather has made it dangerous to open the lights of pits and frames. Where fire heat has been principally used for excluding frosts and keeping up the temperature there is every likelihood of the soil about the roots becoming very dry, this being most injurious to them. Every favourable opportunity ought therefore to be taken of examining and thoroughly moistening the beds whenever found approaching dryness. Directly it is possible to lift more roots without greatly damaging them, this should be done in sufficient quantities to fill one or two more lights. Once a few small dishes have been sent to the table, the supply must be kept up, fitful supplies being unsatisfactory.

SEAKALE.—This can be pushed along more rapidly, and if wanted very quickly large pots well filled with stout roots may be set direct on hot-water pipes or flues, great care being taken to well blanch the growths by means of closely-stopped inverted flower-pots. The soil in which Seakale roots are placed ought always to be somewhat rich, and should never be allowed to become dry. Small batches of roots ought to be introduced into heat every week or ten days in preference to larger quantities less often. The tops are at their best when not more than 5 inches or 6 inches high, becoming less tender and mild in flavour if kept long before they are used. It is worthy of repetition that the Lily White Seakale forces better than the old form, and few, if any, cultivators would long retain the latter after a good stock of Lily White has been raised. Forcing in the open ground has been very slow work latterly, the beds losing heat in a few days after they were put together, but unfortunately this old-fashioned method must still be largely resorted to in many small places. All that can be done is to mix nearly fresh heating material with the old and to further screen it from cold winds as much as possible. Should a sudden change to warm weather take place the beds must be closely watched, and if found to be heating strongly the centres ought to be opened out somewhat, or harm will result. Cover up more clumps every fortnight or three weeks. It is to be hoped the difficulties experienced in forcing Seakale in the open ground will cause many more gardeners to adopt the plan of raising a considerable number of plants every summer for lifting and forcing during the following winter. They take up very

little room when forced in either Mushroom houses or in any other well heated structure, and the trouble necessarily expended on them is comparatively trifling.

RHUBARB.—Much that has been advanced concerning Seakale also applies to Rhubarb, this also causing much the least trouble when lifted and forced. A few large clumps of an early variety might well be reserved, and just before active top growth commences be lifted, split up, and replanted in deeply dug, freely manured ground. These would make grand clumps for lifting and forcing early in the winter of 1893, though, if need be, some of the strongest might be lifted and forced next winter. That forced in the open ground with the aid of large tubs and hotbeds of manure and leaves has come on very slowly, in marked contrast to the clumps placed in either warm cellars, Mushroom houses, or any position artificially heated. Later on the produce will be best from the open ground, now being a good time to cover up several clumps with either tubs, old tins from sugar refineries, flour and cement tubs, and the regular Rhubarb pots. A portion of the bed may be at once covered with a good depth of heating material, or enough to retain its heat, yet without becoming violently hot. Straw litter might with advantage be thrown over the rest, and a covering of litter only will make fully a fortnight's difference in the earliness of the stalks.

KIDNEY BEANS.—Plants raised prior to mid-winter are invariably weakly and produce very light crops. Any obtained by sowing seed now will have the benefit of more light, sunshine, and heat, and will do better accordingly. To keep up a good supply a considerable amount of house room will be required, as it is necessary that there should be three and sometimes four batches going at one time—from twenty-five to fifty pots, according to the extent of the demand constituting a batch. Either 8-inch or 9-inch pots are suitable, these being moderately well drained and nearly filled with good loamy and not heavy compost prior to sowing the seeds thinly or about a dozen seeds in each, these being covered with about 1 inch of soil. This is a simpler and better plan than either sowing in small pots and shifting into larger ones, or of allowing space for subsequent top-dressings, and which are of no service whatever to the plants, as the roots seldom, if ever, find their way up into any surface dressings of soil. Ne Plus Ultra is the best variety for present sowing, though Osborn's Forcing and Sion House also force well. In any case, new seed should be sown, this germinating the most strongly. A week or more will be gained by setting the pots on the hot-water pipes till the plants are well up, after which they ought to be thinned out and then given a light position and plenty of heat, the temperature seldom, if ever, falling below 60°. Water very carefully at first and till the pots are fairly well filled with roots, more water and liquid manure being given when the plants have reached the bearing stage.

LETTUCES FOR CUTTING.—Salading, in common with other hardy and half-hardy vegetables, has suffered during the very wintry weather so long experienced, and in all probability a scarcity will soon prevail. Chicory alone is of little value, but if this can be accompanied by crisp young Lettuce leaves, and perhaps Mustard and Cress, a presentable salad may be occasionally provided between the time of Endive being exhausted and Lettuce being had fit for use from frames. Sow the seed of any of the Cos varieties rather thickly in either pans or boxes of loamy soil, covering lightly, and set these in heat, a hotbed in a forcing house answering well. Directly the seedlings are well up transfer to a shelf near the glass, but still in heat; water very carefully and avoid overhead syringings, the tender seedlings thus early raised being very liable to damp off wholesale. If there is a tendency to extreme weakness observable in the plants, shift them to a warm greenhouse or intermediate house, swing shelves near the glass suiting them well. When about 4 inches high cut them cleanly over for use much the same as Mustard and Cress is treated. Make successional

sowings about every fortnight, giving the preference to new seed.

LETTUCE FOR FORCING.—Those who can afford to devote a mild hotbed and a frame or frames to the production of early Lettuces ought to at once sow seed of the invaluable Early Paris Market, a Cabbage variety that forces admirably. A good-sized pan would hold enough plants for a two-light or larger frame, the seed being sown somewhat thinly in this and placed on a hotbed to germinate. After the seedlings are well above the soil they should be kept near the glass in gentle heat till they are large enough for pricking out where they are to grow.

W. I.

PLANT HOUSES.

STOVE.—**ARDISIA CRENULATA.**—This is still one of the best berry-bearing plants when small. Where stock is to be raised from seed, the sooner this is sown the better, as when early sowing is practised the seedlings have a better chance of attaining size before the end of the season. A large seed-pan is sufficient to raise as many plants in as will suffice for one season in most private gardens. Drain the pan and fill it with finely-sifted peat, to which add a fair amount of sand. Press the material down fairly firmly, put the seeds in about an inch apart, and cover them with about half an inch of the material; again press down, so as to leave the surface smooth. A temperature of from 65° to 70° is necessary to get them to vegetate in reasonable time. As soon as the young plants appear stand them near the glass, where they will have plenty of light. They will get large enough for potting off singly during the spring. The white-berried form of the plant (*A. crenulata alba*) should be grown as well as the red one. The contrast afforded by the two colours improves the appearance of both.

FUCHSIAS.—Where Fuchsias are required to bloom early in the season in a small state, means should be at once taken to provide cuttings. An old plant or two of each variety to be grown that have been kept comparatively dry at the roots since autumn should have the soil moistened and be put in heat. In an ordinary stove temperature, syringed overhead once or twice a day, they will break immediately and afford cuttings in a few weeks in good condition for striking.

BOUVARDIAS.—Plants that have been subjected to the drying process recommended a short time ago may now be cut back and started into growth. All the green immature wood should be cut away. By this means the plants will break more regularly. Soak the roots, so as to make sure that the whole of the soil is moistened. A temperature such as advised for Fuchsias will answer, syringing them overhead in like manner. When the cuttings are from 1 inch to 1½ inches long, they are large enough, and if taken off from the base whence they spring and inserted 1 inch apart in pots or pans filled with sand and kept close and moist in a temperature of about 70°, few will fail to strike. When they are rooted, they should be put singly into small pots and kept on growing in a light house or pit, with a temperature similar to that in which they have been struck. The points should be pinched out as soon as the little plants are fairly established to induce them to break out at the bottom.

TUBEROUS BEGONIAS.—To get seedlings of this section of Begonias forward enough to make an effective display during the ensuing summer, the seed should shortly be sown. Finely-sifted peat, with a liberal amount of sand added, answers for sowing in. The seeds can be sown either in large pans or shallow boxes. Press the material moderately firm, and make the surface quite smooth. The seed may be sown more thickly than that of most things, as to do justice to the seedlings, they require pricking off from the seed-pans whilst they are much smaller than those of most plants. One of the great points in the cultivation of these Begonias is to move them two or three times whilst they are quite small before transferring them to pots. This is necessary to encourage the formation of a quantity of roots near the surface, in place of

a single strong descending root, which is usually formed if the seedlings are left to get large before being pricked off.

TUBEROUS BEGONIAS, DOUBLE VARIETIES.—Any new varieties that happen to be scarce, and of which it is desirable to increase the stock, should now be started. Put them in pots proportionate in size to that of the roots. It is not advisable to give them more room than is needful, especially at first, as they can have larger pots later on. Drain the pots sufficiently. Good, free, turfy loam with a little rotten manure and sand is the best for these Begonias after they have got beyond the seedling stage. Keep the crowns of the tubers well up to the surface. Make the soil moderately firm in the pots; if this is not done it is liable to hold more water than is good for the tubers until they have pushed a considerable amount of new roots.

IMANTOPHYLLUMS.—One of the advantages attending the cultivation of these plants is that with a sufficient number a supply of flowers may be kept up for a good portion of the year. Plants that have been kept cool, dry at the roots, and at rest since autumn may now be started. It is best to soak the balls for some hours in a pail of water. If this is not done and the soil has been allowed to become quite dry it is difficult to get the whole moistened through. The plants may be stood either in an intermediate or a warm stove temperature. If wanted to bloom early, the latter will answer best. If the specimens are at all under-potted, and consequently have exhausted most of the nutriment in the soil, it will be well in the course of a few weeks, after the roots have begun to move, to give manure water. This will not only help the development of the flowers, but it will also benefit the growth which the plants make afterwards. Should the stock have been at all affected with insects, such as brown scale or mealy bug, the specimens should have a thorough cleaning before they are put in heat.

HARDY SHRUBS, FORCING.—It is now necessary to look well ahead as to what will be required in the way of forced hardy flowers of this character, so as to have a sufficient quantity in at the time they will be wanted. On no account should the forcing be hurried, as when this is done the flowers are short-lived, and of comparatively little use when required for cutting. In all cases select such kinds as naturally bloom early, and that therefore will come in to flower without much excitement.

LAURUSTINUS.—Plants of this were well set with bloom this autumn, and where the precaution was taken to pot up the requisite quantity before the flowers were injured by frost, they will be found useful. Standards as well as dwarf bushy specimens should be used; the former are best for greenhouse and conservatory decoration. Little heat is required to get them into bloom. Syringe overhead once a day.

RHODODENDRONS.—If, as advised some weeks back, a portion of the plants potted consisted of caucasicum hybrids, these should be used first. In the open air, from the natural disposition they have to bloom early, they open their flowers before the season is sufficiently advanced to admit of their being of much use; but for blooming in pots they are invaluable. With a little warmth the buds come on quickly. Amongst other evergreen shrubs, *Andromeda japonica* and *A. floribunda* are both beautiful, opening their flowers purer in colour indoors than they do outside. *Deutzia gracilis* is too well known to require any comment further than that the flowers are suitable for cutting and the plants for conservatory decoration. In the small growing shrubs, the double Chinese Plum should have a place. It is one of the most profuse flowering of all hardy subjects. Those named are amongst the best and most suitable for early forcing.

BULBS.—A few more bulbs, consisting of Hyacinths, Tulips, Snowdrops, and Scillas, should be brought into the forcing-house to follow those already coming on.

POTTING SOILS.—The different materials, consisting of loam, peat, leaf mould, and sand, required for the general spring potting should now be got

under cover and spread out to dry. The floor of a dry shed, with plenty of air admitted when the weather is not frosty, is the best place to effect the object in view. T. B.

ORCHIDS.

AS I write these lines in the midst of a winter exceptional in its severity, a gardener cannot but feel considerable anxiety for the plants under his care during such a long period of severe frost. In some cases, even in country places, this has been accompanied by deleterious fogs, which have caused such things as *Calanthes* to lose their flowers almost as soon as they have opened, and as these are in many gardens the most useful Orchids both for cutting and decoration at mid-winter, the loss has been serious. The steady persistency of the frost has been in our favour, as far as attending to the daily routine of operations is concerned. It has made the work easier, and where the heating apparatus is efficient there has not been any difficulty in keeping up a uniform temperature, and the plants in every department look very promising indeed for mid-winter. For the next six weeks the temperature of the cool house, that set apart principally for the cultivation of *Odontoglossums*, *Masdevallias*, &c., from the high mountainous districts of South America, should be about 45° as a minimum, but I do not insist on binding the young men in charge strictly to this figure. One night we had 9° of frost, with a keen wind blowing from the north; consequently, the temperature fell to 40°. Another still night, with 18° of frost, there was not any difficulty in keeping the temperature to 45°. Unfortunately, the continued density of the atmosphere has prevented the sun from shining. Not three times in three weeks have slight breaks in the canopy overhead given us welcome glimpses of the sun's cheerful rays. This want of sunshine in winter is a great trial to the gardener, as we seldom get the day temperature much higher than it is at night; about 5° more is as much as we expect. The same remarks in a comparative degree apply to the other departments. The *Cattleya* or intermediate house ought to be about 55°, but in these intensely cold nights I would rather it fell below this. We have had it down to 48° more than once. The same rise of 5° may be expected by day. The warmest house has a minimum temperature of 60°. This has also fallen below that, as the others have done; indeed, all the compartments being exposed to the same external conditions, they fluctuate in the same way. A good deal depends upon the state of the atmosphere inside the houses. Ours are all furnished with evaporating troughs, and these are cast upon the pipes, so that when they are filled with water this comes in immediate contact with the hot-water pipe itself; therefore the hotter the pipes are the more saturated is the state of the atmosphere. We want this during the growing period, but as we are yet only in the time of rest, a steaming atmosphere would be a grave error; indeed in none of the houses is any water allowed in the evaporating troughs, so that after a night of rather heavy firing the atmosphere feels dry, warm, and pleasant, even if the temperature is lower than we like. Between nine and ten in the morning the paths, and sometimes the stages, are sprinkled lightly with water taken from a tank under the stage of each house. Hard water is used for this purpose, as all the rain water we can save is required for the plants; on some days we also sprinkle lightly at three in the afternoon. It has been difficult to find an opportunity to admit air through the ordinary ventilators either above or below, but where the houses are well exposed, as ours are, the least spaces between the panes admit the chill outer air. We have sometimes been able to open the "hit-and-miss" ventilators which I had placed in the walls exactly opposite the hot-water pipes. These are open night and day even in winter if the weather is mild, as not much air is admitted, and as it enters the house it comes into immediate contact with the hot-water pipes. Cold air being heavier than heated air, it would not ascend amongst the plants until it became as warm

as the air in the house or warmer, for it is certain that the pipes heating the air of the house even rarify it and cause it to ascend in its heated state, and thus promote a circulation even when the ventilators are not open. All the same we do not lose a chance to open the ventilators alluded to as often as we can, and always on the side opposite to that from which the wind blows. One does not know how soon a change may come; the west winds may blow soft and pleasant ere these few remarks appear in type, but while the frost continues an opportunity is afforded to carefully examine the entire collection plant by plant, and if necessary sponge over the leaves, remove all scale, green-fly, thrips, or insect pests of any kind. Baits have to be laid down for slugs and woodlice; it may be well to examine them at night, as they may sometimes prefer the tender growths of Orchids starting from the base of the plants to slices of Carrots or Potatoes. We have a choice *Dendrobium* suspended from the roof glass; the flower-buds are well advanced, and it is also starting from the base. In such a position one would have thought it might have been safe, but we found the young growths eaten, evidently by a slug, and they continued to be eaten, although the surface of the basket was covered with tempting slices of Carrot and Potato. We had no alternative but to soak the basket in tepid water, and this forced out three very small slugs which had been doing the mischief. At this season spikes will be pushing up from the axils of the leaves of the recently formed pseudo-bulbs of *Odontoglossums*, and in some cases they are not vigorous enough to force themselves up without the efficient aid of the cultivator; the top of the spikes catch in the folds of the leaves, and as growth progresses it is doubled up, and if not released snaps in two. *Cypripediums*, such as *C. villosum*, with weak peduncles require attention if the specimens are large, as they are not strong enough to support the flowers in an upright position. A stick must be placed to each flower to hold it up during its development. This must be done at as early a stage as possible, or the flowers will certainly be in an unnatural position when expanded. J. DOUGLAS.

GARDEN FLORA.

PLATE 787.

THE PURPLE VIRGIN'S BOWER.

(WITH A COLOURED PLATE OF CLEMATIS VITICELLA VAR.)*

Of all hardy climbing plants in cultivation the Clematis stands pre-eminent, not only in its being so varied and ornamental in its characters, but also in its being so thoroughly useful a subject for all parts of the garden. There is perhaps no genus in English gardens so beautiful and invaluable, or so much sought after by what may be termed outsiders. It cannot be denied, however, that, beautiful as the species themselves are, much of their well deserved popularity is due to the facility with which they hybridise with each other, and the many charming combinations that have been from time to time produced by this means. The dawn of the Jackmani section in which we got a hardy type, together with an abundance of flowers, has done much to make this class of climbers invaluable even to those not possessed of a garden. The severest winters we have do not in any material degree injure them, and to see porches, summer-houses, &c., become during the bright months of the year masses

* Drawn for THE GARDEN by H. G. Moon, at Gravetye Manor, Sussex, August 16, 1890. Lithographed and printed by Guillaume Severyns.



CLEMATIS VITICELLA VAR.

of blossom is one of the most effective sights in a garden. These variously coloured flowers are successively and continuously renewed during the summer and autumn months. Taking the species alone, there are considerably over one hundred at present known to us, inhabiting, as a rule, cold or temperate climates; the garden varieties, many of which are extremely beautiful, increase the total to something over double that number. From the Himalayas we have many beautiful species, one of the best known being *C. montana*. This species, which produces successively huge bunches of pure white flowers as early as May, is one of the most useful for trellises, walls, or trees. It has a vigorous growth, and blooms in such profusion as to almost hide the pretty ternate foliage. Where rapidity of growth combined with hardness is required, *C. montana* should always have a trial. It does not seem at all particular to soil, and so far as I have observed does well in any position. This species, and indeed most of the other vigorous growers, derive much benefit from a periodical mulching, which is best given when growth begins in spring. I prefer using half rotten manure, with which to cover the surface of the soil some distance round, and finally give a good watering. The *Viticella* type, to which the flower represented in the accompanying plate belongs, is one of the most charming and graceful of all the species when allowed to grow in a natural way. Its chief characteristic is the long-stalked drooping flowers, blue, purple, or rose-coloured, produced in succession from June to September. In regard to soil, a light well-worked loamy medium seems to suit this species best, with occasional dressings of manure. *C. Viticella*, a native of South Europe and Western Asia, was introduced about 1569, since which it has given rise to several varieties, that on the plate being one of the best singles, there being also one or two double forms. The Jackmani forms may also be used much in the same way. *C. lanuginosa* has also given rise to many garden varieties, continuing to flower from May until October. It will be unnecessary to give a list of the garden hybrids, most of which may be had at any of our nurseries usually in large pots ready to plant out where required. The double as well as the single varieties are now largely used for conservatory and corridor decoration. They are grown in large pots, the vines being trained over balloons, and when well done the effect is very fine. Many of the American species are also very useful for trellises, &c.—*C. Viorna*, *C. crispa*, and *C. coccinea*. From China and Japan, however, come most or all of the large-flowered forms so much admired in gardens, *C. cœrulea*, *C. lanuginosa*, *C. florida*, &c., being among the best of them. The list of these plants is so large, and the majority of them so beautiful, that it would be a somewhat difficult matter to make a selection, even for a large garden. D.

Top-dressing lawns.—January is a good month for this work. Whatever is used as a top-dressing, care should be taken that the seeds and

weeds are not conveyed therein. The most useful dressing I have ever used is bone meal mixed with wood ashes, in the proportion of about one of bone meal to ten of ashes, to be thoroughly blended and then scattered evenly over the lawn. If the grass of the lawn is weak and much infested with moss, the latter should be well scarified, first with an iron rake and then swept off with a hard, stubby birch broom. Lime and soot in mixture are useful appliances for checking the growth of moss and improving and strengthening the grasses. If there was more top-dressing done, there would be less moss and fewer weeds to grub out. Especially is this necessary where lawns are frequently mown with a machine with the cutters set to cut very close, a mistake that is often made. I always like to keep the cutters set rather high at the beginning of the season; the grass may look a little long at first, but when the machine is always run at the same level, the turf soon fills up below, and is soft and velvety.—E. H.

ORCHARD AND FRUIT GARDEN.

MUSA CAVENDISHI.

BANANAS are slowly, but surely gaining ground in this country, hundred-weights of them being now eaten where ten years ago as many pounds sufficed to meet all the demands of a neighbourhood. A fruiterer's shop would appear incomplete, at this time of year especially, without an enormous cluster of Bananas in a most prominent position, and, as far as I can learn, none of these are spoilt, but are bought as fast as they are fit by those who have acquired a taste for them. They are brought from various tropical countries, the Christmas supply—an exceptionally heavy one, I am credibly informed—being drawn principally from Madeira and the Canary Islands generally. So plentiful and cheap are they, that it is very certain that, no matter how great the demand may eventually become, Banana growing as an industry will never be started in this country. But if neglected by those who grow fruit for profit, there is no reason why they should not be more generally grown as a luxury. It may be said of this fruit as one so often hears concerning Pine-apples, "Why go to so much trouble and expense in cultivating what can be bought so cheaply in the markets?" In the case of Bananas, and even in that of Pine-apples, though in a less degree, there is a very good reply, for as it happens there need be little or no extra expense in the cultivation of these choice fruits, added to which Musas are really of a highly ornamental character, while the home-grown samples are far superior in point of quality to any that are imported. I find it somewhat hard to convince visitors of the truth of the latter fact. The majority of them are more interested in the Bananas than any other fruit we can show them, the question being invariably asked, "Do they ripen properly?" and "Are they fit to eat when ripe?" It ought not to be necessary to point out to intelligent observers that those clusters of Bananas imported into this country are cut before they are half ripe, and oftentimes before the earliest on the cluster have commenced to change from a rich green to a dull yellow colour. Ripe fruit would neither travel nor keep well, and Bananas must perforce be cut in a comparatively unripe state, the ripening process going on during the voyage, and being completed after arrival here. Consequently they cannot possibly possess anything like their full lusciousness and flavour, and in reality compare very badly with home-grown fruit.

According to competent authorities, it is the fruit of *Musa sapientum* that is so largely im-

ported into England, but this is not the variety that I would recommend for culture in our stoves and conservatories, but rather *M. Cavendishi*, which can be fruited successfully in an ordinary stove temperature. I will go further and assert that it can be grown very satisfactorily in a house the temperature of which frequently drops to 50° during the winter, and seldom exceeds 80° in the summer. Our plants do well in a house principally devoted to Ferns, Lycopods and Palms. Naturally, they can be grown and fruited more rapidly in a stronger heat, such, say, as Pine-apples delight in, while if a house with a central pit to hold a good quantity of soil is devoted principally or solely to them, extra large clusters of fruit are produced. Such a house is to be seen in the gardens connected with a gentleman's mansion near Worcester, and from the plants grown in this it is no uncommon thing for single clusters of fruit to be cut weighing 120 lbs. and upwards. My lamented friend, the late Mr. A. Barker, annually fruited two strong plants in one of the Pine stoves at Hindlip, one at each end of the bed, and he, too, used to cut grand clusters of fruit remarkable alike for their weight and the size of the individual "fingers." In this locality Mr. A. Moore has long grown Bananas most successfully at Cranmore Hall, Shepton Mallet, and that, too, with the roots confined to bushel pots, and other instances could be given of the success attending the efforts of gardeners in a similar direction.

Nothing can well be more simple than the culture of Musas, the variety Cavendishi being of exceptionally easy growth, and, as before hinted, it requires less heat than *M. Ensete*, *M. coccinea*, and other varieties. For the decoration of entrance halls, staircase recesses, and other positions in both dwelling-houses and warm conservatories the two last-named might perhaps prove most effective, but I find *M. Cavendishi* in moderately large pots very serviceable for similar purposes. They contrast well with Palms and other fine-foliaged plants, and not being nearly so valuable as the former, they can be used with greater freedom accordingly. For instance, one out of two fairly large plants, which we were obliged to take to the mansion during the prevalence of severe frosts, was badly injured by the same, but as there are plenty more coming on no vain regrets were wasted on it. The case would have been very different if a valuable *Kentia* or *Areca* had come to grief in a similar way. Musas under fairly good culture will push up suckers freely, which can be removed when of good size with a few strong roots attached without greatly injuring the parent plant. If these suckers be potted off singly, using moderately good loamy compost and pots of a size just large enough to accommodate the stout stem and roots, they will if plunged in a gentle bottom-heat or set in a brisk heat quickly recommence active growth. A decision having been arrived at as to the number that shall be grown to a fruiting size, the best plants should be selected for that purpose, and if they are of good size, or, say, about 3 feet high, these may be transferred direct to their fruiting pots, tubs, or pits, as the case may be. If pots are used, these ought to be not less than 18 inches in diameter, while the boxes may be of any size, or from 24 inches to 36 inches across and about the same in depth. We fruit ours in square pits formed with loose bricks, these being 42 inches square and 20 inches in depth. They are preferred to either pots or tubs for several reasons, among these being the ease with which the soil and roots can be examined

to any depth at all times, and suckers can also be got at more readily from the sides when the bricks are removed for the time being. Musas form very coarse roots, and are of a very hungry nature, consequently delight in a rough and rich loamy compost. A mixture of two parts of fibrous loam roughly broken up to one of good flaky farmyard manure suits them well. Ample drainage must be provided, though not to excess, as abundance of water and liquid manure ought to be given the plants when they are growing strongly. Supposing the start is made early in the spring, it ought to be possible to grow the suckers into grand plants or to their full size before the following winter. They will require a fair amount of head room, as the young leaves grow erect till near their natural size, when they gradually assume a horizontal position. M. Cavendishi with us is grown 8 feet from the glass, exclusive of height of pit. In a more sunny position this variety seldom exceeds a height of 6 feet, or at any rate may be located that distance from the glass. The leaves stand bright sunshine well, but ours have of necessity to be shaded freely, the other occupants of the house having to be studied. When first shifted into their fruiting quarters water must be given sparingly, in order to avoid souring the fresh compost, but directly the roots have taken possession of this water should be given freely and often, the supplies of liquid manure also being frequent and fairly strong. Farmyard liquid manure suits them well, and a good surfacing of partially rotten manure from a farmyard if possible ought also to be given. In the autumn, and when it is seen active growth is ceasing, much less water should be given, a very little sufficing during the winter. Suckers, unless particularly wanted, ought not to be allowed to develop at the expense of the parent plants, as the stronger and stouter the latter grow the larger will be the cluster of fruit.

Being fully grown and a good rest given, all that is needed is sudden excitement to induce the plants to throw up their remarkable flower-spikes, and which can be traced almost from the base of the stem upwards, they being produced from the heart of the plant. A sudden rise in the temperature of the house, either from natural causes or brought about by artificial heat, is all that is necessary to start them fruiting, water being given sparingly till it is seen this is taking place, when a good soaking should be given, water and liquid manure being applied frequently and freely till the fruit is near its ripening period. When ripening is taking place water must still be given, though in less quantities, severely drying the plants off at the roots injuriously affecting the quality of the fruit. The scales enclosing the swelling fruit should be early removed or before they decay, and the ugly recumbence or non-fruiting end of spike be cleanly cut back to the ripening clusters, this being done soon after it is seen no more fruit will swell off. The swelling and ripening are usually very slow. In our ordinary stove temperature, a period of fully six months must be allowed for this stage, ours that set early in June being ripe just before Christmas. More often than not the clusters are fit to cut in November, but if wanted earlier, all that is necessary is to start the plant much earlier in the year, or say in March, higher temperatures being also maintained. The whole of the clusters need not be cut at once, the better plan being to remove small bunches of the fingers or pods according as they change colour and commence to burst their skins. Even then they are not at their best, but should be placed in the fruit-room till the skins are more nearly black than

yellow in colour. At this stage they are really delicious, lovers of Bananas, notably those who have lived in tropical countries and know what they ought to be like, going into raptures over them.

Beginners require to be told that the plants fruit but once only, so that it is necessary to prepare a set of plants every summer to take the place of those cut out. During the second year the plants push up suckers very freely, and if one or two of these are allowed to grow, they will be extra strong for potting up in the following spring. Any kept in large pots may well be plunged in brisk bottom-heat in the spring, this causing them to throw up fruit, while if the roots are allowed to spread out into the heating or plunging material, whether this be tan, leaves, leaves and manure, or even ashes, this will be of great assistance to the plants during the fruiting period.

W. IGGULDEN.

ORCHARD TREE PRUNING.

ONE of the difficulties of a snowfall with us is found in the check given to tree pruning during the time of year usually devoted to that work. It is far too much the case that fruit growers regard this labour with aversion. They hardly regard it as profitable, and avoid it being done through any ordinary excuse. That is to be deplored, both for the sake of the tree and for fruit culture, with this result also, that when a fruitful season comes, the produce is so small and poor in quality, that it hardly pays to gather. Had the trees been well thinned—indeed, myriads of them want to be hard thinned—they would have carried a fine, clean sample, which would have brought in the market a fair return. There is special reason this winter for almost hard thinning of tree heads. Everywhere the wood is full of spurs and buds, with the prospect that they will be covered with fruit next summer. Now the very last thing we want in this country is a huge crop of indifferent fruit. That sort of produce is of little value at any time, except in the cider and perry-making districts. We do not feel very much interest in fruit culture for such purposes as these, but the interest taken in the production of good edible fruit is great, and to secure that sort of produce is the aim of the teaching now being widely given with regard to fruit culture. In our market orchards where intelligence and an earnest desire to secure the best possible fruit samples may be looked for, the negligence shown in the matter of ordinary tree thinning and pruning is distressing. The common excuse is, "If we get a good crop the fruit is too cheap to pay to gather, and if we have a thin crop, then the fruits are fine enough." It is difficult to argue where reasoning of that kind exists. Naturally it would be supposed that every man who mourns the low prices found in the market when a big crop results would only be too glad to make a big crop of indifferent fruit impossible by thinning his tree heads so that they should produce a moderate crop of fine fruit only. If the coming season should bring the big fruit crop looked for, the exhaustion of fruit-creating sap is so great that practically the tree needs two or three years' rest before it becomes capable of fruit production again. When the head is well thinned, then the resultant crop is much less exacting and some sap reserve for another year is left; indeed I have found some trees where the heads are kept properly thinned to produce fruit more or less every season. Waltham Abbey Seedling is a capital example of this sort, and is one of the most valuable, because on a thin head the fruits are always of good size and excellent quality. That pruning has not largely been done during the snow covering is due in the first place to an objection entertained to having work done in trees whilst snow hangs on them. That is a minor consideration, as when the snow disappears, the time needful for the labour may not again be found. A better objection is that plants beneath may be severely injured by treading upon them. That objection has no force in pasture orchards, but where Violets,

Wallflowers, Coleworts, or other plants are beneath the trees much harm may be done to them by reckless treading. But, still, if thinning is to be done at all, it should be done when possible and when other labour is of necessity suspended. Another reason why thinning is so desirable is found in stormy weather in the autumn when the trees are carrying fruit. In the case of a head where branches interlace each other thickly the fruits get sadly bruised and beaten, and many are either whipped off the trees or are so beaten that they soon decay. When the branches are well thinned this seldom happens, and the fruits, because the exhaustion of sap is so lessened, retain a firmer grip of the branches, and that is a good object gained. Exhaustion of sap, whether produced by extreme fruit production or by oxygen at the roots, is very conducive to early fruit falling. Probably the numerous falls seen from bush trees on the Paradise and Quince stocks are due less to sap exhaustion through excessive fruit production than from lack of moisture at the roots. We too often forget that in the autumn, beyond needling and getting mulchings of long manure about the roots, trees need ample watering also; indeed, there are few of our orchard trees which would not be the better for liberal soakings when they are laden with fruit, and for that purpose we could hardly better utilise our sewage.

A. D.

SHADING GROS COLMAN.

ACCORDING to my experience with the above Grape and observation in other places, local surroundings have to be taken into consideration whether a slight shade is beneficial at certain stages of growth or not. Aspect, elevation, and even construction of the vineries all have a bearing on the subject. That the foliage is more tender than that of other varieties, and especially when the young growths and foliage are expanding, most growers will admit, but whether shade should be accorded during the whole season is doubtful. If the temperature is allowed to fall too low during the night or early morning, moisture condenses around the edges of the young expanding leaves, and if the sun should strike the house early, and so cause the temperature to rise rapidly, scalding will surely take place. Some gardeners are under the impression that this condensed moisture is a sign of luxuriance. It may be, but it is not good for the well-being of the Vine to allow this to take place to an undue amount. Lowness of temperature is the cause, and whenever this takes place with the Vines under my charge, it is evident to me that the temperature has been too low. Whilst early growth is taking place, the temperature during the night should not be allowed to fall below 65° with a fair amount of heat in the pipes. A little top and front ventilation should also be left on during the night and increased before the sun has power to raise the temperature to an undue extent. Some gardeners, I know, have particular trouble with the young leading growth of an extending Vine, whilst the laterals are perfect. A slight shade at this stage I believe is beneficial, even if removed afterwards. A little whitening syringed over the Vine, or even a piece of white tissue paper, is quite sufficient. After a dull time a slight shade is beneficial, and if whitening is syringed over the roof the next shower of rain will wash it off. The matured, or rather fully-expanded, foliage soon takes on a rusty appearance, but that being natural, shade should not be applied to prevent this. Vines planted on a high elevation, with aspect due south, will certainly take on this character. The most perfect lot of Gros Colman I ever saw was at a large market establishment at Worthing, in Sussex. The Vines were growing in a large span-roofed structure, with ends running east and west and broadsides north and south. On the south side Alicantes were planted, and on the north side Gros Colman. So here the Vines had abundance of light, but shaded naturally from strong sun. Here we have an illustration, and the grower could well say that he did not shade his Vines. This, however, does not

prove that slight shade is not beneficial in exceptional cases.—A. YOUNG, *Abberley Hall Gardens, Stourport.*

— I am very pleased to reply to "J. R." in regard to shading Gros Colman Grapes. The Vines in question do not show the least sign of any evil effect from shading; on the contrary, both bunches and berries were greatly improved, the colour being far superior to that obtained before the shading was applied. The Vines last year had nineteen bunches to the rod, and they have never borne less for the last seven years. They have been planted fourteen years. One thing I notice since I began to shade is, that the leaves never "curl up" as they did before the shading was applied and before the fruit was half finished, but remain healthy to the end. The Grapes need no firing late in the season to ripen them, but are finished before the natural ripening season is over.—T. STRATTON.

LARGE VERSUS SMALL VINE BORDERS.

THE quantity of Grapes which may be cut from a well-grown pot Vine tends to prove that planted out Vines do not require such large borders as generally accorded to them, and where the natural soil is of indifferent quality for the well-being of the Grape Vine, the size of the border is of special moment. With our large market growers the case is different, as they never think of pitching their tent unless the soil and drainage are of the best description for the production of good crops. With private gardeners the case is generally the other way about, and if they were to attempt trenching and manuring as the sole foundation for the roots to work in, failure would be the result for their pains. In the majority of instances when a gentleman builds a dwelling-house, whether the soil is adapted for Vines, or, indeed, any garden crop, is of little moment to him. He knows there is room for a garden, and the soil good enough for vegetables or even flowers and shrubs with preparation. Here the market grower has the advantage, and he is able to produce large crops with a minimum of labour, and the more root-run the Vines have the better. That first-class Grapes may be grown in small or medium-sized borders cannot be disputed, as some of the best productions shown at exhibitions are cut from Vines grown in such. Where soil has to be purchased, and perhaps has to be carted from a distance, it makes a serious item in the expenses of a garden, so it should behave those who have such work in charge to lessen this as much as possible by not having large borders. Neither is a large amount of soil necessary in the first instance for planting the Vines. A width of 4 feet is ample, and if the tops are managed so that a great amount of top-growth is not forced to be afterwards cut away, this width of border will become a network of small roots, not the goose-like quills that run through large borders, afterwards to die away again. I am a believer in inside borders, especially for early Vines, and with mid-season and late Vines inside and out, but for preference, inside for the latter. Where there is space for inside borders up to 12 feet or so, the borders should be ultimately of this width, with about 8 feet outside. Certainly the borders could be considerably less, but would take a corresponding amount of feeding, so as to give adequate support. A depth of 30 inches, allowing about 6 inches for drainage, is quite sufficient, as with deep borders the roots are apt to get too far away from solar influence. A width of 4 feet or so for planting would not take such a large amount of soil; afterwards a width of 2 feet could be added annually until the space is filled. Rich top-dressings with an adequate water supply and light summer mulching are what is necessary for small or medium-sized borders. RURAL.

Planting young fruit trees.—When an orchard is planted with young trees from the nursery, it seems such a weary time waiting for fruit; but if a stock of young trees is always kept in hand, the land may be stocked with bearing trees at once. If one wishes to plant a garden or a wall

with bearing trees it will cost a good deal of money, but young trees may be purchased for 1s. each if bought in quantity, and anyone with a garden might buy the stocks and work their own trees, or if he did not care to do that, maiden trees might be bought in at a cheap rate, and be planted either in a nursery bed, or thinly round or across the quarters in the vegetable garden, and they would, without costing anything for their keep, be growing into money. In this matter of fruit tree planting there is much delay, so much waiting till the old is removed away before introducing the new. The same thing could and should be done with wall trees; wherever there is room for a young tree let one be planted, and the removal in two or three years' time to a wider place on a wall or building will give the roots just the lifting they require to throw the tree into bearing at once. No one plants enough young trees to keep the gardens and orchards in a constantly profitable condition.—E. H.

NOTES ON GRAPES.

BLACK HAMBURGH is deservedly the most popular of all black Grapes, and perhaps the least often of any seen in perfection. Why this should be it is not easy to see. In many cases pruning has something to do with it, as the hankering after strong buds taken some distance from the base of the lateral will invariably lead to strong growth and large bunches, which always colour badly, probably owing to the over-luxuriance of the wood, which is always pithy and soft. In choosing the bud in this instance, a good plump one near the base of the lateral is the best. In some shoots this will be the third bud, but where the laterals are long-jointed and the third bud is far removed from the base of the lateral, the second bud would be found the best. There is seldom any difficulty in getting plenty of bunches of this variety. Foster's Seedling is one of the most popular of white Grapes. It is a strong grower and free bearer, and requires much the same pruning as the Black Hamburg, except that less danger will accrue from taking a bud further removed from the base. As a rule, there is not the same difficulty in colouring white Grapes as black. Madresfield Court is a free-bearing variety of fairly strong constitution; though not so strong as some varieties, it is a most valuable kind, owing to its distinct Muscat flavour and noble appearance. With me it forms good buds near the base, the first three of which are very close home. I generally prune to these, most of which produce two bunches to a shoot. Buckland Sweetwater has the character of being rather a shy bearer, and so it is where the wood of the Vines is not well ripened, and the close pruning, such as is applicable to Hamburgs, is followed. Like other white kinds, a little divergence from the close pruning may be followed with advantage for some of the shoots, spurring the others close back to within three eyes of the base, as when these do produce bunches, they are always compact and useful. Muscat Hamburg is the best flavoured of all black Grapes, and should find a place in every good collection. Where it does not succeed on its own roots, it should be tried on some variety with a better constitution. The manner of pruning is much the same as for Black Hamburg, it being a very free bearer, and when buds are taken too far removed from the base of the laterals, the bunches are liable to come loose and rarely finish properly. The roots of this variety should always be kept near the surface and out of cold and ungenial soil.

Muscat of Alexandria is the queen of white Grapes, and, like the Hamburg, finds a place in almost all collections. It is not adapted to mixed houses, but will succeed at a warm end of such. It is a free bearer, always producing plenty of bunches, so that moderately close pruning may be followed, but if large branches for exhibition are required, some of the spurs may be pruned to a good bud, and if the wood has been well ripened fairly good results may follow. This is the worst variety of any to keep cramped for space, as a fair amount of light after the stoning stage has passed is very necessary to have it well coloured, and this light should be from extra space between the rods, and

not from defoliation during the summer. If the rods are too thickly placed now is the time to thin them, or any weakly Vine may be cut right out; the extra space given those left will enable them to produce and carry a heavier crop. Alnwick Seedling makes a good variety to succeed the early and mid-season kinds, and will hang in good condition until the middle of November. It is of good constitution and an abundant bearer, and therefore amenable to comparatively close pruning. But where exhibition bunches are looked for, some of the spurs may be left a little longer, but only those that are well ripened and not too stout. The second and third buds for ordinary purposes are the best, and anything like the wholesale production of large bunches is sure to end in failure.

Gros Maroc is a handsome Grape that has come to the front with market growers and exhibitors of late. The Vine is a strong grower, but not over-abundant bearer. The young rods of this as well as of other varieties produce plenty of handsome bunches as they go up the trellis, but when spur-ring has to be commenced they must not be cut in too closely. About the third good eye, or, where these are short, the fourth will be found to answer best. Alicante may be said to be everybody's Grape, as it is good alike for all cultivators, except where the highest quality is demanded. It is a robust grower and free bearer. The handsomest bunches are produced on stout leading shoots that have had tolerable liberty during the growing season. If such as these are pruned back to four or five buds, several handsome bunches will be the result. For ordinary use plenty of bunches will be produced by allowing three buds to remain, that is, pruned to within a quarter of an inch of the third bud from the base of the lateral.

Gros Colman is still the handsomest Grape in cultivation. When the berries are as black as Sloes and have hung on the Vines for a couple of months after reaching that stage, say about Christmas, few will have anything else but praise to bestow upon them. The Vine is a strong grower and abundant bearer, on well-ripened Vines the lowest bud producing good bunches. In pruning this kind the second or third bud will be found the best, as very coarse growth or extra plump or large eyes should be avoided. Growers should bear in mind that it is best to remove the shoulder of the bunch at thinning time if handsome bunches are looked forward to. I know of no kind where the shoulders of the bunch are so objectionable as in the Gros Colman. Gros Guillaume, or Barbarossa, as it is often improperly called, produces some of the handsomest bunches of any Grape in general cultivation, and one Vine or so may be grown. The Vine is a very strong grower, and with some is a little shy in bearing when a close system of spur-pruning is adopted. Fine bunches are always produced on the leading shoots as young Vines ascend the trellis, and when this is completed a modification of this may be adopted by allowing a shoot to run about a couple of feet along the stem of the old rod, forming short rods; these always produce plenty of bunches. If it is desirable to follow the spur-pruning strictly, the spurs should be left a little longer than for freer-bearing varieties. Golden Queen is a handsome white Grape, recommended for hanging late, but it is little better in this respect than Muscat of Alexandria, and it is far behind that variety for flavour. It also has a bad habit of changing to a dull and cloudy colour after it is thoroughly ripe, and especially so if exposed to much light. It is a free bearer, and amenable to much the same pruning as the Muscat of Alexandria, which it much resembles prior to its putting on the cloudy appearance. Mrs. Pearson is a useful late white Grape; the berries and bunches are scarcely so large as those of the last-named and not so oval in shape. The berries when ripe are of a bright amber colour, and hang well. The style of pruning recommended for Muscat of Alexandria is also applicable to this variety. Trebbiano is a valuable late white kind, producing large and handsome bunches, which when well ripened are of a rich amber colour. The Vine is a strong grower and free bearer, but when bunches are

looked for above the ordinary size longer spurs in some instances may be left, or what is sometimes called the short rod system, which is in other words long spur pruning. It is very necessary where this is practised that the wood be well ripened. Lady Downe's is of all Grapes the one to be recommended for hanging late; it is one of the most prolific of bearers, the bunches being tapering and compact, and in every way adapted for late keeping. For general use the pruning to the second or third bud according to how these are placed is by far the best, but when a few extra large bunches are required a few short rods may be laid in. Mrs. Pince is one of the best flavoured black Grapes, not now so often met with as its merits entitle it to; it is a fairly strong grower and free bearer; the fault of its not colouring properly is all against it. When I grew this variety in the Hamburgh house, where it hung till after the bunches were all cut it never failed to colour; in this position the Vine had ample time to ripen properly. I always adopted the moderately close spur system of pruning, which does not give extra large bunches, but those produced invariably colour well. C. WARDEN.

The Gardens, Clarendon Park, Salisbury.

STEMS NEEDING PROTECTION.

ALTHOUGH we have had a long series of severe frosts, the thermometer 3 feet from the ground repeatedly falling to 14° or thereabouts, it is my belief more harm will be done to Evergreens, half-hardy flowers, and green vegetables than to Roses, Vines, Figs, and deciduous trees generally. Many of the former present a very scorched appearance, and in all probability blanks will occur very frequently where such have not been seen for many years past. Nor is the reason for this hard to discover. September was an exceptionally warm month, the weather at times being quite hot, the consequence being a prolonged growth and fully sustained sap action. October also was by no means a cold month, a few frosts, none, however, very severe, being experienced, and not till November arrived was any great check administered to plant life. Growth in only too many instances was far too succulent and sappy to be hardy, and presumably hardy plants have suffered badly from the severe frosts owing to the unprepared state in which they were in. Snow came too late to act as a sort of moderator to the severity of the frost, and nothing could, as a rule, be done to save the banks of common Laurels, large clumps of Aucubas, specimen evergreen Magnolias, and such like. The mischief cannot be rectified till the spring. But if we were helpless as regards the foregoing, the case is very different with respect to the unprotected stems of various plants, notably climbers with their heads under glass roofs of some kind. Those who are wise in time will have already protected all stems thus exposed, though, as before hinted, the risks to be run from frosts are greater after midwinter than before. Maréchal Niel is probably the most popular of all Roses for house culture, but, unfortunately, is liable to collapse suddenly, and that, too, when the trees had arrived at a most serviceable state. In not a few instances, or where the roots are placed in an outside border, I am positive these failures are largely due to the frost's action on the stems. While in a comparatively dormant state the frosts may not injure the stems, but directly top-growth commences and the sap becomes more or less liquid, a severe frost may, so to speak, go right through them, causing the sap to expand and the bursting or complete rupture of the vessels conveying it be the inevitable result. The first intimation the cultivator may have of the untoward occurrence is perhaps the flagging of the foliage inside the house, the conclusion being arrived at that in-

sufficient fire heat has been maintained, while it is found that no increase in the warmth or overhead syringing will greatly improve matters. It has been my unfortunate lot to watch daily for the recovery of a large plant of Maréchal Niel, on which hundreds of young shoots in various stages of growth were hanging their heads badly, but they failed to do so, a valuable lot of bloom and much of the foliage gradually disappearing. The tree never fairly recovered from the damage caused to a very short exposed stem, and it was a lesson not easily forgotten. Nor is the Maréchal Niel the only Rose that should have its stems protected, all others with their heads under glass requiring to be taken similar care of, those on the Brier stock being especially liable to injury. Not only ought the stems to be closely bandaged with hay-bands, but the borders also require to be heavily covered with hay or straw litter, as I have known instances of roof plants with protected stems flagging badly owing to the border in which they were rooting having been badly frozen. The sooner, therefore, all exposed stems and roots of Roses and other climbers trained under glass receive a good covering of some kind of dry protective material, the less likelihood will there be of a break-down. Nor would such simple protective measures be thrown away upon Tea Roses and other somewhat delicate plants and climbers growing either in the open or against walls. Probably they would be unnecessary in four winters out of five, but the fifth time would pay for all.

The stems of fruit trees generally, and in particular those of Grape Vines rooting in outside borders and trained under glass, also stand in need of protection, or these, too, may be quite as badly crippled by frosts as the Rose trees just alluded to. Any started at all early would naturally have their stems and roots well protected with leaves, Bracken, or strawy litter, no sane person venturing to force trees or Vines in outside borders before midwinter without taking this precaution. Whether forced or not, however, no stems ought to be unduly exposed to the vicissitudes of our climate, and seeing how easily they may be protected, there is little excuse for any neglect in this respect. We sometimes get severe frosts late in February and during March, and it was during the latter month that I once "bought my learning" in the matter of protecting the outside stems of Vines. In this case there was no part of the stem completely exposed, the border being close up to the front wall plate, and the frost had to penetrate 2 inches of soil before it reached the stems. Two rods were taken from outside, one being slightly over the other, and it was the upper one that suffered. The first intimation we had of this mishap was the flagging of the shoots, most of which would soon have required stopping. Nor did these freshen up for many weeks, the crop being lost. We kept the rod out of curiosity to know what would be the ultimate result. In the following season it broke rather more strongly and showed a few bunches. On very clear days, and especially when the wind was from the east, the young growth flagged rather badly, but would recover in the afternoons and the bunches were saved. Since that time it has gradually improved, and last summer it produced bunches fully equal to those on the other rod. The latter connected as it was with the same stock had never flagged or failed in any way, and it was this fact that first led me to discover the cause of the failure of the frosted rod. Frosts are undoubtedly beneficial to the surface of Vine and fruit borders generally, as they have a very sweetening effect upon the soil, those kept constantly

covered with manure or other mulching material becoming sour and otherwise ungenial to the roots. But the stems do not want pulverising, and must be protected with hay-bands, Bracken, or banks of strawy litter, the borders also of any started somewhat early being similarly treated. W. I.

FERNS.

TRICHIOCARPA MOOREI.

THIS is a beautiful evergreen plant, named in honour of Mr. Charles Moore, director of the Botanic Gardens in Sydney, New South Wales. It is a native of New Caledonia, and requires to be grown in a stove, where it forms a remarkably handsome specimen. It has a short decumbent rhizome, from which proceed its rich green deltoid fronds, varying from 9 inches to 18 inches in length. The whole plant when barren bears some resemblance to *Aspidium trifoliatum*. I have often heard it remarked that this Fern does not carry many fronds, but I have had specimens bearing a dozen at one time, and these when the plant was fertile rendered it very effective and beautiful. This Fern requires a shady place, and should be potted in a mixture of turfy loam and fibrous peat made tolerably sandy, and the drainage, as required for all Ferns, should be good. The soil should be pressed down firmly and water given moderately. I do not like the syringe used to this plant, for I have found where this is done that the fronds soon assume a brown and patchy appearance. I have never been successful in raising it from spores, although I frequently tried when at the Messrs. Rollisson's nursery at Tooting. The only plan by which I could secure young plants was by division. W. H. GOWER.

Dictyopteris Cameroniana (F. Laurie).—The specimen you send from the Congo appears to me to be this species. I had the plant growing some years ago in the Kew collection, and I think it was from one of Mr. G. Mann's sending home. The other plant appears to be *Aspidium Barteri*. I see no indusium upon this, but I know the indusium is very fugacious.—W. H. G.

Pteris Victorise (J. P. M.).—This plant was sent out by Mr. Bull, of Chelsea, I think, last year. It is a very beautiful species, the variegation being very bright and clear. I think the plant is a native of Java, and it will require warmth. *P. cretica albo-lineata* also came to England from Java, but Oldham, when collecting plants in Japan, wrote to me from that country saying it was a common Fern there, so that I conclude it had been taken from Japan to Java by the Dutch, more especially as it was sent to Kew from the Botanic Garden in Java.—W. H. G.

Davallia Mooreana poisonous.—I read with much interest the short paragraph on the above plant by Mr. J. Hudson (p. 587). I am of the same opinion, and believe it to be poisonous in some way. Some four or five years ago I had charge of a large span stove, in which was a fine specimen of the Fern in question. As it grew very fast, other plants underneath the fronds began to show traces of being shaded too much. Intending to remedy the evil, I commenced to push in a few stakes inside the rim of the pot and run twine round the top of them, and so lift up the fronds. I had pushed in only two or three when my arms, neck, and face began to itch badly. As in the case of "J. H.," I rubbed my face rather freely, which soon made matters worse; in fact, I can only describe the feeling I had afterwards to what the effect would be when a mustard plaster is in close proximity to one's skin. The weather also being very hot, I was naturally perspiring freely. I thought by washing my face the feeling would be lessened,

but, on the contrary, increased it. The next morning I felt as if I had been in contact with the stinging Nettle. Whether it was the young or old fronds, of which there were plenty of both, that caused it, I am not able to say. Such plants or the fronds in my opinion never ought to find their way into flower vases, either for room or table decoration, for, as with *Primula obconica*, they might cause worse trouble than either "J. H." or I have had. On the other hand, it seems a great pity to discard altogether so graceful a plant, as it is very suitable for both purposes, the fronds lasting so well. I was once told by a friend of mine that if he pushed his hands amongst the Golden Feather (*Pyrethrum aureum*), they would at once begin to swell and even break out into a kind of rash. Has any reader of THE GARDEN experienced the same thing?—A. H. H. MERTON.

STREAMSIDE GARDENS.

THE illustration that accompanies these remarks depicts a pretty water scene in an English garden, such as may be viewed at Livermere Park, Suffolk, Kew, and in many other places. It speaks for itself, and shows the delightful beauty of waterside vegetation. At one time, and the mania has not wholly subsided, there existed a desire for water "scenes" in every garden. The silvery purling stream in many an English landscape, winding its way through leafy glades, the home of countless wild flowers, or the happy picture made by the lake with its overhanging Willows dipping into the water; as in the "wilderness" at Kew, has led to the paltry imitations that are to be seen, especially in more modern gardens. There are numberless evil-smelling "duck ponds" coated with weeds and a source of danger to health still to be found that have not the slightest claim to beauty, nor is there much artistic feeling shown either in their construction or treatment. In very small places the water should be kept away, except perhaps as a trickling rill or streamlet, as at Cambridge Botanic Garden, where the little brook running through a leafy retreat has its banks studded with numberless wild flowers, that only live with their roots soaked with moisture. A bog garden is also an interesting spot. But we are only concerned here with streamside plants, and there are many natural pieces of water that may be made living gardens of flowers by judicious selection of plants. One great thing is to keep the water clean, so that a walk by the bankside is pleasurable and not hurtful by the smell from mud and decaying leaves. But where the effect of water in the landscape gives life and beauty to it, "mudding" should be carried out, even at an expense, and except under these conditions the "artificial" lake should be dispensed with, *i.e.*, drained away. The place could be filled with Rhododendrons and the hardy Azaleas, that in spite of a rich beauty are still rare even in the best English gardens. A small valley of Rhododendrons and Azaleas of the best kinds would be a picture indeed, one that would give pleasure from early summer until the frost dimmed the brilliant colours of the hardy Azaleas in early winter. Then the noble Lilies of many kinds could be planted freely amongst them in bold groups, and colour of the richest kind given to the scenery, infinitely finer than that of a dirty lake. Other blemishes are the conventional "water squirts," hideous dragons, with water spouting from their fearful mouths, and undignified statues, placed in a small basin of water, often crumbling to decay. It says much, however, for a better condition of things that such enormities are relics of a past age. But why, where they already exist, not

sweep them away, and plant over the place beautiful garden flowers?

The streamside garden can be made a delightful spot, especially where it meanders through a glade or meadow, and the broad sheet of water gives ample scope for the planting of bold masses of plants on its sides. The brook margin is usually considered fit only for bog plants of the Huntsman's Horn type; but it cannot be too well known that it affords a happy home for some of our best hardy perennials—to take at random Irises, for example. It is the position for the great Kämpfer's Iris, that loves to have its roots in a moist soil, as shown by the rich growth at Wisley and other gardens, where it does splendidly. The great thing is to have varieties of distinct colours, as rich purple, pure white, the spotty flowers having a poor effect. Then the grassy Siberian Irises find here all their requirements; they do not



Plants for lake margins.

mind shade, love moisture, and no flower picture could be more full of grace and beauty than a colony of the common Iris sibirica and the white form lactea, sending their tall straight stems of flowers above the abundant grassy growth. Globe Flowers, Day Lilies, the noble Gunneras, both *G. scabra* and *G. manicata*, deep rose Loosetrife (a beautiful flower), Tritomas, the common Uvaria being as good as any, and the Goat Rues may be added. The mention of Loosetrife recalls many a lovely scene in Nature, the rich flowers closely packed on long stalks providing a wealth of colour late in the year; and by brooksides near London the common yellow Flag, *I. pseudacorus*, a noble Flag, the little water Forget-me-not, Water Buttercup, yellow Water Lily, Nuphar lutea, besides other gems make a picture that artists love to paint. In the garden, of course, many things

can be introduced, as the new variety of Water Lily named *Nymphaea Marliacea*. The list can be extended. On the beautiful lakeside at Livermere, Mr. Tallack has planted at points of vantage, as the bend of the lake, bold groups of Gunnera and large colonies of *Primula japonica*, that by its moisture-loving nature, and bold spikes of varied-coloured flowers, from the deepest crimson to pure white, is an excellent brook and streamside plant. Bluebells, Cowslips, and Primroses bloom here in the spring in great profusion, and the King Cups (or Calthas) give rich colour to the margin, reflecting their brilliant flowers in the clear water. It is such effects as these that must be sought for, and they are simple. The plants can be easily kept within proper limits, as they are not so "weedy" as native flowers, and are best planted in groups, not in regular order, but here and there to prevent formality,

and associated with the hardier kinds of Ferns, Ferulas, and other bold things of value for their spreading foliage. One of the prettiest effects we have seen was a muddy copse, through which trickled a little brook. Three things flourished amazingly—the King Cup, Cowslip, and Bluebell, all flowering together, and producing a charming harmony of colour in the lush retreat. Such a contrast would be worth repeating in a similar position that was without native flowers of these types. The rosy-red Buckbean (*Menyanthes trifoliata*) and Narcissi must not be omitted, nor such a picturesque plant by the streamside or lake as the great Water Dock (the splendid leaves turning rich red in autumn), *Typha latifolia*, the graceful *Carex paniculata* (that is a feature by the water at Pendell Court), *C. pendula*, *Cyperus longus*, and, of course, the Bulrush, that, although common, is a handsome striking plant, sending up its stems often to a height of 8 feet; also the Flowering Rush (*Butomus umbellatus*), the common Arrowhead (that may be seen in great profusion in the Suffolk Gipping), and on the water could be established the sweetly fragrant Pondweed (*Aponogeton distachyon*) and Water Violet. The list might be extended, but sufficient things have been named to indicate the rich storehouse of water plants that is at command for the intending planter or those who wish to create a streamside garden. Many plants, as the Irises, would succeed far better

in such positions than in the garden proper, where the spade is too often used to the destruction of the roots; but that can never touch the waterside. They will in time take care of themselves. The Japan Primrose at Livermere seeds about freely and gives no trouble. The Globe Flowers would spread in time, as well as the other things, into broad luxuriant masses, surprising to those who know these things only as small scraps on a hot and dry border.

Unheated glasshouses.—In the south of England there are a great many glasshouses in use that have no artificial heat, for they are invaluable in summer for Tomatoes and a host of other things that need protection in our variable climate. Very fair samples of Grapes are ripened in them year after year, and during ordinary winters, such as we

have had for several years past, they have proved invaluable for storing Chrysanthemums, while not a few manage to carry through a supply of bedding plants by keeping them very dry in mid-winter and the use of a little light covering. This winter has upset all our calculations as to the possibility of utilising unheated houses, except as a slight shelter for Strawberries, tender shrubs, or anything that usually can be wintered safely in the open air, as the frost has been unusually intense and persistent. Before the month of November was over, all the Chrysanthemums that were stored in unheated houses were totally destroyed, for with from 16° to 18° of frost, following night after night, the soil in the pots was frozen quite hard, and the blooms were soon quite useless, and the oldest and hardest-stemmed Geraniums were killed. Many of our amateur gardeners who had no heated structures to shift their plants into have lost their entire stock, and I never remember such a dearth of flowers at the Christmas church decorations as there has been this year. If such winters as this become the rule, the only alternative will be to have only heated glasshouses, or let the unheated ones remain empty during the winter.—J. G., *Hants.*

ORCHIDS.

THE CHINESE AIR PLANT.

(*RENANTHERA COCCINEA*.)

In a letter from J. Speke he says he has a plant which he thinks is showing bloom, and asks if he may expect this will last until the autumn. I would answer, certainly not, if the spike opens its blooms any time during the next two months. Three months is a very long time to expect one spike to continue in beauty, and this it may be hoped to do, but for one spike to last six months is drawing upon the imagination somewhat too hard. The plant is a native of Cochinchina, and not China proper. In this country it has always been a remarkably shy flowering Orchid, although there are instances of its blooming freely—notably at Chatsworth. Another plant I saw with a very fine spike of bloom in the garden of Mr. Wilson, of Sheffield. It also flowered in Mr. Williams' nursery at Holloway. Mr. Wilson's plant was blooming about midsummer on quite the young growth, and it was growing freely. I fear the plant is too much neglected and dried up to expect it to flower well. It is usually grown in a pot and placed upon the rafter of the Orchid house in the summer months. This situation is perhaps the best that can be found for it, as it enjoys strong sunshine and a large amount of heat and moisture. Through the winter it must be well rested, but in a careful manner. I have seen the plant much neglected at this season, its growth and leaves shrivelled and dried up. It is questionable if this does not weaken it. I do not believe in exhausting any Orchid in order to try to procure flowers, and I think as soon as the shrivelling sets in that the rest has been too severe. This Orchid should be potted in rough peat and Sphagnum Moss, kept in a thoroughly humid atmosphere, with strong heat, and full exposure to the sunlight, and in the winter be dried so that neither the leaves nor the growth shrivel, the temperature being about 60°. This will enable the plant to start afresh in the spring months without any effort to maintain life. In this way flowers would in all probability be oftener seen than they are now. If this treatment should prove effectual, *Renanthera coccinea* would become a greater favourite with Orchid growers than it is at the present time. It produces its flowers on large branching panicles, each bloom measuring some 2 inches across. The flowers are dull orange on the out-

side, the lateral sepals much larger than the others. The dorsal sepal and the petals are deep red, transversely streaked and mottled with soft orange; lower sepals, which are the most conspicuous parts of the flower, are spatulate and rich scarlet, faintly streaked transversely with dull orange; the lip small, deep crimson, white at the base. The spike carries as many as fifty or more of these flowers, and it is about three months before they all have passed away. Of course, if several spikes upon the same plant open in succession, the plant will continue in flower much longer, but I think this is about the usual time. J. Speke should endeavour to encourage this Orchid by giving it a little extra heat at this time and by careful watering, but I do not advise a great rise in the humidity of the atmosphere at the present time.

WM. HUGH GOWER.

Lælia anceps in variety comes from "B. T." The dark varieties are all good, but nothing unusual. None of the varieties sent equal that sent me lately by Mr. Woodall, Scarborough. The two white forms appear to be very fine; 3 is *Sanderiana*, and it is the nearest approach to the true *Dawsoni* which I have seen; 5 is undoubtedly *alba*, the flower being wholly pure white saving the little yellow on the disc of the lip. It is very satisfactory to find these white forms flowering more freely than they did at first.—G.

Lælia grandis tenebrosa.—This is a magnificent flower which I have received from Mr. Buchan, of Wilton House, Southampton, and which appears to be so very different from the old form of the plant as to deserve a distinctive name. The flower measures some 8 inches over, and the lip more than 2 inches across; the sepals and petals are of a tawny-yellow, shining as if newly varnished, the lip being heavily stained with rich deep blackish-purple, the front part of the central lobe becoming paler, in fact nearly creamy white streaked with deep purple.—G.

Cattleya Percivaliana (*Blackgang*).—From this correspondent comes a magnificent flower of this *Cattleya*, and far superior to that figured in *THE GARDEN*, June 8, 1889. It was first introduced by Mr. Sander, of St. Albans, and blooms at a time when there are no other *Cattleya* flowers. It did not find much favour with some Orchid growers, but as it has become established it has gained favour. It requires to be fully exposed to the sun and light, and the general treatment of the other *Cattleyas* of the labiate section will suit it admirably. It comes from South-western Venezuela.—W. H. G.

Dendrobium Jenkinsi (*J. W.*).—Some flowers of this come to hand from a recently imported plant, and they are very fine and handsome. It is more than fifty years since this Orchid was first discovered, and it is one of the first *Dendrobiums* I knew. I used to have nice pieces of it which usually flowered in the early spring months. I have imported it at various times from Assam, and believe it has more recently been found in Burma, but the plant seems to have been much neglected by Orchid growers. It is a compact dwarf species which does best on a hanging block of wood. The best specimen I have ever seen was grown by Mr. Denning when in charge of the fine collection belonging to Lord Londesborough. It was upon a large block of wood, and bore nearly one hundred of its rich clear yellow flowers, stained at the base with orange.—W. H. G.

Odontoglossum ramosissimum (*C. Elliott*).—This is the name of your Orchid, of which you sent me one of the branches. It is early for it to bloom, as it generally comes in during the early spring months. It is not a favourite with Orchid growers. I have seen in Mr. Buchan's collection at Southampton some very good varieties of it, the flowers being, like those now to hand, pure white, but far more heavily blotched and spotted with purple. In the collection named the spikes were some 3 feet long, and in this state it is very effec-

tive and pretty; the flowers, however, being so thin and narrow in a small spike it is not showy. I should advise you to cut the spike off and not allow the plant to bloom this season, as in this way it would become much stronger. It does exceedingly well in a house with *O. Alexandræ*. It comes from New Grenada, and was first discovered nearly fifty years ago, but it has been in our gardens only about twenty years.—W. H. G.

Orchids at home.—M. Auguste Linden, in referring in *Le Journal des Orchidées* to his botanical researches in the Malay Islands, gives a few interesting particulars. He says:—

When I had finished exploring the Archipelago, my chief object was to get as near to the islands as the coral reefs would permit, and I sought, by the aid of my binocular, to discover what each one contained, especially when such island was too small for me to attempt to land, which, as I have said, is always a difficult matter. It was in this way that I met with *Vanda Batemanni*. It was growing almost as a water plant, at high tide, on the rocks which often project some distance into the sea. On the little island where I saw it for the first time it was in considerable quantity, the specimens being fine and sturdy. The most beautiful plants were those which grew amongst shrubs and on isolated rocks. I saw many over 6 feet 6 inches long, and bearing on each side from four to eight faded flower-branches. Besides *Vandas*, I saw a few other Orchids, but none of them bore flowers by which I could determine the species. Of one of them, however, *Bulbophyllum grandiflorum*, I have a lively remembrance. It quite covered a small shrub with its flowers, and at a little distance the effect was most remarkable. *Vanda Lindenii*, which I discovered on one of the islands in the neighbourhood, grows quite differently. It is always met with on dead branches of large trees, on the outskirts of small forests, or on fallen trees by the borders of rivers or brooks, but always at a certain distance from the ground. This remarkable species grows in clumps of from fifty to two hundred branches or even more. It is very difficult to obtain, as the red ants, one of the plagues of these beautiful regions, always choose these tufts in which to make their nest. The natives have a great dread of their bites which raise large blisters, often lasting for several days; therefore there is some difficulty in climbing the trees to pull down the plants. To gather them I was obliged to resort to another plan. I lashed several Bamboos together, and fixed a hook to the end of the long rod thus made. With this I succeeded in pulling down several pieces of the plants. When once the plants were brought to the ground, we dragged them hastily to the water, where they were washed, to free them from the terrible insects with which they were often covered. *Vanda Lindenii* is an extremely abundant bloomer. I saw clumps on which there were certainly more than a thousand racemes, most of them comprising from twenty to twenty-five flowers. Unfortunately, the specimens of this marvellous Orchid, which I succeeded in bringing to Europe alive, gave but a poor idea of the plant when seen in its natural state, the inferiority being in the growth of the specimens, as well as in their blooms.

SHORT NOTES.—ORCHIDS.

Sophranitis grandiflora (*J. Erali*).—A very nice variety. The one you mark *rosea* is not the true plant, but simply a pale form of *grandiflora*.

Lycaste Skinneri (*P. McNab*).—This is a very useful flower, but it seems a bad traveller, especially when it comes packed loosely in a thin box, the flowers sent being badly bruised. The colours appear to be very rich and bright, but the varieties are so numerous that I could not think of putting names to them.—G.

Orchids from the Congo (*F. Laurie*).—These are three *Angrecums*, a purely African genus, and I am in hopes we shall have some fine new species to come from this district. No. 1 appears to be *A. bilobum*; 2, *A. pertusum*; 3, possibly *A. Chaillanum*. The last may be new. If you have plants sent home, get them sent so as to arrive here about April or beginning of May, and have them packed so that the leaves do not get bruised, as much depends upon this.—G.

Gas-lime.—I see in *THE GARDEN*, Dec. 20, that Mr. Iggulden speaks rather unfavourably of using gas-lime in the kitchen garden. In this neighbourhood it is extensively used by market gardeners for all crops of the Brassica tribe, not only for destroying obnoxious insects, but also acting as a valuable manure, improving and stimu-

lating growth in a marked manner. My Brussels Sprouts, Cabbage, Broccoli, &c., having suffered so terribly during the past summer from clubbing, my employer resolved to try gas-lime to prevent it in future. On making inquiries concerning its use, I found that market gardeners highly recommended it, but that private gardeners were afraid of it. In Miss Ormerod's "Manual of Injurious Insects" gas-lime is highly extolled by many market growers as the sovereign remedy—in fact, the only really effectual destroyer of anbury and other pests infesting the Brassica tribe. On the strength of such testimony I have used it extensively in the kitchen garden this autumn, and shall be pleased to report its effects on the crops planted next season. If it destroys only half as many plants as the clubbing does, I shall not be a loser.—A. LOCKE, *Danesfield, Walton-on-Thames.*

STOVE AND GREENHOUSE.

DRACÆNAS AND CROTONS AT NORWOOD.

ABOUT eight years ago another name was added to the list of nurserymen in the suburbs of London—Mr. Bause, who established himself in the Portland Road, South Norwood. There are few men better known for the excellent culture of Dracenas, Crotons, and allied plants, to each of which a large house, or even more, is devoted. The houses are for the most part about 85 feet long, low-pitched, and each with a raised central bed to bring the plants near the light to impart to them colour and dwarfness of habit, both qualities of first importance in good market plants. Besides Dracenas, a few kinds of Palms are cultivated largely, and one house of *Aspidistra lurida variegata*, beautifully variegated and in splendid health, was a picture of leaf colouring. It is when seen closely packed by the thousand that the showiness of a plant is best revealed. This *Aspidistra* is, of course, the most popular of all room or window or corridor plants, its tough leafage resisting draughts, dust, and other evils with impunity, and a good specimen always realises a high price. This is obvious. It cannot pay to sell cheaply, for the reason, as everyone knows who has purchased one in an early stage, that there are few popular things of slower growth. It takes years to obtain a first-rate specimen, especially if the variety is more variegated than usual. The more colour there is in the leaf the longer the plant takes to grow. One large structure, quite 100 feet long, is filled with the two best of all market Palms, *Kentia Belmoreana* and *K. Fosteriana*, which for usefulness stand first, but have to share place with *Latania borbonica*, which here fills one large structure, and the hundreds of seedlings show that the demand is constant, if not increasing; *Corypha australis*, the pretty *Euterpe edulis*, and *Geonoma gracilis*. The *Geonoma* is a charming plant, and would be as popular for choice decorations as *Cocos Weddelliana*, represented by hundreds of specimens, if it were of quicker growth; hence the price is high for good plants. *Areca lutescens* is another favourite, but two of the leading things are

Dracenas and Crotons. The Dracenas are a picture of health and colour. There are hundreds of seedlings coming on, medium-sized plants, dwarf, splendidly coloured, even with the absence of sunlight for practically over a month, others larger. The best house of them contains thousands of plants, each about 6 inches in height, and the list of varieties is of great length. It is impossible to indicate more than a few of the best, and many are of Mr. Bause's own raising. Dracenas are not, as those well versed in plant matters know full well, the

only things he has interested himself in, as testified by *Adiantum Bausei*, one of the most distinct Maiden-hair Ferns in cultivation, even if its drooping pinnules have a certain deadness not exactly agreeable. One of the most frequent varieties of *Dracena* at Norwood is *Mme. Bergman*, with fine bold leafage, beautifully coloured, a rich contrast of crimson and dark olive-brown, almost chocolate. Then we have *D. Bausei*, *Goldiana*, the lovely *terminalis alba* (a bright, elegant, and distinct variety, green and creamy white in colour), *Alberti*, *pendula*, *igneus*, *Mr. Gladstone*, *rubra*, *Rossi* (rich crimson, very bright), and *norwoodense* (dark green and red). In another house the plants are arranged in colours, and a pretty effect is obtained by a little forethought. We have never seen a finer display than here, especially of such types as *Mrs. Wills*, *superba*, the narrow-leaved *angustifolia*, *Mrs. Bause* (dark green, thin crimson margin, a distinct and attractive variety), *Fredericki* (very rich, the leaves broad, dark olive-green, crimson margin, the central ones coloured with crimson and silvery-white), and *Mme. Heine*. In one house we noticed an excellent specimen of *D. indivisa variegata*. It is as yet rare, but will doubtless become as popular in time as the type itself, as the variegation, whilst distinct, is neither spotty nor weak; the leaves deep green, thinly but boldly margined with white; otherwise, the plant has much the same character and appearance as the ordinary form.

The Crotons are as brilliant in colour as the Dracenas, and there is grown here a representative collection, some of the finest, of course, preponderating. One of the best is unquestionably *Queen Victoria*, and another gem is *The Countess*, a delightful narrow-leaved variety, coloured with dark green and orange-yellow in about equal proportions; elegantissimum, very pretty; *Sunbeam*, very handsome, the leaves broad, and of dark colour; *Aigburth Gem*, *Reidi*, one of the best, the leaf dark green, deep crimson hue down the centre, with a band of crimson cutting into the body colour; *Sunset*, *Prince Henry*, narrow leaves, dark chocolate-green, crimson line down the centre; *Evansianum*, *superbum*, *aigburthense*, *Hawkeri*, *Prince of Wales*, *quadricolor*, which is of distinct habit, bushy, the leaves ovate, and the colour yellow dark green; *Thompsoni*, and *Flambeau*, splendid crimson.

Only, of course, the leading things are indicated. In one house was a large batch of that splendidly variegated plant *Pandanus Veitchi*, the beautifully coloured *Begonia Arthur Mallet*, the variegated *Ficus elastica*, *Pavetta borbonica*, besides a rich selection of *Nepenthes*. A visit to such a place as this gives one an idea of not only the beauty of such things, but the demand that exists for them at the present time. This is a dull period for stove plants in general, but when a nursery is devoted to practically nothing else, it shows that there must be a steady demand.

Justicia calycotricha.—This Brazilian Acanthad is, like many others of the order to which it belongs, valuable for its winter flowers, and, what is more, the colour of the blossoms—a pleasing shade of yellow—is not largely represented among plants of this class. Like most of the *Justicias*, *Apelandras*, and similar plants, it forms an upright growing, sparsely branched specimen, clothed with ovate leaves, and terminated by a cluster of blossoms. The calyx segments are long, narrow, and yellow in colour, and being gathered together in a compact head, they form quite an effective feature, which is increased by the flowers that protrude therefrom. The individual blooms are little more than an inch long, and remarkable for their

pubescent character. The plant in question is also known by the generic name of *Schaueria*. Like most of its class, it is of easy culture, but as the plants are apt to run up naked at the base, frequent propagation is necessary to ensure effective specimens. Cuttings of the young growing shoots strike root readily during the spring months, and if grown on freely will make good flowering plants the following winter.—H. P.

SOME WINTER-FLOWERING BEGONIAS.

THE tuberous-rooted Begonias being at rest, I will call attention to a few of the old species and their varieties that are useful through the dull winter months. They lack the richness of colour which distinguishes their tuberous-rooted relatives, it is true, but their beauty is undisputed, and they make a stove look gay until the end of February or March. I do think these plants have been too much neglected. They do not require much attention, and if carefully grown through the summer months, they will through the winter produce an abundance of their large panicles of flowers which amply repay any amount of attention which may be given them. The plants do not want a great amount of pot room, and should be potted in good light turfy loam, mixed with a little leaf-mould and some sharp sand. Drain the pots well, and do not be afraid to press the soil down firmly, leaving space enough for a good allowance of water in the summer-time. A good supply of water will be necessary during the summer, but in winter less must be given. After the month of May I prefer to grow these Begonias in a cold frame, giving them plenty of air and space, and keeping them moist and shaded from the midday sun. From the cold frame the plants may be removed to a house with an intermediate temperature during August, all depending upon the temperature. In the winter a few *Poinsettias* and some specimens of *Gesnera cinnabarina*, arranged between the plants, set them off well. The following are a few good kinds; more might be given, but I am afraid they are difficult to obtain now:—

B. BACCATA.—A curious plant of tall strong habit; flowers in long trusses, very large and pure white; these are succeeded by a berry-like fruit.

B. CRASSICAULIS.—A large palmate-leaved kind, with flesh-coloured flowers, produced in great abundance.

B. DIGITATA.—An erect-growing plant, producing flowers of a delicate soft rose colour, in the greatest abundance.

B. FALCATA.—This is a very handsome plant, with good habit, the leaves spotted with white; flowers rich rosy pink.

B. FOLIOSA.—In this we have a pretty basket plant, with neat small leaves, and an abundance of rosy-pink flowers.

B. FUCHSIODES.—An old, but most lovely plant, having pendulous bunches of rich scarlet flowers very freely produced.

B. GLANDULIFERA.—A beautiful kind, with ovate-cordate leaves and a large branching panicle of clear white flowers, the white being prettily set off by the bright orange-coloured stamens.

B. GERANIODES.—This grows about a foot high and has neat compact leaves; flowers pure white, ornamented with yellow stamens.

B. GUATEMALENSIS.—A large-growing plant of great beauty, producing an abundance of large panicles of deep flesh-coloured flowers.

B. HYDROCOTYLIFOLIA.—An old and well-known variety, with almost round leaves with dark veins; it produces large panicles of lovely pink flowers.

B. HERACLEIFOLIA NIGRICANS.—An elegant plant, but it requires a considerable quantity of room. It has palmate leaves, which are deep green, margined and streaked with black; flowers in large branching panicles, white, flushed with rose.

B. HYBRIDA FLORIBUNDA.—A cross between *B. multiflora* and *B. fuchsiodes*, possessing all the free-flowering qualities of the last-named parent, but the flowers are not so vivid, being of a rich rose colour.

B. INGRAMI.—Like a very strong-growing *B. fuchsiodes* with an abundance of pendent clusters of soft pink flowers.

B. KUNTHIANA.—A beautiful kind, the leaves being dark green on the upper surface, deep reddish-crimson beneath, the flowers large and pure white.

B. LACINIATA.—An exceedingly showy plant, and

of somewhat strong growth, the leaves blackish-purple and green; the panicles are branching, bearing a profusion of pure white flowers.

B. LAPEYROUSSE.—This is a magnificent Begonia, producing compact trusses of flesh-coloured flowers.

B. LONGIPILA.—An erect-growing variety, which produces very dense panicles of large rosy-pink flowers.

B. MEYER.—A strong-growing kind, the stems and leaves clothed with soft, light brown hairs; flowers very large, pure white.

B. NITIDA.—This looks best when grown small; it has small green leaves and large, pure white flowers, and these make it an admirable plant for table decoration, whilst a stock is easily kept up from cuttings.

B. ODORATA.—This bears sweet-scented blossoms. It is an erect, free grower, and produces large trusses of pure white flowers.

B. SEMPERFLORENS.—This is a remarkable plant, because it can be grown in small pots, and be made available for table decoration, and little plants continue in bloom for a long time; the leaves are bright shining green, and the flowers pure white.

B. ULMIFOLIA.—A large, free grower, producing deep green leaves and large, erect trusses of rosy-pink blooms.

B. UROPHYLLA.—A somewhat large-growing plant, spreading, and requiring ample room; it produces large branching panicles of pure white flowers.

The above will form a beautiful collection for those who have room to accommodate them, and as they all bloom during the winter months if properly managed they will be highly appreciated, whilst those of my readers who have not the space at their command can make a selection from them. All should grow winter Begonias, as they are elegant and beautiful. We could do with a little more colour in the flowers, perhaps, but we do not want the size of the tuberous-rooted section introduced to them; indeed, it is very questionable if any improvement has been made in their habit since the days of *B. boliviensis* and such like varieties.

W. H. G.

POISONOUS PLANTS.

I HAVE had similar experience to that recorded by Mr. Hudson in *THE GARDEN* for Dec. 20 (p. 587). At first I did not think of attributing the cause to *Davallia Mooreana*, but after hearing others speak of the peculiar irritation caused by this Fern, I remembered my own suffering, and although I have since been very careful when handling the plant I have been affected in the same way, but not to a serious extent. I think there is little harm except when coming in direct contact with the fronds. It would be a pity to banish this beautiful Fern on account of this property. I have experienced the same inconvenience when working among specimens of *Alsophila australis*, and thought that it was caused through some of the small scales getting in my eyes, but the irritation has been considerably increased by passing the hand over the face.

With regard to *Primulas*, *P. obconica* is not the only species which requires care in handling. *P. sinensis* possesses similar properties, though perhaps not quite so powerful. When working among the old double white *Primula* my eyes have been affected, and that naturally caused me to rub them with my hand, which made matters considerably worse. It was some time before I quite understood the cause, but I have no doubt that others have had similar experience. It may be useful to know that it is necessary to be careful when working among such plants, yet it would be a mistake to condemn the *Primulas* for this reason, for I believe it is only when they are disturbed that they cause any inconvenience. Many of our most beautiful plants are very poisonous. I have heard of ladies who object to having *Poinsettias* in a room because they are poisonous, but I do not think there can be any harm in them any more than there is in many other plants to which no objection would be made. I believe there are many things which should be handled carefully, especially when using the knife among them. I was once pruning a *Stephanotis* when a drop of sap fell on my eye; this caused the most intense pain and the inflammation spread all over the cheek. The poisonous properties of the *Arum* family are well known. I have

never experienced the sensation, but I have known others suffer very much through sniffing the pollen from the inflorescence of *Calla aethiopica*. If a little of the pollen is drawn into the nostrils, the irritation is intense.

F. H.

SEED SOWING.

AT the commencement of the new year no time should be lost in sowing a few choice flower seeds, which by taking time by the forelock will result in a prolonged season of flowering. Seeds of a choice strain of *Gloxinias* should be sown thus early; the young plants thereby raised will with good attention surpass a stock of old bulbs and flower profusely from June onwards to the late autumn. With the splendid selections of these beautiful plants now in cultivation, named varieties for general purposes are not so much in request, with the exception probably of the pure white kinds. A packet of seed if divided and sown at intervals of a few weeks will give an abundant stock, from which selections may be made whilst in bloom for retention another season for early flowering. The object of sowing at two different times is not to guard against failure as much as to prolong the season of blooming. In sowing extra early there is rather more risk run of a good crop of seedlings being obtained, but when secured the gain is obvious. It will happen at times that from some cause, which the cultivator cannot himself assign to any known failing in attention, the seed will not germinate; hence, in dividing a packet of choice seed, one sowing may yield a good return, whilst the other does not. A fair amount of bottom-heat is a great assistance early in the season for raising these and other seeds requiring somewhat similar treatment. In my case I have pipes for bottom-heat running through a propagating pit, overlaid with cocoa fibre resting on slates. By this means a genial heat is secured averaging from 75° to 85°. For these and all other minute kinds of seed I always prefer to cover the pot or pan with a pane of glass, which if cut in the shape of a hexagon will be all the better for round pans. This is much better than confining the seed-pan in a close pit or frame by which a greater amount of atmospheric moisture is precipitated upon the soil, in some cases to form a thin film which may eventually be productive of a minute form of fungoid growth. A soil with a good admixture of silver sand is the best. I prefer it to consist of sandy loam and leaf-mould in about equal parts. A great depth of soil is not beneficial; rather make up well with drainage, leaving a space of about half an inch between the top of the soil when the seed is sown and the glass which covers it. Hardly any water will be needed until the seed has germinated when covered with glass, a good watering having been given previous to the seed being sown. As soon as it is seen that the seeds are germinating, a close watch should be kept that none of the seedlings are lost by damp; a little air admitted during the day will generally counteract this. Seeds of the tuberous-rooted *Begonias* should also be sown early in January, and I recommend those who intend to give a trial to the new hybrid *Streptocarpus*, not to lose any time in sowing some of the seed. Both of these just named will succeed well in the first stages under the same conditions as those advised for the *Gloxinias*. If *Amaryllis* seed of a choice strain is not yet sown, no time ought to be lost in seeing to it. Ours are now nice sized plants with leaves 2 inches long; this gives a good start, which, I think, will be more evident with the advent of finer weather. The compact variety of the common *Musk* is easily raised and comes true from seed. If sown early, good plants for bedding out will be had by May. An early sowing of the seed of *Torenia Fournieri* will give a useful lot of plants for flowering in June, even after having had one or two pinchings to obtain stocky growth. The stove *Periwinkles* (*Vincas alba*, *rosea*, and *oculata*) should also be sown early to get good plants the same year. Those who happen to have *Apheandra aurantiaca* Roelz just going out of flower should carefully watch the pods, or they will lose the seed. If the plants could now onwards stand upon a moist bottom where the seed if lost

at first would still stand a good chance of germinating, less trouble would be given. Early raised seedlings of this beautiful winter-flowering *Apheandra* will give a batch of strong plants with good leafage of a silvery-grey colour and of a more distinct character, in my opinion, than in the case of the older plants. The beautiful *Urn Flower* (*Urceolina pendula*) when its seeds should be looked after. This would now soon be ripe; when in this condition, sow at once. I have in this way raised a good stock of this none too well known bulbous plant. Seeds of the winter-flowering *Begonias* of the type of *B. insignis* and *Knowsleyana* should also be sown as soon as ripe; this will not be many weeks. The seed-pods in many instances will be already of full size. As soon as the seedlings of these *Begonias* are safe, the older plants may be dispensed with to a great extent.

J. HUDSON.

GRASSES IN POTS.

WHERE pot plants are required for decoration throughout the year the object aimed at is, of course, to supply as great a variety as possible, in order to avoid a too frequent repetition, as this will in time become monotonous. Several of our hardy Grasses readily lend themselves to pot culture, and by their means some light and pleasing groups can be formed in the greenhouse during the summer months, added to which they are extremely useful in a cut state. Being at their best during the summer just when the greenhouse is usually supplied with a great wealth of flowering plants, these Grasses serve to tone down any strong colour which often prevails at that season of the year. Where needed only for cutting from, the seed may be sown in the open ground during the showery weather of April, when it will soon germinate and grow away freely. In pots, however, these Grasses are most appreciated before the outdoor ones are sufficiently advanced to be effective. To ensure this, a good plan is to sow the seed from the middle of February to a corresponding period in March, according to the weather and other considerations, for should it be very cold and dull nothing is gained by sowing it then, as given bright open weather it quickly germinates. There are two methods of treating these Grasses in pots, one being to prick them off when large enough to handle, and the other to sow them in the pots in which they are to flower. This last plan I prefer, the principal consideration being not to sow the seed too thickly, as when the plants are overcrowded, much of their beauty is lost. Pots of any size may be used, but the most useful are those 5 inches or 6 inches in diameter, as they are handier than larger ones. A small amount of drainage, yet sufficient to be effectual, with a good holding soil suits the various Grasses perfectly. To accomplish this, one good crock in the bottom of the pot is enough, when the soil may be put in and pressed down fairly firmly, leaving in the case of those with minute seeds a space of about half an inch from the rim of the pot, and rather more for the larger ones. Loam lightened with a little decayed manure and sand will form a very suitable compost. The seed having been thinly sown and lightly covered, the pots may be placed in a cold frame and kept pretty close till germination takes place, which with bright weather will not be long. Plenty of air should be given to encourage as sturdy a growth as possible, but even then in most cases some slight support will be necessary for the plants as they grow up. The practice so popular with market growers for the support of many plants is to insert four sticks at equal distances apart around the edge of the pot, and pass a piece of stout thread or matting from one to the other, giving it a twist around each stick to hold all in position. If this be done directly the plants are tall enough, the foliage which is produced afterwards will hide both sticks and ties, while at the same time the plants will be prevented from falling about. As the pots get full of roots the plants must not be allowed to suffer from want of water otherwise the foliage will soon get sickly. Some of the best Grasses for this treatment are the dwarf-growing *Agrostis pulchella*, the taller, yet even

more delicate, *A. nebulosa*, and both forms of the Quaking or Totter Grass (*Briza maxima* and *minor*). *Hordeum jubatum*, the long Barley-like awns of which are of a purplish tint when young, but when mature soon fall to pieces, will also be found useful. *Lagurus ovatus*, with its white downy heads supported on slender stalks, also does well in pots, and is very distinct from anything else, while to these may be added the loose growing *Bromus briziformis*. Seeds of the above are readily obtained, and most seedsmen now keep a well assorted collection of ornamental Grasses, as many are available for sowing in the open ground that will not succeed in pots.

H. P.

Aphelandra nitens.—Beautiful as most of the *Aphelandras* are, this is one of the best of them, and a desirable flowering plant for the stove at almost any season. Perhaps it is as a rule during the autumn and winter months that the flowers are most appreciated, as the number of stove flowering plants at that time of the year is by no means extensive. This species is of rather sturdy growth, the stem being clothed with stout, leathery, ovate leaves, deep glossy green on the upper surface, and purplish beneath. The large showy blossoms are of a glowing vermilion-scarlet colour, and borne in a terminal spike, as in most of the others. The species in question was introduced in 1867, so that it is by no means among the newest introductions of this genus. Like the rest of its class, this *Aphelandra* is of easy culture, the principal thing being to propagate frequently, as dwarf plants clothed to the pot with leaves are more satisfactory than tall, naked specimens.—H. P.

Callipsyche mirabilis is a remarkable flower that may be seen now in the stove at Kew. Its specific name is appropriate, the spike or scape rising about 2 feet in height, and bearing a large spreading umbel of several flowers, which are of curious appearance. Each bloom has a drooping tendency, the calyx small, yellow, tipped with green, but from it protrudes a bunch of stamens fully three times as long as the perianth. The effect of several plants is most curious and interesting. The *Callipsyche* belongs to the *Amaryllidaceæ*, needs shade, and a good substantial loamy soil. Plenty of water is required when in growth, but less should be given in winter. Such plants as these are seldom seen outside a botanic garden, but those who do not grow them to give variety to the stove are the losers.

A remarkable plant at Kew now is *Echmea paniculigera*, which is to be seen in the Victoria Regia house, where a splendid specimen stands out conspicuously from anything else by reason of the distinct vase-like arrangement of the rich green serrated leaves, each from 2 feet to 3 feet long, and showy scarlet bracts. The inflorescence itself is about 3 feet above the rim of the pot, the flowers being arranged in a dense, very regular, pyramidal spike. The bracts are very large, striking out at right angles almost when fresh, but afterwards assuming a deflexed position. The calyx displays three colours—blue at the base, this passing to waxy white, and then pink. This *Echmea* illustrates the splendour of the genus. Few things are nobler and more striking than the present species, coming to perfection slowly and remaining many weeks in full beauty. No fog seems to touch it, and the same remark applies to the whole genus, neglected for some unexplained reason, but in gardens where they are grown, quite the most showy things at present in bloom.

Humea elegans.—*Primula obconica* has never caused any ill effects whatever to me, but the once popular greenhouse biennial—*Humea elegans*—is the most troublesome subject I have to deal with, for handling the foliage is accompanied with severe itching and irritation of the eyes, which lasts for hours, and should the spot be thoughtlessly rubbed when the tingling sensation is first noticed, it will extend over the greater part of the face.—H. P.

A water-loving plant.—It may not be generally known that *Monstera deliciosa* thrives well with its roots growing in water. I have a plant of it in the stove. The pot in which it was first potted was placed on a stone slab over the water tank,

the shoots being tied to the wall. In this position it has been for several years. During this time it has grown to the top of the house. Last year I was obliged to cut it down 3 feet or 4 feet. It produces five or six large fruits every year. This plant receives no support, except what it gets from its roots running into the tank of water. The roots have also found their way along the wall and down into the drain which is the outlet for the tank.—DORSET.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

JANUARY 7 AND 8.

If the National Chrysanthemum Society could have brought together a large exhibition on Tuesday or Wednesday it would have been magicians' work; but, of course, after the excessive frost and fog, which have not been so frequent and constant for many years, it was idle to think of a good show of flowers. They are not to be found, especially in gardens near London, whilst the keen frost of Wednesday morning prevented many would-be exhibitors either from sending miscellaneous groups or taking part in the competition. In the face of such obstacles it was surprising there were any flowers at all, but there was a fair display. The question is, however, whether such an exhibition as that of Wednesday really pays, or has much influence on Chrysanthemum culture. We think it has little, if any. Very few true late-blooming varieties have been added, those to be seen on Wednesday comprising the ordinary midseason kinds struck from late cuttings, or the few late types that were in cultivation before the present series of January exhibitions was instituted. We do not wish to infer that a show in a cold, foggy season as the present should be taken as a criterion, but no striking results have been seen from any of them.

The chief class was for a collection of flowers in bunches, any varieties; and a beautiful display was made by Mr. W. G. Gilbert, gardener to Mr. B. le Neve Foster, Sennowe Hall, Guist, Norfolk, his varieties, tastefully set up in graceful bunches, comprising Mrs. F. Jameson, Japonais, Princess Blanche, Golden Gem, Duchess of Albany, Gloriosum, Boule d'Or, W. G. Drover, Pelican, Mrs. H. J. Jones, Meg Merrilies, Mrs. Beal, pure white; Sunflower, Putney George, Sabine, Snowdrop, Charles Sharman. Here is a good representation of the various sections. An extra prize went to Mr. E. Vince, Highgate Cemetery. Another interesting class was for 24 flowers, in which Miss R. Debenham, was a good first; the flowers were exceedingly fine for the season, so also were those from Mr. Sullivan, gardener to Mr. D. B. Chapman, Downshire House, Roehampton, who was placed second. The first prize in the class for twelve was won by Mr. W. G. Gilbert, the varieties consisting of Mrs. Beal, Mrs. F. Jameson, Gloriosum, Boule d'Or, Charles Sharman, and Sunbeam. Mr. J. Brown, gardener to Mrs. Waterlow, Great Doods, Reigate, was second, the varieties being W. and G. Drover, properly known, we believe, as Mrs. Frank Thompson, Leon Frache, and the broad-petalled Mr. A. Waterer. Mr. J. Brown had the twelve finest Japanese flowers, especially of Charles Sharman, Fanny Bouchariat, Pelican, Mrs. C. Carey, James Weston, and the pale yellow Goldfinder; the second prize went to Mr. R. Falconer Jamieson. The best six bunches of Japanese blooms were from Mr. John Snow, gardener to Mr. C. A. de Murietta, Wadhurst Park, Sussex. There was one class for a large hall vase or epergne, Mr. G. Newman, Bromley, winning the premier award, followed by Mr. C. Ings, gardener to Sir Spencer Wells, Bart., Golder's Hill, Hampstead, and Mr. W. A. Searing, gardener to Mr. R. Monckton, Oak Lodge, Sevenoaks.

An interesting series of seedlings and named varieties came from Mr. Owen, Maidenhead, who showed such types as Mr. W. W. Coles, Kioto, Mrs. E. W. Clarke, Golden Gem, and promising seedlings (silver-gilt medal). There were few Cyclamens, but quality made up for quantity, as the beautiful collection of finely-coloured varieties from Mr. May, Gordon Nursery, Twickenham, who was accorded the first prize. Mr. D. White, Redlees

Gardens, Isleworth, had the best twelve, followed by Mr. A. Carter, gardener to Alderman Evans, Ewell. Mr. A. Carter was first for twelve plants of Chinese Primulas (single), also for double-blooming kinds. A very fine display of Chinese Primulas was made by Messrs. H. Cannell and Sons, Swanley, the plants large, well flowered, and comprising several of the best kinds of this firm, as Cannell's Pink, a lovely pink; Emperor, the double-white Marchioness of Exeter, Swanley Blue, Her Majesty, Crimson Velvet, a rich crimson flower, quite velvety to the touch, and a type that gives every promise of a self-yellow flower (silver-gilt medal).

A large collection of Potatoes, excellent tubers, was shown by Mr. W. Whitehead Cousins, Cliffe-at-Hoo, Kent.

PUBLIC GARDENS.

The new recreation ground, presented to the Southgate Local Board of Health by Mr. Vyell Edward Walker, is hedged round by conditions. Recreations are encouraged freely, but "demonstrations" are carefully guarded against. After providing for cricket, football, and school treats, the reserve clauses run as follows: "No public meetings for the discussion of political, religious, trade or social questions, or for matters of controversy shall be held, or religious services be conducted, or lectures or addresses be delivered on any part of the said ground, nor shall the same in any part thereof be used except as a public park, or for any other purpose than those of recreation or enjoyment."

Victoria Park Cemetery.—It may be of interest to those of your readers who kindly responded to my appeal for £3000 to lay out as a public garden 11 acres in the East End of London, known as Victoria Park Cemetery, to hear that £500 has been promised by one munificent friend, and £100 by another, on condition that the whole amount required shall be raised within six months. Altogether about £700 have been obtained, leaving £2300 still to be found. I earnestly hope that this sum will shortly be sent me, so that I may be enabled to claim the above-mentioned promise.—MEATH, *Kilruddery, Bray, Ireland.*

Public gardens movement.—The Metropolitan Public Gardens Association, with which the name of the Earl of Meath is chiefly associated, has issued its eighth annual report. The report is accompanied by a "spotted" map on a large scale, showing at a glance the situations of the open spaces secured to the public, and of the trees planted by the association, as well as the localities of probable future operations. In the last category are included seven spots of land where work is to be begun as soon as possible, viz., the disused burial-grounds of St. Botolph, Aldgate, St. James', Ratcliff, St. Bartholomew the Great, West Smithfield, and Victoria Park Cemetery, also Bartholomew Square, Old Street, Bedford Square, E., and a proposed recreation ground at New Cross. Contributions are greatly needed at the present time, several generous supporters having died during the current year, and, in addition, the absence of a Mansion House fund, such as was started in 1886 for the payment of workmen's wages, has to be made up.

OBITUARY.

Mr. John Clark.—We have to announce with regret the death, on Christmas Day, of Mr. Clark, who for nearly twenty-five years had been gardener at Brodie Castle, Morayshire.

Mr. H. Sproston Hall.—Deep sympathy will be felt with Mr. T. B. Hall, the celebrated Rose exhibitor, and Mrs. Hall, at the great bereavement they have sustained through the death of their eldest son, Mr. H. Sproston Hall. The deceased was engaged on December 27 cleaning a revolver when it accidentally exploded and killed him.

BOOKS RECEIVED.

"Journal of the Royal Agricultural Society of England." Third Series, Vol. I., Part 4.
"Catalogue of Ferns in the Herbarium of the Government of India at Saharanpur."
"Agricultural Gazette of New South Wales."
"Ses Progrès et ses Conquêtes depuis 1789." Par M. Charles Baltet.

WOODS AND FORESTS.

FORESTRY NOTES.

THE keen frosty weather which we have experienced of late has been favourable for felling and removing timber of all kinds, and a good deal of this kind of work has been accomplished at intervals when planting could not be prosecuted to advantage. In cases where dead and inferior trees have been removed from ornamental plantations, it will now be necessary to prepare sites for young trees to be planted in spring in order to make up the blanks. This sort of planting requires special care and attention, and to the want of this may be traced a great many of the failures which we occasionally see here and there throughout the country. In preparing the ground the drains should be all put in proper working order and new ones cut where found necessary. Capacious pits should then be dug for the trees, so that the roots can be spread out to their full length without doubling or crossing each other. Particular attention should also be paid to the removal of all old roots and chips of wood as the work proceeds, in order to render the soil as clean and pure as possible for the roots of the young trees to be planted. Roots, fragments of wood, and rubbish should be collected into heaps here and there and burned. Burning is not only the best way of getting rid of such stuff, but the ashes are valuable for mixing with poor, exhausted soil at the spots where the trees are to be planted. The ashes, however, should not be reduced to a soft white powder. When the rubbish is pretty well reduced by fire, the heap should be covered over with sods or clay and allowed to cool gradually. Among the coniferous trees best adapted for making up blanks in old plantations the *Abies* and *Picea* tribe should be used pretty freely, as they generally retain their side branches from the ground upward better than Pines, are highly ornamental, and afford superior covert and shelter when planted in the proximity of other trees. In order to obtain the best results, the trees had better be prepared in the home nursery by having them frequently transplanted to encourage the formation of bushy roots. They can then be planted as may be required without exposing the roots for any length of time to the drying influence of the atmosphere. As soon as the trees are planted they should be fenced, for it is bad policy to allow the plants to stand unprotected until they are nibbled and eaten and then begin to fence. Wire netting is cheapest and best for this purpose in the long run. J. B. WEBSTER.

TRANSPLANTING TREES.

THE conditions upon which the successful transplanting of large trees mainly depends are, first, selection; second, preparation; third, removal; fourth, replanting; and fifth, and by no means the least, after-treatment.

1. The selection of a tree is not less important than that of suitable soil in which to place it. The future growth of the tree will depend very much upon the nature of the subsoil. If possible, no tree should be removed into a poorer soil than the one in which it was reared; but by a proper preparation of the land, by trenching and drainage, and a liberal use of good composts, defects in the soil may to some extent be remedied. For exposed situations, such as those generally occupied by single trees, a tolerably stout trunk with a fair thickness of bark, a compact and good-sized head, and abundance of fibrous roots are the main essentials. Without most of these protecting properties vigorous growth cannot be looked for.

2. Trees intended for removal from sheltered spots should be so opened out and exposed beforehand as to secure a gradual thickening of the bark and a hardening of the sapvessels, as well as a proper density of head. A trench should be cut round them at a sufficient distance to preserve a considerable portion of the roots intact, such trench to be afterwards filled up with a good and moderately light compost. In the course of two or three years this will be filled with an abundance of fibrous roots. At

the same time some good manure may be scattered over the whole space between the trench and the trunk. If the head requires any pruning to balance it, now is the time to perform the operation; but the less the branches are cut the better for the tree. A proper preparation of the soil consists in a thorough trenching and draining where necessary, with the addition of some quicklime and clayey matter for light lands, mild lime and sandy soil for the aluminous, and quicklime with peat Moss for loamy lands.

3. During removal, the greatest care must be taken not to injure the head, break the bark, or unnecessarily amputate or lacerate the roots. A trench should be opened outside that previously cut round the roots, so that the newly-formed fibrous roots may be taken up uninjured. Where the roots are laid bare, the greatest care should be taken to preserve them as entire as possible, and the smallest fibres should be carefully handled and turned in towards the trunk. When the tree is removed with a ball of earth every precaution should be taken to get well under the roots, to secure all, and to move slowly and carefully over the ground.

4. The soil below should be well consolidated before the tree is lowered upon it, and if the bed be made slightly concave or somewhat dished so much the better. All straggling roots should be carefully arranged by hand, and torn ones cut off with a clean section. Where the tree is removed without the ball, the soil thrown in amongst the roots should be finely pulverised, and only small quantities added at one time. In order to fill up all spaces, water may from time to time be dashed on with considerable force. This will carry the fine earth underneath better than either treading or ramming. With a well balanced head a tree properly placed will seldom require the artificial support of stakes and cords. The thickest and heaviest side of the head may with advantage be turned to the principal exposure. A good ramming after the turf is laid on will be beneficial.

5. Mulching will generally be found the best after-treatment for trees of a large size. Too much watering often does mischief, but when applied it should be thoroughly done. The roots of the Oak, Beech, Birch, and some other trees are very susceptible of drought and of frosts after removal. Wherever upon very wet and retentive soils the trees are at first merely pitted or holed in, the spaces around should receive a good trenching during the following season to permit of the extension of the rootlets, and provision for carrying away redundant water should be made at the same time.

Transplanting trees has long been practised, although not always carried out in a thoroughly scientific manner. Much disappointment from failures often arises from the non-fulfilment of certain principles which are absolutely necessary in order to obtain satisfactory results. Transplanting shrubs may be done, and is done, with adherent balls of earth varying from 8 lb. to 10 lb. in weight to as many tons, according to the lifting appliances at the command of the operator. The simplest of all methods is lifting a shrub or tree with an ordinary garden spade, and even by this simple process the greatest difference is observable in the execution of the work by different operators. This is easily seen by the way in which some men go about such work. One, from long practice, particularly in nurseries, will lift a small-sized shrub with a good adherent ball, while another, from want of the requisite skill in guiding his spade, will allow the ball to fall to pieces. Retentive soils and frequent transplanting have often much to do in the successful lifting of certain plants. With many deciduous trees and some shrubs it is not always necessary that they should be lifted with a ball of earth, even when of medium size, unless in the case of very rare or delicate specimens, when successful transplanting is absolutely desired. Deciduous trees, both forest and fruit, varying from 4 feet to 6 feet, or even 10 feet in height, where the roots have been prepared by previous cutting or frequent transplanting, can be moved with safety even without a ball, and at any time during the

transplanting season. If transplanted without any previous preparation, particularly if 10 feet or 12 feet in height, such trees are apt to lose many of their branches, frequently getting into a sickly condition, and having ultimately to be uprooted. This frequently occurs in the case of forest trees which have been thinned out of young plantations where they have been growing for many years in a crowded condition. The roots of such, if the trees are lifted by inexperienced hands, and even sometimes by experienced ones, are sure to encounter a certain amount of damage. In the case of such root-mutilated trees, it is best at once to foreshorten all the points of the branches, in order to counter-balance the want of roots unavoidably injured, say in the proportion of eight to one as regards the roots, and even more as respects the branches. While lifting large deciduous and fruit trees without balls, or even with balls, it is absolutely necessary that all injured roots be cut off, particularly those partially broken through. These should afterwards be smoothed over with a sharp knife, as well as all surface-skin damages, instead of having them planted with their roots hacked with the spade, a system which is not unfrequently pursued. It will be found that all clean knife-cut roots will put out young fibres more freely than those that are cut with a spade and planted without any smoothing. Root-lifting is now much practised, both in the case of wall and standard fruit trees, and it is well known that this system has a very beneficial effect upon them as regards after-fruiting. The branch-cutting system, on an extensive scale, is frequently practised on forest trees from 20 feet to 30 feet in height. The roots, although not damaged, ought all to be cut, that is, in cases in which no adherent earth can be removed with them. Large trees so treated often succeed well, and ultimately make as good a shaped top as unpruned specimens removed either with or without a ball of earth. The foreshortening causes them to break more rapidly from the old wood than they otherwise would do; besides, foreshortened specimens do not require the assistance of ropes and props, which are generally necessary in the case of large deciduous trees where no branches are removed. The trees unsuccessfully transplanted are often very few in point of number compared with those in which no branch nor root-pruning had been carried out. A.

The timber trade of Norway and Sweden.

—The British Consul-General at Christiania reports that the export of timber from Norway during the past year was 940,000 registered tons, or about 36,000 registered tons more than in the previous year. In fact, the shipments reached a higher total than in any year since 1884. Great Britain continues to be the best customer, to the extent of 62 per cent. of the entire timber trade, the purchasers next in importance being France $8\frac{1}{2}$ per cent., Belgium 6 per cent., and Holland $5\frac{1}{2}$ per cent. There were also considerable exports to Australia and the Cape, which produced a rise in the price of dry Fir, and Norwegian exporters look forward to a considerable extension of the African markets as a consequence of increasing colonisation. Notwithstanding the increasing competition between Norway and Sweden in the supply of dressed timber, the figures show a considerable advance over those for the years 1884-86. But while in 1882 the imports of dressed boards to London from Norway were eight times as great as those from Sweden (8,000,000 boards against 1,000,000), the Norwegian supply fell in 1886 to about 7,000,000 boards, while that of Sweden rose to nearly 3,000,000, and Sweden has now overtaken the sister country in the exportation of those goods to London, which is also drawing larger and larger supplies from Russia and Finland.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

SELECTION OF ROSES FOR GENERAL PURPOSES.

THERE is a tendency even amongst those who should know better by experience to grow far too many varieties of the Rose. One hears of or sees a new Rose at an exhibition, and if it happens to be of a brilliant colour or of a new shade there is a tendency in the rosarian to hanker after it. Sweeping as the assertion may be, there are not, in my opinion, 100 distinct kinds of the Rose worthy the attention of amateurs. The professional must of necessity either grow every kind of Rose under the sun, or know where to put his hand on every variety, as the demands on him are of the most diverse and perplexing kind.

One result of the competitions at Rose shows for classes of 72 varieties is to foster this raising of numbers of so-called new Roses, which more than frequently, in fact, usually, have no distinctness whatever from the parents they are supposed to show a superiority to, or a variation from. I think if the N.R.S., and the numerous Rose societies working under its inspiration and auspices, were to confine the largest classes in competitions to 48's, and insist on greater distinctness of variety, there would be less imaginary necessity for so many worthless specimens being palmed off on a large number of comparatively ignorant neophytes worshipping at the shrine of the Rose goddess, who are prepared to swallow all the glowing descriptions of beauty attached (in the catalogues) to every new Rose brought out. From even my limited experience I know that fully 75 per cent. of the new Roses brought out annually are relegated to a well-merited obscurity before the succeeding summer has passed. Frequently some of the remaining 25 per cent. are invaluable. In confirmation of this I may refer to lists of new Roses prepared on several occasions in the last few years by Mr. Girdlestone, and which appeared in THE GARDEN. How many of these Roses have survived a trial of, say, two years?

Having thus in a general way stated my views as to some reasons for which I hold the opinion that there are not 100 varieties worth growing, I append the names of most of those I consider worthy of the attention of rosarians, whether they be exhibitors or merely growers for their own pleasure. I also add a note showing many in my list that are recommended in catalogues which are, in my opinion, not satisfactory to the ordinary grower, and in making these remarks I may state that I am writing more for the comparatively inexperienced than for those who are veteran rosarians. I have little doubt that some of my assertions will be disputed and questioned by experienced growers, but I do not set up for infallibility, and no doubt discussion in your columns will be interesting. I set forth the names in classes of colour, and not by the divisions usually practised of H.P., Tea, Noisette, &c. :—

Dark red.—Charles Lefebvre, Victor Hugo, Xavier Olibo, Louis Van Houtte, Earl of Dufferin, Horace Vernet, Duke of Wellington, Sir Rowland Hill, Prince Arthur, Prince Camille de Rohan, M. Bérardin, Sultan of Zanzibar, Reynolds Hole, Pierre Notting, Eugène Fürst.

Medium red, dark scarlet.—Duke of Edinburgh,

A. K. Williams, Duke of Teck, General Jacqueminot, Marie Rady, Thomas Mills, Le Havre, Mrs. Baker, Lady Helen Stewart, Fisher Holmes, E. Y. Teas, Marshal Vaillant.

Light red and bright red.—Marie Baumann, Alfred Colomb, Ulrich Brunner, Dupuy Jamain, Beauty of Waltham, Countess of Oxford, Suzanne Rodocanachi, Annie Wood.

Rose colour and dark pink.—Marquise de Castellan, Gabriel Luizet, Mrs. John Laing, Her Majesty, Marie Finger, La France, Etienne Levet, Heinrich Schultheis, Mme. Isaac Perière, Pride of Waltham, Baroness Rothschild.

Light pink and blush white.—Captain Christy, Viscountess Folkestone, Lady Mary Fitzwilliam, Mme. Joseph Desbois, Duchesse de Vallombrosa, Jules Finger.

Yellow and yellow mixed with various shades of rose and pink.—Maréchal Niel, Comtesse de Nadaillac, Gloire de Dijon, Mme. Berard, Marie Van Houtte, C. Kuster, Bouquet d'Or, Mme. Hoste, F. Kruger, Belle Lyonnaise, Etoile de Lyon, Jean Ducher, Mme. Falcot, Princess Beatrice, Princess of Wales, Grace Darling, Sunset.

Flesh colours, light buffs, salmons, and varieties of pink.—Catherine Mermet, Souvenir d'Elise Vardon, Rubens, Souvenir d'un Ami, Anna Ollivier, Souvenir de la Malmaison, Mme. Lambard, Comtesse Panisse, Cleopatra, Ethel Brownlow, Mme. de Watteville, Homère, Mme. Cusin.

White and cream colours.—Innocente Pirola, Edith Gifford, The Bride, Niphetos, Merveille de Lyon, Margaret Dickson, Devoniensis, Mme. Bravy, Boule de Neige.

In the foregoing I do not recommend any but practised growers to try Pierre Notting, H. Vernet, Xavier Olibo, Sir Rowland Hill, Reynolds Hole, Lady Mary Fitzwilliam, Maréchal Niel, Sunset, Jean Ducher, Etoile de Lyon, and Devoniensis, as they require special attention, a warm situation, and great care to ensure good results. I have also put in Homère merely because some people believe in that Rose; it is easily grown and is hardy, but I consider it most unsatisfactory to anyone who cares for "form." Those to whom form is of no consequence may take a list of almost any Roses from a good catalogue and they will be probably perfectly satisfied with the results, viz., quantity without quality.

Croydon.

CHARLES J. GRAHAME.

OWN-ROOT MARECHAL NIEL ROSES.

WITH the object of further testing the value of this Rose on foster roots as well as on its own, I procured four plants in August, 1888, and planted them in an inside border in a span-roofed house. One of them is on a seedling Brier, one on a Brier cutting, and one on the Manetti stock, the other being on its own roots. Although treated alike in every respect, the plants behave very differently, the plant on the seedling Brier being the weakest of the four, while that on the Manetti stock is fairly satisfactory. The one on the Brier cutting is vigorous. The own-root specimen is in every respect a success. From the first the growth was the strongest, although there was no difference between the four at the start. It commenced to make new growth at once, and has continued in a vigorous condition ever since; in fact, it had grown so much at the end of the following year as to require more space, so I took the strongest shoot through a hole in the partition, and trained it horizontally along the front of an adjoining house. As I use this structure for forcing, the shoot so trained gave many early Roses last season. The branches which had sprung from this shoot were trained up the roof, but as soon as the flowers were over I cut the branches back to a spur, leaving the horizontally-trained rod as before. The result of this cutting back was that the branch broke into growth again vigorously soon after, and by the end of last November it had made an aggregate growth of 182 feet since the beginning of May. There is nothing unusual in the length of growth

made in one season. I give the figures to show that this Rose will grow as satisfactorily sometimes on its own roots as on any other. This is not the opinion entertained. I am not, however, advocating the growing of own-root plants in preference to any others. The uncertain behaviour of this Rose under the most painstaking management, whether the plants have foster roots or not, is such that I regard every young plant with suspicion until I see whether it will start into growth vigorously or not. For six years I once tried an example on its own roots in a warm corner of a Peach house, the soil being specially prepared. It had farmyard liquid manure freely, and concentrated manure in good quantity, but it would not grow. At the end of six years it had not grown 4 feet high. I need hardly say that after such a patient trial I destroyed the plant. For the same reason I have had to get rid of some on foster roots.

J. C. C.

FORCING ROSES.

WHEN all the cultural details are skillfully carried out, there are few, if any, subjects which are more appreciated for the decoration of the conservatory in spring than a good batch of Hybrid Perpetual Roses. No other class of plants gives greater pleasure to visitors or brings more credit to the gardener.

To obtain a full measure of success both skill and care are required. In the first place, a selection of suitable varieties must be made. If the sorts are chosen at random, some disappointment is sure to follow. Those varieties that have very double flowers are not adapted for early forcing, as they require a greater heat to induce the flowers to expand. Such Roses as La France, although excellent for growing in pots, and very beautiful have flowers too full of petals to open at the same time and under the same treatment as those sorts that are more flimsy. General Jacqueminot may be selected as a good type of a flower for growing in pots for early forcing. There are, however, many more that are distinct in colour and of the same character, amongst those of different shades of red being Alfred Colomb, Mrs. G. Dickson, Eclair, Charles Lefebvre, Dr. Andry and Duke of Teck. Some good pink and rose-coloured varieties will be found in Mrs. J. Laing, Emilie Hausburg, Egeria, Edouard Morren, centifolia rosea, and Alphonse Soupert. The best white varieties are Boule de Neige and Perle des Blanchés. The next important point is to have the plants thoroughly well established in their pots. Plants recently potted if placed in more warmth than that of an ordinary greenhouse will not be at all satisfactory. The stock at the latest should not be disturbed at the roots after the beginning of August, and not even then if the plants have been potted up in the previous winter or spring. Pruning should be done at least two months before the plants are placed in the forcing house. I recommend early pruning, as the plants will then have time to swell up those buds which are to produce the flowers. Not only this, but they are more easily forced. Plants that are pruned in the middle of November will have plump, prominent buds when forcing commences if they are placed, as they ought to be, in a structure from which the frost is excluded.

Whatever may be the opinion about pruning Tea-scented Roses for early flowering, there cannot be any question as to pruning the Hybrid Perpetuals, because if large flowers are wanted fairly hard pruning is necessary. Weak growth is of no use whatever for the production of early flowers. It should, therefore, be cut clean away, and reliance placed wholly upon the strongest shoots. If these are pruned hard and early, all other things being equal, there will be no want of strong healthy growth, vigorous foliage, and plenty of flowers. Some may like to know what is meant by hard pruning. My experience is that the medium-sized shoots should be cut back to the second or third bud, and the strong ones to the fourth or fifth. In a general way it does not matter how many buds are left. Only those near the end start into growth, and the further they are away from the old wood

the weaker they break and the smaller the flower they produce.

To have this section of Roses in bloom before the middle of April is a mistake, as to get them before that time necessitates their being placed in heat early, with the result that the growth is weak and the flowers correspondingly small. To have the blooms in the best condition, forcing must be slow and the structure freely ventilated until the flower-buds are formed. This cannot be done when forcing commences in January or the early part of February. Reckoning from the middle of February, it will take from ten to twelve weeks to get the plants well into bloom. Even then it will require a temperature of 70° by day to expand the flowers. The temperature required must be carefully regulated. Too much heat at first will induce flowerless shoots. A day temperature of 55° is enough for the first three weeks, and in no case should it exceed 60° until the flower-buds are formed. The warmth should be less during the night.

When Roses grown in pots have thoroughly well established themselves in the soil I know of no plants that derive greater benefit from judicious applications of some liquid stimulant. But if stimulants are given before the buds are formed, only small flowers are likely to be produced. After the buds are formed, they may be increased in size by the assistance of some stimulating liquid. I have grown pot Roses largely in my time, and have used sulphate of ammonia with the best results. Half an ounce of the ammonia dissolved in one gallon of water and given to the plants twice a week has a marked effect on the foliage and flowers. Those who grow Roses in pots for the first time will find that they have some enemies to contend with in the way of mildew, green-fly, and the Rose maggot. The two first may be kept in check by the application of soft-soap and water. If one ounce of the soap is dissolved in one gallon of warm water and the plants syringed with it while the liquid is warm, it will destroy both the mildew and the fly. One or both may appear again in a week or two, but this remedy will always be effective. The Rose maggot can only be got rid of by hand-picking. As the young leaves unfold they must be looked over each day. If there are any signs of the leaf curling, a maggot is sure to be there, and may be destroyed by pressing it between the finger and thumb.

Much of the success that is to be obtained in subsequent years depends far more than some growers seem to imagine upon how the plants are treated after they go out of flower. J. C. C.

DINNER-TABLE DECORATION.

FASHIONS change in this as in most other artistic and decorative matters, but whether the private gardener and those responsible for the decoration of the dining-tables of innumerable country houses do well to follow any particular fashion or not is a moot point. In my opinion, the most successful decorators are those who prefer to do the best they can with what materials they have at hand, introducing something novel as often as possible. Variety, not, however, on the table at one time, but in a series of arrangements, is most essential, and different combinations ought to be planned and prepared weeks, and, it may be, months, before they are carried out. This is especially the case when there are certain weeks in the year in which a succession of parties has to be provided for, this often happening where there are large game preserves to be shot over. A fairly long notice is usually given if the exact date is kept a secret, and if the gardener is prepared accordingly, his work at the critical moment is much simplified. It is not absolutely necessary that quite fresh material be used each night, but if all is taken good care of when the table comes to be cleared by either the gardener or his assistants the same flowers will in the course of a night or two be available for quite a different arrangement.

As it happens, it is not such a great profusion of cut flowers and greenery that is required so much

as a little taste and judgment in their disposal. A great variety of colour is most objectionable, some of the most effective arrangements comprising one, or at the most two colours that harmonise well together with suitable foliage. Let the colour chosen be a decided one, anything that does not light up well or which presents a washed-out appearance not taking well. Judging from the comments of those who sit down to the tables, nothing pleases better than plenty of scarlet or bright red or crimson flowers. This may seem to be a depraved taste, but I do not admit it, and even if I thought otherwise should still recommend using what best pleases those for whom we cater. Personally I have a great weakness for all white flowers, these being well shown up with plenty of greenery, or, better still, the bronzy leaves of *Mahonia aquifolia*, sprays of coloured Ivy, *Cryptomeria elegans*, and such like. Yellow flowers are somewhat scarce at this time of year, but those who have a good stock of *Chrysanthemums*, such as Yellow Ethel, Gold-finder, Ralph Brocklebank, *Gloriosum*, and *Grandiflorum*, might with advantage arrange one yellow table, the same foliage and greenery being suitable for going with these as may previously have been used with white flowers. No mistake can be made in combining red and white, crimson and white, pink and white, or even scarlet or crimson and yellow. The latter may be thought a most glaring contrast, and in theory it is faulty, as being offensive to good taste, but by candle-light this is by no means an objectionable arrangement, and I never hesitate about resorting to it.

Flowering plants cannot often be admitted to the dining-table, the majority being far too heavy for the purpose, but exceptions may be made in favour of neat clumps of Lily of the Valley, Roman Hyacinths, *Dac Van Thol* Tulips, elegant *Begonias*, small *Gesneria* refulgens, *Impatiens* Sultan and *Hawkeri*, both very effective in a small state, and neat *Odontoglossums*. Fine-foliaged plants, including *Croton Johannis*, *angustifolium*, *Coutess*, *interruptum aureum*, nobile, *picturatum*, *aigburthense*, and other similarly elegant varieties; *Pandanus Veitchi*, which when well selected is most graceful and effective; *Panax Victoria*, a very serviceable and elegant table plant; *Aralia elegantissima* and *Veitchi*, narrow-leaved *Dracenas*, both coloured and green; quite small *Coleuses*, and such Palms as *Cocos Weddelliana*, *Geonoma gracilis* and *elegans*, *Areca lutescens* and *Verschoffii* are all available for table decoration, and judiciously employed are most effective. Small seedling Ferns are also admirably adapted for a similar purpose, but any in 5-inch or 6-inch pots are usually too large and heavy.

In each and every case it is of the greatest importance that nothing tall or heavy in the way of either plants or vases should be employed, anything that obstructs the view being most objectionable. It should be remembered that the guests do not meet together for the sole purpose of eating and drinking, and anything that prevents conversation from being carried out freely ought, therefore, to be avoided. Now nothing so sorely tries the patience of a lady or gentleman as the necessity for craning the neck in order to see those to whom they address their remarks, and I have seen gentlemen at public dinners so much irritated by having tall heavy vases of flowers directly in front of them that they could not refrain from shifting them clean off the table. At another time the host at a dinner party gave his gardener a forcible lesson in dinner-table decoration by simply chopping down the tallest plants used. Protesting against their employment not being of any avail, he adopted the extreme measure indicated, and with good results, too, as on other occasions if plants of *Crotons* (the kind operated upon with the carving-knife) were too tall, tops only were used, these firmly packed in moist soil or sand lasted well for one night, and were rooted subsequently. The tops of *Crotons* are often more attractive in every way than the average small plants, and might be more often used than they are. Those tall March stands to be seen at exhibitions and which only have a chance of winning the first prize, are simply useless for a

dining-table during the winter, and are very rarely employed at other times unless for the centre of an extra long table. A great glare of light in a dining-room, again, is a great mistake. As far as the table is concerned, nothing pleases so well as the light thrown down from shaded candles, this being most subdued, added to which it serves to show the decorations off to the best advantage. Silver-stemmed branched-candlesticks are the best, these being disposed through the centre. Obviously anything that is higher than these would look ridiculous, and to be seen at their best, both plants and cut flowers should be well below them, the highest as a rule not being more than 18 inches from the cloth. Those who are responsible for the decoration of a table ought always to test each arrangement before it is too late to correct any errors. This can best be done by lighting all the candles, then walking round, also taking note of the first effect on entering from the drawing-room entrance and sitting down at the table. If this cannot well be done at the time and there are hindrances thrown in the way sometimes by those who ought to know better, then I advise that the coming of the guests be anticipated by a few minutes or as soon as the candles are lit, observations being then taken for future guidance.

Having advised generally at rather great length, additional details and suggestions must necessarily be more brief. Those extraordinary scrolls and carpet-bed arrangements, once so much in vogue, are now much less thought of, but something of the sort might be attempted once in a week. Much might be done on the cloth without resorting, as I shall presently show, to tracery. I hold that dishes of dessert should always find a prominent place in every arrangement, these, besides adding considerably to the general effect, also giving the owner and grower of superior fruit a good opportunity for displaying the same. With the candlesticks and dessert dishes in position, and perhaps a gold or silver centrepiece, according to what kind of plate is to be used that night, a good start has been made towards furnishing the table. Midway between the candlesticks is a good position for either a moderately high plant or a plain silver vase filled with flowers. Sometimes the plants might be placed in either silver or china cups; at others they can be turned out of their pots and set on a circular piece of white paper, the paper to have sprays of either *Cupressus Lawsoniana* or *Thujopsis borealis*, or fronds of Ferns radiating from it and resting on the cloth. The balls of soil and roots being duly neatly covered over with either very green Moss or good *Selaginella Kraussiana*, better known as *Lycopodium denticulatum*, may in its turn be lightly surfaced over with short-stemmed flowers, such as zonal *Pelargoniums*, forced *Rhododendrons* and *Azaleas*, trusses of Chinese *Primulas*, double and single *Chrysanthemums*, *Poinsettias*, *Begonias*, Orchids of kinds, and such-like in one or two colours. A series of quite small plants placed midway between the dessert dishes and similarly treated would be ample for one night. Vases of cut flowers could be substituted for the plants, or could alternate with the same both through the centre and down the sides. Particularly beautiful are plain tankard-shaped vases filled with a few spikes of *Eucharis*, with *Calanthe* spikes springing from among them, and either of these flowers singly is most effective, plenty of Maiden-hair Fern being also used. *Poinsettias* are simply gorgeous in both large and small vases, and want nothing with them. Specimen blooms of *Chrysanthemums* are far too clumsy, but they do well singly in small glasses, and sprays are very effective in the taller vases. Very beautiful are either tall or low vases filled entirely with *Begonia semperflorens*, and the showy red *Begonia Ingrami* also looks well. Instead of using sand for the vases I prefer *Selaginella Kraussiana* in quantity, the ends being allowed to hang over, and it is sufficiently firm to keep the flowers in whatever position they may be placed.

What are known as small fish globes, these being about 3 inches high, are of the greatest service to the decorator, and so also are tiny zinc troughs, say

about 6 inches long, several dozen of each being wanted sometimes for a fairly large table. The former are very handy for specimen blooms of Chrysanthemums and Roses, Poinsettias, Cypripediums, *Cœlogyne cristata*, trusses of Primula, Camellias, Rhododendrons, and zonal Pelargoniums. Plenty of greenery used with either of the foregoing or any other selected flower, and a single large frond of Maiden-hair Fern sweeping down to the cloth, they can either be arranged in circles round the candlesticks and silver stands generally, or singly, wherever there is good room for them. They answer well for the points when the decoration consists principally of scroll work or tracery on the cloth with Moss, coloured leaves and small flowers. The zinc troughs being duly filled with *Selaginella* and water should have a spray of Cupressus, or, better still, a frond of Maiden-hair Fern, faced one to the left, one to the right, and one to the front, and be then filled with some kind of short-stemmed flower, such as single or double Pelargoniums, Allamandas, Primulas, Azaleas, and Bouvardias. Thus filled they are suitable for either encircling plants, vases, or candlesticks; also for placing in front of small plants, and in particular are very effective in the corners. I am very well aware that both fish globes and zinc troughs can be dispensed with—little heaps or circles of Moss and some kind of greenery answering well for showing up flowers placed either in lines or in heaps on them—but they are much the cleanest; the flowers last better in them, and they are particularly handy for decorating the breakfast table next morning.

Some mention ought perhaps to be made of the button-hole bouquets usually furnished for each guest, but now-a-days they do not often form a part of the table decoration, though those who like the idea of floating a flower and leaf of some kind in the finger-bowls can still carry it out, these being added to the table just previous to the dessert being commenced. The correct thing to do in the case of the button-hole flowers is to let the ladies have what flowers and Fern fronds, made up or otherwise, they particularly need when they go to dress, while the gentlemen's flowers could await them on a tray conveniently near where they assemble. The more white flowers used for the latter, the greater the satisfaction generally given, and this plan of thus providing for each sex separately is far the best.

W. IGGULDEN.

PUBLIC GARDENS.

A new park for Colchester.—Among the many bequests of the late Mr. Richard Catchpool was one of £3000 for establishing a public park.

Open space for Clerkenwell.—Some houses having been recently pulled down in Smith Street, Clerkenwell, the Marquis of Northampton has offered to allow the site to remain vacant, and to cover it with asphalt as a playground for children, provided the vestry will take charge of the space at a nominal rent. The offer has been accepted.

A proposed new open space.—At a recent meeting of the London County Council it was moved, "That it be an instruction to the Parks and Open Spaces Committee to confer with the London School Board as to acquiring and laying out as a planted space the strip of vacant land (10 feet by 114 feet) now used as a rubbish shoot on the east side of Golden Lane, between London Passage and Roscoe Street."

Victoria Park Cemetery, E.—The Earl of Meath, Kilruddery, Bray, Ireland, has received a munificent promise of £1000, provided the balance is forthcoming in one month's time, in order that this garden may be commenced during the winter, and thus provide work for the unemployed. Only £1300 is needed during the current month in order to be able to take advantage of this splendid offer, and by so doing secure eleven acres of open space for the inhabitants of the East-end.

Proposed recreation ground at New Cross.—A meeting was held recently at New Cross in support of the proposal to provide a public recreation ground on land belonging to the Haberdashers' Company's Hatcham estate in Pepys Hill, New Cross. It was resolved, "That this meeting of the parishioners of St. Paul's, Deptford, highly appreciates the generous offer of the Haberdashers' Company of ten acres of

land on Pepys Hill for the purposes of a recreation ground, and also the offer of Mr. Livesey of £2000; and that strenuous efforts be made to carry out the scheme by a deputation to the local board and a memorial to the London County Council."

Proposed extension of Tooting Common.—An endeavour is being made to purchase the 6 acres of land—on which the belt of trees stands—immediately adjoining Tooting Bec Common, with a view to their being added to the common. The desire is to save the fine old trees, which are of more than a century's growth, and form one of the most picturesque features of the neighbourhood, from destruction, and the land sold for building. Mr. Heaven, the owner of the Bedford Hill Estate, has consented to sell the 6 acres for £12,000, and it is believed by those interested that if half of this sum can be collected, the London County Council and other public bodies will be inclined to make up the remainder. An appeal for subscriptions is now being made by Mr. Charles Mortimer, of Woodfield, Streatham, the chairman of the local committee, formed for the purpose of endeavouring to carry out the scheme. Donations amounting to upwards of £400 have already been promised.

A SALISBURY NURSERY.

THESE famous nurseries have been established 150 years. In addition to the large business hitherto done in the annual production of large quantities of Roses, Dahlias, and Verbenas, principally disposed of to the trade, forest trees, shrubs, and conifers, as well as fruit trees, are now largely grown by Messrs. Keynes, Williams and Co.—the red loamy soil, so long congenial to the requirements of the Rose and Dahlia, being equally suitable to the growth of healthy fruit and other trees. The home nurseries are situated at the top of Castle Street, about 15 minutes' walk from the Great Western and London and South-Western Railway Companies' stations, the main line of the latter company from London to Exeter running through the nurseries, which are familiar and interesting objects to travellers to and from the west and south "countrie" during the summer and early autumn months. A tributary of the river Avon forms a convenient and very valuable boundary to the western side of the nurseries, running quite close in a southerly direction to the compact and well-appointed block of hot-houses and pits, thereby affording close at hand an unlimited supply of water at all times, no matter however dry and tropical the weather may be. This is a great advantage to a business like Messrs. Keynes', where there are necessarily great and almost constant supplies of water being used.

POT VINES.—Salisbury has long been celebrated, and justly so, for its pot Vines. About 2000 of these are grown every year to meet the demand. The eyes are inserted in the ordinary way in pans early in January, several eyes, having about half-an-inch of wood retained each side of the bud, and a thin slice of the wood removed from the opposite side with a sharp knife, being placed in each pan. These are then plunged in a bed of tan in one of the propagating houses, where in due time they start into growth. They are then potted off singly into 4½-inch pots, replunged, and carefully tended. In due time the plants are shifted into their fruiting (12-inch) pots, and stood on the front staging over the hot-water pipes, and trained up underneath the glass roof, no stopping being done until the Vines have made a growth of 9 feet. They are then kept persistently pinched. When the Vines are potted, great care and judgment are exercised in the application of tepid water at the roots until the latter have pushed well into the soil, when, as a matter of course, the supplies are increased without much fear of the plants, full of vigour and growing in properly crooked pots and good calcareous loam, and a congenial atmospheric temperature, being over-watered. The houses are as well ventilated as they are heated, and as the Vines increase in growth and the season advances, abundance of fresh air is admitted among the plants, with the result that short-jointed, well-ripened Vines nearly as thick as a walking-stick,

and having eyes nearly the size of filberts at the base of each leathery leaf, are secured.

DAHLIAS AND VERBENAS.—Of these, 30,000 and 50,000 respectively are annually grown. These numbers include, as a matter of course, all the best and several new varieties certificated during the present year, the most recently achieved honours having been accorded at the Dahlia Conference, held at Chiswick on September 23 last, to Comedian (fancy), having a deep apricot ground, striped with dark crimson, and edged with delicate mauve, fine in form, and distinct in character; and Phœbe (pompon), bright orange-red, distinct, small, of fine shape, and excellent habit. Single Dahlias are not grown so extensively now as they were a few years ago, the Cactus and pompon varieties being more in request during the last year or two.

ROSES.—As affording some idea of the quantity of Roses disposed of annually by the Messrs. Keynes, I need only state that in addition to quantities of the Brier and the de la Grifferie, 150,000 Manetti are rooted every year for working the several varieties of the Rose on. The de la Grifferie stock is used for such sorts as Maréchal Niel and Gloire de Dijon. In order to meet the annually increasing demand for Roses, a branch nursery of about four acres was established on the banks of the Avon, some two and a half miles south-east of Salisbury. The soil is of a stiff red loamy nature from 2 feet to 3 feet deep. The situation being a capital one, and soil which had been well broken up and manured at the outset, everything that could be desired for the growth of Roses or fruit trees, the results are highly satisfactory. The following Tea and Noisette Roses were flowering pretty freely for the time of year (October 24) at the time of my visit to this branch Rose nursery, viz., Mme. Lambard, Mme. Margottin, Moiret, pale yellow, tinted pink; Anna Ollivier, Angèle Jacquier, yellow with bright pink centre; Catherine Mermet, Comtesse Riza du Parc, Ethel Brownlow, salmon and shaded yellow, a very distinct Rose; Mme. Bravy, Mme. Cusin, Mme. de Watteville, Mme. Falcot, and Gloire de Dijon. Of Noisettes, Grace Darling, Lady Mary Fitzwilliam, Caroline Kuster, Celine Forestier, and William Allen Richardson, the last two named being very useful and popular varieties in the bud state, were also blooming. Of Hybrid Perpetuals, Mrs. Harry Turner, dazzling crimson; Merveille de Lyon, satiny-white turning to pink in the centre; Sénateur Vaisse, Thomas Mills, Mme. Charles Wood, and Mme. Crapelet were the best. Out of 30,000 budded Hybrid Perpetual and Tea Roses put in during the months of July and August last, there are very few bad "takes." The Briers beyond the "buds" are allowed to make free growth, the object being to prevent the buds pushing into growth before the spring, when the Briers will all be cut hard back to the buds.

POT ROSES.—Seven thousand are annually grafted, the operation usually beginning in December. Winter Rose grafting is the method practised by Rose growers whereby to increase a stock of Roses of the current year's raising, and it is truly marvellous with what despatch a large stock is worked up in this way. For this purpose the necessary number of Manetti cuttings, 9 inches long, are put in out of doors towards the end of November in rows, all the eyes except the terminal one being cut clean away from each cutting as it is being made. These cuttings which are to form the stocks for the Roses are taken up and potted into small 3-inch pots the following March, and plunged to the young growth in old tan out of doors until they are required for working in December, when they are, simultaneously with the Roses to be worked, introduced to the house. Previously to taking the stocks indoors they are cut down to the old wood at the surface of the tan, the tops being made into cuttings to make stocks for the following year. The stocks thus beheaded present, through the exclusion of light and air during the intervening months, the appearance of roots when removed from the tan, and so treated the wood is fresher and works better than if it had been exposed to the influence of light and air. The new Roses when received from France or elsewhere in October or

November are potted and then buried in spent manure to keep the wood fresh and the eyes plump. In this way from 350 to 400 plants are grafted daily by one man. The plants are put into shallow span-roofed frames placed upon a bed of tan in the raised pits in the centre of the span-roofed houses as soon as worked. Being kept quite close, they callus in a few days and make about an inch of growth within ten days from the time of being worked. As soon as the union is thoroughly effected and the buds have started into growth the plants are gradually inured to the air of the outer house. I need hardly say that a suitable growing temperature is maintained during the union of stock and scion, and that the plants are shifted into 5-inch pots when they have started well into growth. When being potted they are lowered sufficiently in the 5-inch pot to bury the union of stock and scion, so that the latter may make roots for itself. They are then removed to a cooler temperature, where the growth becomes consolidated. Thus treated, plants ready for sending out the first week in March are secured.

H. W. WARD.

NOTES OF THE WEEK.

Billbergia Sanderiana is one of the prettiest of the Bromeliads in bloom now in the collection at Kew, which comprises all the best kinds in cultivation. The bracts are of a delicate pink colour, and the flowers rich purple, white, and light green—a happy contrast. It is a pity such beautiful and long-lasting things as these are not more grown.

Fruit culture.—We understand that the Mercers' Company, the premier City guild, are establishing a college at West Lavington, which they will endow with £3000 a year. They are interesting themselves specially in fruit culture, and a banquet of the Fruit-ers' Company, under the presidency of Sir James Whitehead, will be given in their hall on the 26th inst. This will be followed by a meeting at the Mansion House, when a scheme for promoting the cultivation of hardy fruit will be further discussed.

Callipsyche aurantiaca.—This is one of the most interesting flowers in the stove at Kew at the present season. Several specimens are in bloom near to those of *C. mirabilis*, noted in last week's GARDEN (p. 39). It is quite distinct from this species and very ornamental, the scape slender, erect, and bearing an umbel of flowers, each having a rich yellow calyx, not unlike the bloom of a Day Lily in miniature, the stamens light green, and about twice as long as the perianth. It was introduced from the Andes of Ecuador in 1868. The Callipsyches are amaryllidaceous plants, thriving under conditions that apply to the Amaryllids generally.

Fruit-growing in California.—Mr. J. Cheal, of Crawley, sends us the following extract from a letter he has received from Mr. J. Burnett, formerly gardener at the Deepdene, Dorking. Mr. Burnett writes from Rosedale, Bakersfield, Kern County, California:—

I have settled down here and taken up 40 acres of land, had a house built, and planted 27 acres with Muscat Grapes for making Raisins. I have also planted a few acres with Peaches and Pears. The country here is a vast plain, running 400 miles N.W. and from 50 to 100 miles wide, and is nearly surrounded by lofty mountains. The soil is a kind of decomposed granite of great depth, and, given plenty of water, is apparently very productive. Grapes grow splendidly, and, owing to the absence of rain, Raisins can be had of very high quality. My Vines have made remarkably good growth, and I hope to have a sufficient crop next year to pay expenses. In two years the ground will pay well, and increase in annual value up to five years, when it ought to be worth about £35 per acre per annum nett profit after paying all expenses. The Vines are planted 8 feet to 10 feet apart, and are kept pruned very low, the Grapes, in fact, lying on the ground, but owing to the extremely dry weather they are never spoiled by the soil. The country here before the introduction of canals for irrigation was a barren wilderness, but the effect of water on the soil is magical. The company from whom I bought the land own between 600,000 and 700,000 acres, and they have only just begun to sell it. I and two others were the very first to settle here. The people are coming in to settle very fast. The land is cut up in square miles, which are again cut up into thirty-two 20-acre

lots, and you can have any quantity that you are able to take. A man coming here to take 20 acres must have at least £600 or £700. Wages here are good, and if work was constant a man would soon make money, but the working men are so numerous that numbers of them are idle. Peaches also do remarkably well and pay well. I have seen some fruit of what is called the Orange Cling weighing from 1 lb. to 23 ozs. Some of the Peach growers have cleared as much as £60 per acre. Figs and Apricots also do extremely well. It is a little too hot for Apples, but Pears do splendidly. Oranges do very well, but there are none grown here for exporting. There seems a market in the Eastern States for any quantity of fruit that can be grown here, and the prices, so far, are much in advance of what they are at home. The climate is very hot in summer, but the nights are always cool. The autumn months are very pleasant, but now it is chilly and raw. We have not seen much of the sun this month, but all through November the days were bright and warm, with cool frosty nights and mornings. I do not think I am likely to regret coming here, as there seems every likelihood of making an independence; but still there is no place like home, and I miss the horticultural meetings very much, and should like very much to be able to drop in for an hour or two at James Street or wherever the meetings are held. I am sorry to see by the horticultural papers that you have lost two prominent horticulturists—Shirley Hibberd and William Holmes.

Anoiganthus brevifolius.—The beautiful yellow-flowered Amaryllid, described and commented on in middle paragraph of third column of p. 22 of THE GARDEN of the 10th inst., is unfortunately incorrectly named. Its name is Anoiganthus, not Anigosanthus, as printed in your paragraph, and you need only take down vol. 71 of the *Botanical Magazine* and look at plate 7072, whereon it is figured, to see that what I say is right. There is a family of plants named Anigosanthus, no less than five sorts of which are figured in the *Botanical Magazine*, but they are most of them only botanical curiosities, and have no connection with the pretty plant you describe.—W. E. GUMBLETON.

A fog-resisting Orchid appears to be the old *Ansellia africana*, which is represented at Kew by a large mass, and is at the present in full flower, having come through the fog ordeal without any apparent harm. The plant bears a large, pendent, and graceful spike carrying many flowers, which if rather dull in colour are distinct, and, seen several together, not unattractive. The spike proceeds from the apex of the pseudo-bulb, and the flowers have narrow sepals and petals, bright greenish-yellow in colour, over which are laid conspicuous chocolate-coloured blotches; the upper surface of the column is of the same shade, but the lip is yellow. It is one of the best of January-blooming Orchids, and was found growing by Mr. John Ansell, to whom the genus is dedicated, on the stem of a Palm tree in Fernando Po.

Crinum augustum is one of the handsomest of the larger Crinums, and it is one of the easiest to cultivate and flower. Some species are so difficult to keep in health, much more to flower, that their fitness for gardens is questionable. *C. augustum* is evergreen; its leaves sheathe at the base and form a stem-like neck a foot or more long, from which rise the long, fleshy, green, channelled leaves 3 feet long and 5 inches broad. The flower-scape is flattened, 3 feet long, and bears a head of about twenty flowers, which are tubular, spreading upwards, deep crimson, the whole head being a handsome bouquet nearly a foot across. We have seen the same plant bloom three times within a year at Kew, where it is now in flower in the Palm house. It is a native of Mauritius.

Early spring flowers.—I send you what I expect will prove to be the first floral tributes of the new year—Iris Bakeriana and Galanthus corcyrensis. The latter has been open at least six weeks, exposed all that time to alternate periods of frost and thaw, yet still very fresh. The Iris is quite a fortnight old, and has been frozen constantly, so looks a little battered. We have not had anything like 20° of frost, nor, on the other hand, have we had any snow covering, the ground surface having been hard and cold, just the conditions that plants do not like. The freshness of these flowers shows clearly how hardy they really are, as

you can just detect enough of the delicate Iris perfume to feel that spring is coming. Several species of Crocus have opened their flowers during the last month or six weeks, but only remained a very short time. The moral we draw appears to be that, no matter how hardy these winter flowers may be, it is absurd to expose them to the rigours of our variable climate, but should place them under some sort of protection.—T. SMITH, *Newry*.

Momordica involucrata.—The credit of introducing this pretty little tropical Cucurbit into cultivation belongs neither to Messrs. Dammann and Co. (see last vol., p. 592) nor to any other nurseryman, but to the late Mr. Wilson Saunders, to whom it was sent from Natal by his collector, Mr. Cooper, and in whose garden at Reigate it flowered and fruited twenty years ago. A figure prepared from Mr. Saunders' plant will be found in his "Refugium," vol. iv., t. 233. The plant has also been in cultivation at least six years at Kew, where it is grown along with the collection of tropical Cucurbits in the Water Lily house. A figure of it was published in the *Botanical Magazine*, t. 6932.—W. W.

Orchids at Clapton.—In spite of the dense fogs there were several interesting Orchids in flower the other day in the nurseries of Messrs. H. Low and Co., Clapton, but nothing, of course, what there would have been under more favourable conditions. One of the prettiest things was *Vanda Amesiana*, now familiar and likely to become a favourite with all Orchid growers; at least it deserves a place in every collection for the sweetness, freedom, and delicacy of the flowers. *Angræcum sesquipedale* was represented by a superb batch, but the fog has evidently cut short the expanding buds. *Calanthe Veitchii* made a charming display, also *Lælia albida*, *Cypripedium Haynaldianum*, *villosum*, *cardinale*, *superciliare*, *Leeaenum superbum*, *Boxalli*, *Harrisianum*, and others, and *Pilumna nobilis*, while the smaller-flowered *Angræcums*, *Dendrobium Wardianum*, &c., promise a great show later on in the season.

Cut-flower arrangements.—Whilst passing through such an unfavourable period as the present with but a few hours sunshine during the past month, there will not be any too many flowers from which to select. These too will not be of such an enduring character as when grown under more favourable climatic conditions. It will therefore be necessary to make the most of those at command, avoiding by all possible means the slightest pretence at overcrowding. When flowers are scarce large arrangements should only be attempted upon exceptional occasions, and even then the most should be made of everything. Small vases will now prove to be most serviceable, and should be used in preference to larger ones. Small ones which will probably hold but one or two flowers of goodly size, or but a few spikes of others, will be none the less interesting. It must be borne in mind that mere quantity and bulk are not nearly so essential as a continuation from time to time of a fresh, but less amount of material. Take, for instance, just now that of forced Lily of the Valley, which is not produced in any too easy a manner or at a very moderate cost either. Half-a-dozen spikes of this Lily, if lightly arranged with its own foliage, will look infinitely better than double the quantity crowded together in such a way that the beautiful spikes cannot be seen to advantage. Early Roman Hyacinths and the Roman and Paper-white Narcissus are other instances in the same direction. With either of these make free use of the foliage. The leaves of one plant could all be used up with two or three good spikes of flower. These spikes, too, should be cut as soon as the first blossoms are open; the others will unfold in due course. The early Tulips just now in bloom may be cut off close to the bulb, or used with the bulb attached if there is room in the vases; these also cannot be improved upon with other than their own foliage. Whilst thus advocating the use of foliage of the same kind as the flowers it must not be thought that I in any way disparage the use of Maiden-hair Fern. Many, however, who arrange flowers rely far too much upon it, no matter whether it is suitable or not.—J. HUDSON.

FLOWER GARDEN.

HEMEROCALLIS, OR DAY LILY.

AMONG showy and vigorous perennials the Day Lilies have for many years past deservedly occupied a conspicuous position, as we have nothing of more robust constitution or of a hardier nature. Frost, heat, and drought all seem alike to these perfectly hardy, free-flowering, and most enduring perennials. Roughly they may be divided into two groups, the first characterised by their long tufts of gracefully recurved leaves, at once bold and picturesque; the other with narrow foliage, equally graceful, and without doubt the most beautiful for the choicer border or pot culture. The first-named group also may be distinguished by their larger

growth, such as *H. flava*, we find that not only have we plants possessing to the full all the good points of which the first-named may boast, but in addition we have a section that may be used with excellent results for pot culture or forcing, for the embellishment of the greenhouse or conservatory, where the exquisite fragrance of their flowers as well as their graceful bearing always tell to great advantage. In planting any of these Day Lilies in the open ground, it is well to bear in mind this fact, that invariably they are best treated as permanent subjects, which, if properly planted in the first place, may remain many years undisturbed, requiring but little attention to secure a good display of flowers annually. To this end, therefore, they should be planted in well trenched and fairly rich soil, out of the reach if possible

mer ensuing they would not be able to become so well established as if planted during the autumn months. Too much stress cannot be laid upon the benefits derived from a liberal mulching of manure annually, or frequent deluging of liquid manure in winter and early spring when the soil is well charged with moisture. Plants of *H. flava* required for pot work are best potted in early autumn and plunged in coal ashes in the open. For the first season they will be best brought on gently, but when the pots are filled with roots, they will endure greater heat earlier in the year. I would not mind even now, as soon as weather permits, lifting a batch for this purpose and bringing them on gradually in frames, for we have few things that can equal well-flowered examples of these in the conservatory at any season of the year. Always pursue a course of liberal treatment from the first with pot plants, and frequently water with liquid manure till the foliage shows signs of decay. Thus treated, pot-bound plants invariably flower freely, but should they fail, they are best planted in good soil in the open ground to recover.

We have nothing more beautiful or attractive either for exhibition or for pots for general decoration than the variegated forms, which are quite equal, and in some respects superior to, because perfectly hardy, the well-known *Pandanus Veitchi* of our stoves. The variegation is clear, decisive, and constitutes a very conspicuous feature wherever seen. To retain this in its best form, the plants may be confined to pots or planted in rather poor soil, and every effort should be made to obtain a stock of these very attractive sports; the kinds most frequently giving off such variegation are *H. fulva*, *H. disticha*, and *H. Kwanso*. The following are the most important kinds:—

H. FULVA (Tawny-flowered Day Lily).—The flowers of this are large, about 4 inches across, and of a bronzy-orange hue; they are sparsely arranged on stout spikes 3 feet to 4 feet high. It flowers in summer, is scentless, and a native of Southern Europe and Japan.

H. KWANSO.—Of this there is also a fine double-flowered form, as well as one with variegated foliage, and therefore an exceedingly useful kind. The flowers are large, very full, and double, freely produced on spikes 3½ feet high during the summer months. The foliage is broader and more gracefully arched than in *H. fulva*.

H. DISTICHA.—Of this handsome kind there is also a double form, well represented in the accompanying woodcut. In colour it is the brightest of the broad-leaved section, the flowers being of a bronzy yellow, and when widely expanded bearing some resemblance to a star-fish. The leaves are narrower and more distinctly channelled than in *fulva* and *Kwanso*, the flowers being very freely produced on spikes 3½ feet high. Native of China, Nepal, and Japan. In the "Dictionary of Gardening" these three are included under the head of *H. fulva*, though they are each sufficiently distinct for garden purposes both in foliage and flowers.

H. FLAVA.—This is 2½ feet high, flowers golden yellow, trumpet-shaped, deliciously fragrant, and produced in May and June. It is specially adapted for cutting or forcing. Native of South Europe to Western Siberia and Japan.

H. GRAMINIFOLIA.—This is the dwarfest grower of the narrow-leaved section, flowers soft yellow, on stems a foot high, slightly fragrant. Syn., *H. minor*. Native of Northern China, Siberia, &c.

H. THUNBERGI.—A very distinct and effective kind, with clear, soft yellow, trumpet-shaped flowers. This shade of yellow is best imitated in *Enothera macrocarpa*; the flowers are much larger than those of *H. flava*, and more widely expanded; it is also some weeks later in blooming,



The two-rayed Day Lily (*Hemerocallis disticha* fl.-pl.).

and more widely expanded flowers, which are generally reflexed, while the latter have distinctly trumpet-shaped blossoms, beautifully formed and in several instances deliciously fragrant. Happily, too, they are adapted to a variety of circumstances, as their general character and outline will undoubtedly suggest, and prominent among these will be those for forming bold, picturesque groups on the lawn, in the woodland and shrubbery, or again in the subtropical arrangements, while they may also figure to decided advantage by the judicious arrangement of imposing clumps on the bolder types of properly constructed rockeries. The best kinds for these purposes are *H. fulva* and allied kinds, which include *disticha*, *Kwanso*, and such like with their respective varieties. Then, if we would turn to those of neater

of such trees as Elms and Poplars, which do much to rob the soil in their vicinity. In the formation of their large roots the *Hemerocallis* may be compared with the African Lily (*Agapanthus*). The plants of the latter can only be removed when they have attained to any size by sacrificing large numbers of their roots. It will, therefore, be best to plant the forms of *Hemerocallis* well in the first place, thus affording them the opportunity of rooting deeply into the soil. With regard to the season of planting, they are certainly among the most accommodating of all hardy perennials, and may be planted at any time from the end of September to the middle of April, for they are not among the earliest plants to start into leaf. I do not, however, advise leaving them till late in spring before planting, as in the event of a hot sum-

therefore valuable as forming a succession to that useful species.

H. DUMORTIERI.—In this the flowers are orange-yellow, shaded with bronze externally, and more clustered at the top of the spike, which usually bears four or six blossoms. The scape is erect, 2 feet in height, and the flowers appear in early summer. Native of Eastern Siberia and Japan.

H. MIDDENDORFIANA.—A very rare, distinct, early-flowering species, 18 inches high; flowers dark orange-yellow in a terminal head. Native of Eastern Siberia to Japan.

It should be noted that all the trumpet section are very valuable as cut flowers, particularly where such having long stems are mostly prized, and though the individual blossoms last but one day, the whole of the buds will continue to expand till the last if placed in water, the latter being changed from time to time, and half an inch of stem cut away with each change of water. In a cut state few flowers are more chaste or beautiful. **E. JENKINS.**

POLYANTHUSES.

It is fortunate that the heavy and long-lying snow-fall found the soil beneath comparatively dry. For that reason it in thawing passes away through the soil rapidly, leaving on the surface none of that bitterly cold snow water that is the terror of plants as it is of gardeners. Prior to the fall of the snow the soil was somewhat hard frozen, but because the thick covering of snow excluded further frost from the soil the terrestrial warmth served to release the soil from frost appreciably beneath; hence there was no obstacle in the shape of hard frozen soil interposed to check the absorption of the thawed snow. Still further, hardy plants being thus released from the frost and having their roots in a warmer temperature than the air above, moved somewhat, so that with the complete disappearance of the snow was found a readiness to make growth altogether unexpected, yet welcome. Snow is indeed a friend to plants during hard weather, but specially so when harsh biting winds prevail. These are usually more harmful to the leafage than is hard, but quiet frost. All the Polyanthus left out in the open ground, therefore, have had a very good time of it during the snow covering, and look fairly fresh and happy. There will be, and happily so, no very early bloom this year, for very early flowers almost always suffer from frost during February and March. It is far better to have the plants blooming ordinarily and in full force during April and May, as then the worst of the winter is passed, and the flowers are seen in all their pristine purity and beauty. The winter has been giving to hardy plants a long rest time. That is specially the case with the Polyanthus, for a season of dribbling bloom is always unsatisfactory. Many of the plants did show signs of blooming freely so early as November, but the winter so far has stopped all further precocious blooming. That a great burst of growth will ensue after a complete thaw there can be no doubt, assuming that open weather follows, because in Nature strong extremes always produce considerable reactions; hence a precocious growth now may be looked for. Did the present hard weather exhaust the winter's fierceness, however, all would be well. If, on the other hand, after a period of mildness other hard weather follows, then the general condition of the plants will be bad enough. The chief injury to hardy plants with us arises from the intermittent nature of our winter seasons, whilst we have not always a good covering of snow to protect them when hard frosts prevail. The foliage withers and blackens, early blooms are destroyed, and altogether plants look wretched enough. But there is sure to be a proper blooming season eventually, and when it comes, Polyanthus reward the grower liberally. The fine heads of white, yellow, mauve, red, purple, crimson, and other hues which are so freely produced by strong plants are indeed beautiful in the spring months. The gold-laced Polyanthus are hardly worthy of mention in connection with garden decoration—pretty enough when produced as ordinary florists' show flowers, especially

under glass, where the various points in these flowers are best produced, but outdoors they produce no specially attractive result. I do not find the best forms at all adapted to the rough treatment which seems very well to suit the hardy fancy or border varieties; hence could not recommend them for border purposes. A good strain of the fancy varieties is so very productive of beauty, that the marvel is everybody having a garden does not grow them. **A. D.**

ALPINE AURICULAS.

When visiting Mr. James Thurstan of Pink and Tulip renown, I was much interested in some crosses he had made with alpine Auriculas. He thought the tendency of raisers in the present day was towards the production of large-flowered varieties, and in conjunction with size he discovered coarseness. Regretting what he considered to be a sacrifice of refinement, he set about making crosses with some flowers he thought were likely to throw a progeny characterised by fine quality and smoothness of pip, and likely to produce some white-centred flowers, improvements on those already in cultivation. Thus he crossed Beatrice, a large, bright plum-purple variety with a pure white centre—its centre being by far the best of its properties—on to Mrs. Dodwell, a yellow-centred variety, and, like Beatrice, raised at the Royal Nursery, Slough. Mrs. Dodwell is a variety distinguished by much refinement of character, and Mr. Thurstan regards it as one of the best alpine Auriculas ever raised. Mr. Thurstan also crossed Mrs. Dodwell with Queen Victoria, another white-centred variety raised at Slough, and King of the Belgians, a very smooth and bright golden-centred variety, also from Slough, with Mrs. Dodwell. In each case Mrs. Dodwell was made the seed-bearing parent, and the main object was to obtain the substance and flatness of Mrs. Dodwell with the colour, pure white eye, and size of Beatrice. Mr. Thurstan sent me some seed from this cross, which I sowed in the early autumn as soon as received, and several of the plants bloomed in 1889, though small. I marked several and bloomed them again in April last, with the result that I have marked about a dozen that I think are very promising. A few inferior forms came among the seedlings, but, on the whole, the progeny was decidedly good, and not a few better than good. One of the seedlings appears to possess all the qualities Mr. Thurstan could well desire; it has a strong, white centre, a large, finely-formed and smooth pip, the margin plum-blue, but it is pin-eyed; the pistil protrudes above the anthers, and this is a great defect from the exhibitor's point of view. But it is singularly prolific of bloom. Another seedling I have named Lovely; it has a pale yellow ground, margined with shining plum-purple, and it is as fine and smooth as an alpine Auricula can well be. I have great hopes of this for another season. I shall cross this with the pin-eyed variety, and should have a progeny of fine quality. There are some who think it risky to take seed from a pin-eyed flower, on the ground that those produced from it will largely show the pin-eyed character. But I think a pin-eyed Auricula or Polyanthus will produce the average of thrum-eyed flowers, and I have heard experienced florists express the same opinion.

Growers of alpine Auriculas for exhibition are found lamenting that there is such a dearth of good white-centred flowers. There are certain colours in the alpine Auricula one can well desire to have: purple, mauve, blue, and shades of these, and they are generally, I think I could almost say invariably, found associated with white, cream, or weak yellow centres. Such colours brighten and give life and variety to a collection of alpine Auriculas, and they are also wanted in the class for white centres. We have several of these of a very weak character. Some in which the centre is quite white become of a ghastly pasty tint before the marginal colour begins to fade, and such flowers are disagreeable to look upon, and equally so to grow. We want some good lasting white-centred flowers badly, white when they open and

lasting so—such a white as one gets in the fine edged Auriculas, only there must be no farina upon it. I think we are getting very near to some flowers of this character. When I was at the Royal Nursery, Slough, early in May, I saw some seedlings which had bloomed for the first time of a very promising character, and if they are true to their early form they will be gladly welcomed by all exhibitors of the pretty alpine varieties.

There are now so many raising alpine Auriculas that we shall not be so dependent upon the Slough raised varieties in the future as in the past. Unfortunately, it requires a few years in which to work up a stock sufficient to enable it to be sent out. This is probably one reason why so many are now turning their attention to raising seedlings. Another reason is, that new varieties of alpine of high quality are being much more rapidly produced than the edged flowers, and consequently much more readily obtained, and this is the inducement to growers to take seeds from the best varieties and bloom their own seedlings. It is a delightful process, but raisers who strive for exhibition sorts should be careful to select only true types for pot culture. They will at the same time obtain many that will be admirably adapted to make the border exceedingly gay in the spring months. **R. D.**

THE FIBROUS-ROOTED BEGONIAS.

PROBABLY at this season of the year many are thinking what changes shall be made in the flower garden arrangements this coming summer. Where not previously grown the above class of plants will be found a valuable addition. Foremost among all must be placed the variety Princess Beatrice, raised by Messrs. Sutton and Sons. Another variety named After Glow is destined to become as popular in the flower garden as Princess Beatrice. Those who can obtain half a dozen good plants may easily increase them to as many dozen by the end of May. I have just looked over and divided my stock, that has been wintered in shallow pans, and as I contemplate using these Begonias more freely during the coming season, my mode of treatment may be of use to many who will, I feel sure, not regret giving them a trial. The largest clumps have been divided into small pieces, each having a shoot at the base, and have been potted singly into small pots and placed in a temperature of 55°. There they will remain until the end of March, when a gentle hotbed will be prepared for them, and covered with about 6 inches of light soil. Choosing a warm day, the plants will be turned out of their pots and again divided as before advised, then planted out in the soil from 4 inches to 6 inches apart. All the long growths should be topped to induce them to break at the base. The young plants should be kept close for a few days and slightly shaded from the bright sun until started, when air should be gradually increased and shading dispensed with. By syringing slightly and shutting up early the plants will grow very quickly, and when required for bedding out should be gradually hardened off. Any position that will suit may be given them, and no matter whether the season be wet or dry, they will not fail to grow and give an abundance of bloom until the end of September.

The variety After Glow may be treated in the same manner, and its distinct colour both in flower and foliage makes a very pleasing contrast. One peculiarity about this class of Begonias is the difficulty of getting plants from cuttings; they appear to make one straight growth and fail to break from the base, which they necessarily must do. The best and safest mode of increasing them is the one mentioned, and if once a stock is obtained, no fear need be entertained of the future. If wintered, closely placed in pans or boxes, and kept in a temperature of 50° or thereabouts, they can be treated as described in the early spring.

One other feature peculiar to them is their great usefulness for winter blooming in pots. Every autumn when removing the bedding plants I pot up a few dozen into 4-inch pots, previously removing the tops and placing them in a warm house near

the glass. These quickly grow, make nice bushy stuff, and never fail to bloom profusely throughout the winter months, their lovely pink-tinted flowers under the dark green foliage making them general favourites both in the house and the conservatory.

To those who have not as yet given fibrous-rooted Begonias a trial, let me advise them to give up a few of the Geraniums for a season, and I venture to predict they will not hesitate to annually find a small corner for them. I think our hybridists have a wide field open for them here. If the bright and beautiful colours of the tuberous section could be had in the fibrous-rooted varieties, what a contrast of colour we should have.

A. M. H.

FLOWER GARDEN NOTES.

PREPARATIONS FOR SUMMER.

THE spell of cold weather, severe and unusually protracted, we have experienced this winter has put a stop to nearly all outside ground work, and we are glad to get pits and houses cleaned out and refilled for Cucumbers, Potatoes, and general propagating purposes. Bottom-heat in the shape of hot-water piping is the usual thing for the last-named, and the absence of this necessitates some extra work in the way of preparation. I use a small house erected in the first place for successional Pine growing for the spring propagating, and this well filled with good Oak or Beech leaves with a little long manure, and sufficient cocoa fibre for plunging, gives us a nice gentle warmth as long as we require it. A general inspection of stock plants to furnish cuttings must be made this month, and accurate notes taken of the quantities likely to be required for summer planting, as it is by no means pleasant to find at the commencement of the planting season that many things are lacking that should have been provided. I would suggest in all cases early propagation, as this means an early well-furnished plant, and plenty of time to allow hardening off to be well done before planting. If space and time will permit, many things, as *Alternantheras*, *Iresines*, *Verbenas*, *Lobelias*, *Ageratums*, and the like, are much better for a shift into boxes or vacant pits or frames, but if this is not practicable they should receive liberal supplies of weak manure water as soon as the pots or pans are full of roots to keep the foliage intact and the plant gently moving.

I have for several seasons past struck all or nearly all the Pelargoniums in early spring, as these make stocky, compact plants by May, and are decidedly preferable to leggy stuff, especially if they are likely to be required for any special purpose, as the building up of pyramids, the early lining out of ribbon, diamond, or other designs. Except in cases where great variety is essential, it is better to grow only a few really good sorts, such as *Henri Jacoby*, *Warrior*, *West Brighton Gem*, *Surprise*, *Amaranth*, *Mrs. Turner*, *Flower of Spring*, and *Harry Hieover*, which are difficult to beat in their respective colours. For pyramids I should recommend *Lucius*, *Amaranth*, and *Flower of Spring*, whilst *Lady Plymouth* is useful where a mass of bold, silver foliage is required, and *Manglesi* for mixed beds to associate with *Violas*, *Verbenas*, or *Heliotropes*. If the stock of *Fuchsias* is short, a few old plants may be started early to furnish cuttings, and all old stuff required for special purposes as isolated specimens on Grass or beds should also be started in good time, that they may present a well furnished appearance at planting time, an abundance of short stocky growth showing plenty of flower. Cuttings of the very free varieties taken as soon as they can be secured and grown on quickly will furnish charming little plants for small beds or for the centres of vases. Sturdy compact growers, as *Rose of Castile*, *Wave of Life*, *Annette*, *Cannell's Gem*, and also the old gold and silver-foliaged varieties, are useful for this purpose. I like to set aside one corner of the propagating house for all plants required for vases, pans, baskets, &c., and see that these are thoroughly well grown. Besides the above named *Fuchsias*, perhaps tuberous *Begonias* are about the best subjects as centre plants. If a portion of a pit

from which frost can be excluded can be spared, choose good tubers and plant them out; the little extra warmth will bring them along a trifle earlier. Given plenty of ventilation to ensure compact and sturdy growth, they will make splendid plants by the end of May. For edgings, batches of *Gnaphalium lanatum*, *Mesembryanthemum*, the common Musk and Creeping Jenny can be grown on in small pots and transferred intact to their summer quarters. *Verbenas* and *Petunias* are now, as a rule, raised from seed, and it is claimed that a race of hardier and stronger plants is thereby secured with, in the case of the *Verbena*, immunity from disease. If, however, a good and decided colour is obtained, one is anxious to keep it, and if the stock is to be increased by cuttings, they may be taken in good time and shifted into vacant frames or boxes. The shades of blue, from dark purple to mauve, are now effectively represented by the different varieties of tufted Pansy, among the finest of all things for the summer flower garden. Where, however, the stock of these is limited, plenty of *Ageratum* and *Heliotrope* must be ready to take their place. It is absolutely necessary in the case of the *Heliotrope* to have well furnished thoroughly hardened plants, or they will be along time making headway. If fine-foliaged plants in quantity are required sowings of *Perilla* and *Dell's Crimson Beet*, *Pyrethrum selaginoides* and *Centaurea ragusina* must be attended to, also small batches of *Acacia lophantha*, *Eucalyptus globulus*, and *Grevillea robusta*. The last three and the *Centaurea* should be sown in January. If trailing plants are required, early sowings of *Cobæa scandens* and *Mina lobata*, the Japanese Hop and the Canary Creeper, should be made. If, however, the last-named has already been used in any part of the garden, plenty of seedlings are likely to spring up as soon as the ground gets a little warmer. Other plants useful in different ways and places for summer planting and which can be sown or propagated from cuttings as circumstances demand are the Sweet Tobacco and *Tagetes pumila* (the best substitute for the *Calceolaria*), the small flowering, fine-leaved *Marguerite*, a grand thing for very large beds; also scarlet and double yellow *Tropeolums*, *Gazania splendens*, and *Cuphea platycentra*.

E. BURRELL.

Claremont.

CHRYSANTHEMUMS.

HARDY CHRYSANTHEMUMS.

SOME little time ago there was figured in THE GARDEN, under the name of Cottage Pink, a Chrysanthemum once very much grown here in Surrey. This variety was generally to be seen in company with others similar in habit and form of bloom, but of various colours, all of them being so hardy and vigorous as to need but little cultural care, and never dying off even in the most inclement winters. Cottagers grew them to a great extent, and at the close of October they were to be seen in the form of big bushes bearing hundreds of blooms, which, though much wanting in the characteristics that are required in this flower by Chrysanthemum growers now-a-days, nevertheless created a pleasing effect at a time of year when there was but little in the way of floral beauty in the outdoor garden. These hardy kinds are now rarely seen; it is, indeed, a long time since I have met with the pink one above alluded to, and I do not even know where to get a plant of it. Cottagers now go in for the more delicate pompons, *Madame Desgrange* and others, the consequence being that their gardens in autumn are not nearly so gay as formerly. Not only the plants, but the blooms of these old-fashioned Chrysanthemums are remarkably weather-proof. They resist both damp and frost to an extent that renders their blooming a matter of certainty, and they only require to be planted in tolerably good ground and be left alone. It is a pity that these strong-growing, hardy varieties have almost gone out of cultivation, for they may be made to play an important part in the decoration of the open-air garden during the late autumn months, and would be found of the greatest service for cutting from.

Some of the small-flowered kinds are perfectly reliable, notably one with medium-sized yellow blooms, the name of which I do not know, and which is largely grown in open fields for cut blooms for market. This and a few other small-flowered kinds are so hardy, that they will do with as little cultural care as is required for the hardiest and most vigorous of hardy herbaceous plants. I have seen stools of them that have been in the same place for about five years, during which time they have not had a particle of manure of any kind since they were planted. Such hardy, enduring kinds ought to find a place in every garden.

J. C. B.

NOTES ON NEW CHRYSANTHEMUMS.

NOW-A-DAYS nearly all sections of Chrysanthemums have increased so rapidly by sports, importations and home-raised seedlings, that to keep those cultivators who have not the means of judging for themselves, by inspecting the new kinds as they are introduced, posted up in the improvements manifest in varieties in all sections of the family, or those persons who are now about to form a collection for the first time, it is almost necessary to revise the lists of varieties every year, so that all may have opportunities of discarding those which are now surpassed by later introductions. As many new kinds are now in existence since my last list of varieties appeared in THE GARDEN, and as the time is now at hand when cultivators, new and old, will be arranging their collections for next season, I will give a few notes on the newer kinds. Taking the Japanese family first as being perhaps the most popular section, I find many changes have to be chronicled during the last four years. So many new kinds have been raised, that out of forty-eight of the then leading varieties, fourteen only are included in the present selection—truly a remarkable change. There are also several more which I consider will take a high position in another year or two. Not only do the newer varieties show much improvement in the quality of the flowers, but their habit of growth is also much improved. Many kinds perfect their blooms at a height of 4 feet, which is something different to such as *Mme. C. Audiguier* and *Belle Paule*, for instance, which run up to 12 feet and 13 feet high at times. Apart from the dwarf character of the plants, the foliage assumes now a robust style, being so much better suited for grouping than the tall lanky kinds. It is apparent that some varieties deteriorate considerably after a few years' growth under the high pressure system adopted to obtain the largest blooms. Take, for instance, the variety *Mme. C. Audiguier*; seldom do we see blooms more than half the size they were wont to be. Although it is not merely the size that I am complaining of, it is the loss of the density of its colour and the appearance of the curly florets that we miss as compared with those to be seen a year or two after *Marrouch* sent it out in 1879. The decline in the quality of the flowers of *Belle Paule* is still more marked. This is another of *Marrouch's* introductions in 1881; seldom indeed do we see a flower with any of that warm colouring of bright rosy purple around the edges of the long semi-drooping florets as was the case at first. With very few exceptions the blooms now are almost white, small, thin in substance, and without the graceful character at first so much admired. We are gradually losing flowers of the *Meg Merrilies* type, on account of their too often thinness of florets when cut and placed on the exhibition table. Unless they are of the finest quality they look thin and overdrawn, so to speak, and compare badly with such varieties now grown, as *Sunflower*, *W. W. Coles*, and *Avalanche*, the first the finest of yellows without a doubt. The last stands, I may say, alone on all points. Where is there another kind of the same purity as *Avalanche*? The growth is so robust that very few supports are needed. *W. W. Coles* is of a type which finds much favour and leads to little or no adverse criticism. Now that so many people are paying attention to seed-saving, both at home and abroad, we shall very shortly have a considerable number of varieties added to the lists

With approved kinds as seed-bearers and distinct colours and forms for hybridising, raisers will have a more definite aim than in the past, where dependence had to be placed on chance sports or foreign introductions, which did not always turn out as represented or wished for. For all practical purposes forty-eight varieties, representing, as they do, the finest in existence for the quality of their flowers are enough for any person, except those who require more for special occasions. If a less number is needed by any beginner he may choose those at the commencement of the list, as I have placed them in their order of merit as near as possible. To suit all persons, I have made a separate list of varieties remarkable more for the freedom with which they flower than for individual quality of the blooms, knowing well that some persons look upon the large-flowered examples with anything but pleasure.

Below I append a selected list of

Forty-eight Japanese kinds.—Avalanche, white; Edwin Molyneux, crimson, gold reverse; Sunflower, yellow; Etoile de Lyon, lilac-rose; W. W. Coles, bright red, bronze-gold; Mrs. A. H. Neve, silvery bluish; Boule d'Or, gold and bronze; W. H. Lincoln, light yellow; Mme. C. Audiguier, mauve; Mons. Bernard, purple-violet; Puritan, white, faint bluish at the base; Criterion, golden amber; Mlle. Lacroix, white; Mme. J. Laing, white, flamed rose; Mrs. Alpheus Hardy, white, hirsute floret; Louis Boehmer, rosy lilac, hirsute flower; Lilian Bird, shrimp-pink, exceedingly narrow floret; Jeanne Delaux, dark velvety brown; Val d'Andorre, chestnut-red, shaded orange; Stanstead White, white; Thunberg, golden yellow; Mrs. C. Wheeler, crimson, with bronzy reverse; Mrs. Falconer Jameson, chestnut-bronze, tinted yellow; Mrs. A. Waterer, ivory white, splashed with lilac; M. E. A. Carrière, white, heavily shaded bluish; Miss Anna Hartshorn, white, extra good; Annie Clibran, pink sport from Mlle. Lacroix; Condor, white, flushed rosy purple; Belle Paule, white, margined with rosy purple; Baronne de Prailly, pale rose; Gloriosum, pale yellow; Mme. Baco, bright rosy pink; L. Canning, fine white; Mrs. Ralph Brocklebank, yellow; Mrs. J. Wright, white; Sarah Owen, golden bronze, shaded rose; Golden Dragon, rich yellow; Lady Lawrence, large white; Mr. Cannell, yellow; Coronet, golden orange; Meg Merrilies, white; Bouquet des Dames, white, an improved Elaine; Japonaise, bronze; Marguerite Marrouch, crimson, tipped gold; Carew Underwood, bronze sport from Baronne de Prailly; George Daniels, pale pink; Stanstead Surprise, reddish purple; Soleil Levant, yellow.

During the last two years a considerable increase is manifest in the incurved section, almost entirely due to the sportive character of some of the kinds, which, owing to the number of varieties procured from them have become to be known as families, notably the Queen, the Teck, and the Princess family. Some few kinds have been sent over here from America and other places, but they are no advance upon our English types. The French and American varieties of the last two years all so far appear to lack the chief point which characterises the section to which they belong or should do, viz., the manner in which the florets incurve. Many partake too much of the mongrel or half-bred Japanese to be of any real service. If both sections are to be kept true in the character of the specimens which represent them we must not have some of the late introductions which have been sent out with a tremendous flourish—notably, Ada Spaulding, which, judging from the engraving which was supposed to represent it thoroughly, we were led to expect something more than common, but which the N.C.S. classes as an incurved Japanese, in which section it will have a short existence.

The families which have given us lately the most important kinds are those three previously mentioned. In eight years no less than three have been produced from the Queen of England type, among which such as Lord Alcester and John Doughty are great gains. Others are to follow next season, one being a mauve-coloured variety, and another a striped kind. The Princess of Wales family has produced within the last three years as many as three first-class varieties—Violet Tomlin, Miss M. A. Haggas, and Mrs. S. Coleman, and now Matthew Russell, another sport, is likely to be added to this family.

The ever popular Princess Teck family, on account of the splendid form and solidity of the blooms produced on comparatively dwarf plants, is always admired. In four years three have been added to that family—Mrs. Norman Davis, Charles Gibson, and Lady Dorothy—all good kinds. Two more are also in existence, Rivelyn, a sport from Mrs. N. Davis, having a clear yellow centre, outer petals rosy-fawn or bronze-shaded lilac, very distinct in its markings. The other, a sport from Princess Teck, has Jeanne d'Arc tips. With so many additions of sterling varieties, there is now no necessity to cultivate such sorts as Guernsey Nugget, Lady Talfourd, or St. Patrick, for instance, which at their best never incurve their florets regularly.

Below I give a selection of thirty-six varieties in the incurved section, all of which can be counted upon as bearing perfect flowers of their section:—

Lord Alcester, pale primrose; Empress of India, white; Queen of England, bluish; Golden Empress, pale yellow; Golden Queen of England, bronze-yellow; Alfred Salter, lilac-pink; John Doughty, rosy-fawn; Princess of Wales, bluish, tinted rose; Mrs. Heale, creamy-white; Mrs. Coleman, golden-bronze; Miss M. A. Haggas, golden yellow; Violet Tomlin, purple-violet; Princess of Teck, bluish-white; Hero of Stoke Newington, rosy-pink; Mrs. Norman Davis, golden yellow; Charles Gibson, deep bronze-red, centre cinnamon-fawn; Lady Dorothy, pale cinnamon-buff suffused with rose; Nil Desperandum, dark orange-red; Empress Eugénie, rosy-lilac; Lord Walseley, bronze-red; Jardin des Plantes, rich golden yellow; Jeanne d'Arc, bluish-white, tipped rose; John Salter, cinnamon-red, shaded to deep orange; Barbara, bright amber, shaded orange; Prince Alfred, rose-carmine, shaded purple; Lady Carey, deep rose-lilac; Mr. Brunlees, Indian red, tipped gold; Lady Hardinge, silvery-rose; Princess Beatrice, delicate rose-pink; Mrs. W. Shipman, fawn; Novelty, bluish; Alfred Lyne, rose-lilac; Refulgens, rich purple-maroon; Lord Eversley, white; Mabel Ward, buff-yellow; Cherub, orange, tinted rose-bronze.

Reflexed varieties are added but slowly. The Christine family are still good types of this section; therefore it is not necessary to give here the names of varieties, some of which have been in existence forty years. A few of the later introductions may be useful to beginners in making up their list:—

Cullingfordi, brilliant crimson, reverse gold; Elsie, pale canary-yellow, passing to creamy white; Putney George, in the way of Cullingfordi somewhat, but not so deep or rich in its colouring; Fred Hart, rose-peach; Irene, white, shaded rose; James Carter, bronze-amber; William Earley, bright rose-purple; William Neville, deep orange, the centre suffused with red.

The Anemone Japanese section, to which several additions have been made, is very popular with all classes of cultivators, I might say, and in seven years much progress has been made, the long drooping character of the guard florets gives such a great improvement in appearance as compared with the older and more prim show or large-flowered Anemones. The following twelve varieties will be found to compose the bulk of the best in existence up to the present date:—

Jeanne Marty, guard florets bluish-white, centre lilac; Fabian de Mediana, deep lilac; Duchess of Westminster, an improved Duchess of Edinburgh; M. Charles Leboeuz, a combination of straw, golden yellow, and rosy carmine on the tubes of the disc; Mlle. Cabrol, rose-pink; Marguerite Villageoise, bluish guard-florets, delicate rose disc; Margouline, rosy lilac guard florets; Dame Blanche, faint bluish; Souvenir de Mme. Blandinières, rosy carmine, spotted white; Sœur Dorothée Souille, bluish-white centre, rose guard florets; Minnie Chate, rose-lilac; Sabine, sulphur-yellow guard florets, primrose-yellow disc.

Even the ordinary or show Anemone, with the compact pincushion-like centre, which is very popular with some classes of cultivators, has been added to. Among the best are

Fleur de Marie, Lady Margaret, and Empress, for instance; W. G. Drover, purple-crimson; Mrs. J. N. Gerard, rosy lilac; Miss Annie Lowe, pale yellow guard florets, deeper centre; Cincinnati, lilac-blush; J. Thorpe, Junr., rich golden yellow; Mme. Robert Owen, pure white; M. Pankoncke, purple-claret, lighter centre, tipped rose; and Ruche Toulousaine, rose-lilac.

Pompons or pompon Anemone varieties have been so little added to, that to give lists of these would be a mere repetition of what has been done in these pages. The only additions of note are one or two in the former class, and which have been described fully only a few weeks since.

There are many lovers of Chrysanthemums who have not the space nor the will to devote to them for large bloom cultivation, preferring those sorts which are remarkable for the profusion in which they bloom. Such sorts are much more useful for the decoration of the amateur's greenhouse than the larger kinds with but two or three blooms to each plant. I give a list of twenty-four varieties suitable for this purpose, embracing all sections:—

Japanese.—Avalanche, pure white; Mme. de Sevin, rosy purple; Mlle. Louise Leroy, white; Mlle. Lacroix, white; Bouquet Fait, soft rose-pink; Source d'Or, orange, shaded gold; M. Bernard, deep rosy purple; Miss Gorton, creamy white, suffused with rose; Sunflower, rich golden yellow; W. Robinson, orange, tinted rose; Mrs. J. Wright, white, twisted petals; Peter the Great, lemon-yellow.

Incurved.—Mrs. G. Rundle, white; Mrs. Dixon, rich yellow; George Glenny, primrose; Jeanne d'Arc, bluish white, tipped purple; John Salter, cinnamon-red, shading to orange; Mrs. Sharpe, rose-pink.

Reflexed.—Cullingfordi, brilliant crimson; Mrs. Forsyth, white; Chevalier Domage, rich orange-yellow; Julie Lagravère, dark crimson.

Anemone Japanese.—Sœur Dorothée Souille, light rose; James Weston, white guard florets, pale yellow centre.

E. M.

Chrysanthemum Mrs. E. W. Clarke.—This variety is of American origin, and, like a great many from there, belongs to the Japanese incurved, though sometimes the blooms are almost compact enough to be classed with the true incurved. The colour of the flower is a bright amaranth-purple, but, owing to the petals being so much incurved, the reverse side (which is much paler) is the part that is principally seen. It is certainly a very desirable variety, not so much from the fact of its flowering now, for in the autumn, when certificated, it attracted much attention.—H. P.

Chrysanthemum Putney George.—The very bright crimson Chrysanthemums are not seen under favourable conditions very late in the season, as even when the blooms are fresh the flowers are always much paler than is the case when they are borne at the usual time. An instance of this is the variety Putney George, which I noted at the Aquarium in good condition, but pale in colour, and the same may be said of W. W. Coles, which has been described as brighter than Val d'Andorre, but was certainly much paler than this variety at its usual season. Those with a purple or amaranth tinge do not appear to change so much as the crimson-coloured flowers.—H. P.

Chrysanthemum Mrs. Beale.—Judging by its behaviour during the past two seasons, this variety may certainly be classed as one of the best of the later flowering kinds. For providing a supply of white flowers at Christmas it is most useful. Notwithstanding all the dark foggy weather which came with the end of 1890, we have now at the beginning of January naturally grown plants with leaves down to within a few inches of the pot and still bearing perfect flowers. These are beautiful in every sense of the word, being of a perfectly pure white with the broad florets curled and irregularly arranged. It belongs to the incurved Japanese section, having been sent out by Messrs. Cannell in 1886. From the somewhat lax arrangement of the petals it is necessary, in order to obtain the full beauty of the flowers, to remove a considerable proportion of the buds, the terminal ones only, indeed, being allowed to develop. A plant in a 10-inch pot may carry twenty to thirty flowers, each of which will be 6 inches across. It is of strong and rather tall growth, but by stopping two or three times at the beginning of the season, it forms a handsome and conveniently sized bush. This variety is well worth cultivating for giving a much needed supply of white flowers at the end of the year, and it probably only requires to be better

known to bring about its extensive use for this purpose. It is also known under the two names of Lady Trevor Lawrence and Robert Bottomley.—B.

Chrysanthemum Beauty of Castle Hill.—This Chrysanthemum, which was awarded a first-class certificate by the National Chrysanthemum Society on November 25, 1890, was one of the most striking flowers at the mid-winter exhibition held recently at the Aquarium, for the blooms were not only large and well-shaped, but as fresh as if we were in the middle of November instead of two months later. This Chrysanthemum is announced by Mr. Owen as an English seedling, raised at his nursery, and is said to be of fine vigorous habit and constitution, retaining its foliage to the last. These latter qualities might with advantage be more frequently considered than they are by the raisers of new Chrysanthemums. Beauty of Castle Hill is a large full flower of a bright yellow colour, with some of the outside petals tinged with reddish-bronze. The whole contour of the bloom as shown suggested to a certain extent that of the Japanese variety *Gloriosum*, sent here from America in 1885, and described as an importation from Japan. The newer kind, however, is quite distinct from *Gloriosum*, the colour being deeper and the petals broader, while the whole flower is larger and fuller. The blooms last shown appeared to me very different from those to which the certificate was awarded, but under either form it is a desirable variety.—T.

TREES AND SHRUBS.

THERMOPSIS NEPALENSIS.

THE genus *Thermopsis*, which was established by Robert Brown, contains only a small number of species, many of which are entirely herbaceous. The most interesting one appears to be that which forms the subject of our present notice. It has received the following different names: *Thermopsis nepalensis* (R.Br.), *T. laburnifolia* (Don), *Anagyris indica* (Lindl.), *Baptisia nepalensis* (Hook.), *Piptanthus nepalensis* (Sweet), and *Thermia laburnifolia* (Sprengel). This species (see illustration) is of vigorous growth, very free-flowering, and finely foliaged, and is quite common on many walls in Ireland and frequently met with in England. We have also seen plants growing in the open and flowering freely. It flowers in May and June, the blossoms depending in long clusters, the individual blooms being of a very fine yellow colour.

The plant is propagated from seed, which should be sown in spring in pots or seed-pans. The seed soon germinates, and as the young plants have a thick, fleshy tap-root, they require some attention after they are pricked out, and during the following winter they should be kept in the shelter of a cool house or a frame. As soon as growth commences in spring they may be planted out in the open air.—*Revue Horticole*.

Protecting shrubs during a snowstorm. Although a slight coating of snow is excellent protection for trees and shrubs during a spell of severe weather, yet when it is allowed to accumulate in large quantities upon the branches of evergreen trees it often does much damage by tearing off some of the side branches and limbs close to the stem. This not only disfigures and destroys the contour of the tree or shrub, as the case may be, but lays the foundation of a variety of diseases in after years, all of which should be guarded against as far as possible. At the commencement of a snowstorm during calm weather the planter should therefore be on the alert, and when the branches of ornamental coniferous and other evergreen trees become loaded with snow, no time should be lost in collecting all hands and setting them to work with long poles and forks to tap and slightly shake the branches to relieve them of their load and lessen the risk of damage. When this work is carried out

before the snow becomes hard and settled, it is easily dislodged, and the branch at once rebounds back to its former position. Among Conifers some of the *Abies*, *Picea*, and *Cedars*, owing to their large flat-formed limbs and side branches, generally suffer more damage than Pines, and therefore ought to be the first to receive attention during an emergency. Many of the true Pines protect themselves to a certain extent during a snowstorm by gathering up their leaves in a stiff, erect position around the branches, leaders, and twigs, by which means the snow is in some cases prevented from lodging to any serious extent. But although the planter may be very careful, it occasionally occurs that branches and limbs are torn off trees during the night. When such is the case, no time should be lost in having the wounds dressed by paring off all splintered fragments of wood close to the solid timber of the stem, to prevent the lodgment of water, and thus check the foundation for rot and decay. The wound should then get a coat of good thick paint of a similar colour to that of the bark of the tree, by which means the healing process will be promoted and the disfigurement to some extent effaced. To lessen the risk of fracture in some fine old flat-headed specimen Cedar trees, as well as those of the Hemlock Spruce (*A. canadensis*), a flat leather collar had better be placed around



Thermopsis nepalensis.

the branch or limb, as the case may be, then a similar collar should be put around the trunk, but higher up. A rod of iron or strong fencing wire attached to both collars will give support to the branch or limb during a gale or snowstorm. Many fine old specimen trees may be saved from destruction by a little timely attention in this way.—A. D. WEBSTER.

SOME OF THE BEST THORNS.

THE genus *Cratægus* is extensive and valuable, as nearly all the members of it are ornamental, either in flower, fruit, or foliage. In any notice of Thorns the first place must undoubtedly be given to our own native Hawthorn (*Cratægus Oxyacantha*), which when in flower forms in many places a conspicuous feature in the landscape. The varieties of it are almost endless, as every shade of colour from white to bright crimson is represented amongst them both in double as well as in single blossoms. Of the richly-coloured kinds undoubtedly the best is Paul's Double Scarlet, which when put into commerce rapidly became a great favourite. There are also many varieties differing either in foliage, habit, or fruit from the typical form, which is very variable when raised from seed, some being far more ornamental and picturesque than others. This may often be seen where there are a number of trees growing closely together. The difference sometimes is so great that they might be considered as dis-

tinct varieties. Some of the recognised forms that may be occasionally met with in catalogues, such as *flexuosa* and *salisburyana*, may simply be dismissed as curiosities, and are valueless in the garden. Among the less vigorous kinds such as those just mentioned occurs one that may become a favourite. I allude to the variety *semperflorens*, which is certainly very interesting. Its usual habit is that of a dwarf much-branched bush, which early in the season is profusely laden with corymbs of pure white blossoms, and unless parched up during the summer a scattered succession of bloom will be maintained for a considerable time. From this circumstance it is often possible to find both ripe fruit and flowers on the same plant, the berries being the product of the flowers that opened at the usual season, while the blooms are among the scattered ones borne later on. This little free-flowering variety is of Continental origin, it having been put into commerce by M. Bruant, of Poitiers, about six or eight years ago.

Next to our British species especial mention must be made of the Cockspur Thorn (*Cratægus crus-galli*), a native of North America, which is represented in our gardens by several varieties. In the commonest form the leaves are bluntly ovate and of a bright shining green, while the branches are more or less spreading. This forms a handsome specimen for a small lawn, the foliage being very ornamental throughout the summer, while it dies off richly tinted. The leaves, especially of some individuals, are also retained longer than those of most deciduous trees. The Cockspur Thorn, which derives its name from the formidable spines with which the branches are armed, is especially valuable as a flowering specimen, as the flattened corymbs of pure white blossoms are later in expanding than those of most of the Thorns, though there are a few others as late or even later. The small red berries, too, form a pleasing autumn feature. There is one variety so different from the type as to deserve a passing notice. I allude to *pyracanthifolia*, which has small narrow leaves and almost spineless branches, which grow in a horizontal direction, so much so that when grafted standard high it forms a flat table-like head, which will in time attain considerable dimensions.

A near ally of the Cockspur Thorn, but rather more vigorous, is *C. macrantha*, which has very long, curved spines. This species is also a native of North America, and so is the Scarlet-fruited Thorn (*C. coccinea*), which in this country forms a free-growing tree, reaching a height of 20 feet or thereabouts, and is amply furnished with large, bright green shining leaves. About the end of May the clusters of white blossoms are borne in great profusion, while the berries which succeed them are, when ripe, of a bright coral-red colour. In the autumn, before the leaves drop, they become richly suffused with yellow, with here and there a flush of scarlet. As a medium-growing tree for an isolated position on the lawn the Scarlet-fruited Thorn is well suited, as it forms a very handsome single specimen.

THE WASHINGTON THORN (*C. cordata*) is one of the very latest flowering of the entire genus, and the blooms being large and showy, it is in this respect a valuable species. It forms a rather compact-headed small tree, clothed with heart-shaped leaves of a deep shining green colour, that die off in the autumn tinged with yellow and red. The flowers, which are pure white, are borne in good-sized clusters and succeeded by small bright red berries.

Another of the late Thorns is the Tansy-leaved (*C. tanacetifolia*), a coloured plate of which appeared in THE GARDEN of December 19, 1885. It forms a sturdy growing, rather upright-habited tree, clothed with large deeply cut leaves, which

are so covered with greyish hairs as to give to the entire specimen a hoary appearance. The fruit, which is about the largest of all the Thorns, is of a peculiar flattened shape and yellowish green when ripe, and from the large adherent bracts it is easily distinguished from that of any of the others. The flowers are pure white, against which the little brown anthers are, when first expanded, very noticeable.

THE SOUTH EUROPEAN *C. AZAROLUS* is another of the large-fruited Thorns, and from this circumstance very showy. The fruits are frequently eaten by those living along the Mediterranean. Regarded from a foliage point of view, a very distinct Thorn is *C. pinnatifida*, native of the north-eastern district of Asia, and remarkable from the fact that, with the exception of the early or Glastonbury variety of the common Hawthorn, it is the first member of the genus to burst into leaf. The foliage is very handsome, and renders a specimen of it most attractive throughout the season, for the leaves are as much as 6 inches long, and so deeply lobed as to suggest the specific name of *pinnatifida*. The leaf-stalks are of unusual length, and so weak that the foliage is partially pendulous. The freshly expanded leaves are of a delicate green tint, but they seem proof against even a severe frost. The flowers, which are borne in good-sized clusters, are pure white.

The very uncommon *C. parvifolia* forms a pretty little bush when in a thriving condition. It only reaches a height of 3 feet or 4 feet with leaves about 1 inch long, while the flowers are among the largest of the genus. They are solitary, pure white, and borne very late in the season. This Thorn is widely removed from any of the others, suggesting to a certain extent a miniature form of *Mespilus Smithi*, or *grandiflora*, which is by some writers included in the genus *Cratægus*.

The last of all to mention is one largely grown as a wall plant, for the sake of its beautiful fruit, viz., the Fire Thorn (*C. Pyracantha*), which during the autumn and winter months frequently supplies the brightest bit of colour to be met with in the garden, though if the weather is severe it is soon robbed of its beauty by birds, and sometimes mice will play their part. Of this there are two or three forms to be met with, some being superior to others. A very desirable variety and the one principally propagated by nurserymen is *Lelandi*, apparently a selected seedling from the *Pyracantha*. T.

THE WEEK'S WORK.

PLANT HOUSES.

TEMPERATURES, &c.—During the severe weather through which we have been for some weeks and still are passing, the question of temperatures seriously affects not only the coal bill, but also the health of the plants themselves. To maintain high temperatures, relatively speaking, in both stoves and greenhouses is not only a waste of fuel, but is at the same time injurious and weakening to the plants. With the high temperatures, and correspondingly drier state of the atmosphere through the excessive heat in the pipes, encouragement is given to thrips, red spider, and green-fly. Both evils (waste of fuel and plagues of insects) may be remedied and partially held in check by keeping the temperatures during such severe weather a few degrees lower all round than in a milder season. It is utter folly to imagine, by maintaining the same temperatures as in a more favourable season than the present, that the plants are thereby more safely kept healthy. Such is not the case, the tendency being in the opposite direction, through a weakening of the growth and undue excitement to the roots with only a minimum of light in which any degree of strength can be built up. At such times as the present, plant life should be kept as still as possible, any undue excitement now having an opposite tendency later on when the weather is more favourable to growth. Disappointment is thus occasioned, and the cause of it not always attributed to its proper source.

When plant houses are being kept a few degrees below the average in very cold weather, there is

then even more heat in the pipes than one would like to have. To counteract this, a more humid state of the atmosphere in stoves should be maintained when the surroundings are not congenial to moisture with greater caution in the use of the water-pot. It is essential to be very careful in applying water below the usual temperature of the house. With the soil wet (and consequently somewhat colder) and less absorption going on the roots must inevitably suffer, many even being destroyed at such times. By following on the lines suggested, and avoiding the drawbacks pointed out, it is possible to keep plants in a healthy condition with a temperature 5° less all round during severe frost. Thus, for instance, where a stove has been kept at an average night temperature of 63° in mild weather, or 60° possibly where the more tender of our exotics are not cultivated, it will be quite safe to drop 5°. I have repeatedly seen the thermometer for a few hours in the early morning slightly over 50°, yet no harm has been done. I would far rather see it thus than at 65° at any time during the winter. In houses chiefly devoted to plants from temperate climes no harm will result if 42° is touched, whilst in the greenhouse 35° is decidedly better than 45°, but 38° may be considered a safe point to aim at. I have seen and also had charge of a choice collection of hard-wooded greenhouse plants where during very severe weather it was not at times (through having to depend solely upon flues and bad fuel) possible to keep much above freezing point, yet no harm was done. In such a case the best way is to keep the atmosphere as quiet as possible by not admitting any air during the day.

The night temperature I have given will now cover nearly two-thirds of the twenty-four hours. Much rise, therefore, during the daytime is not advisable, this by fire heat not exceeding 5° or 7° in each instance. To obtain this rise an early start of the fires is always advisable, so that full advantage be taken of the daylight. Towards nightfall the temperatures should again decline to the normal standard. In some instances a system is followed of pushing the fires and thus raising the temperature towards night, so that so much after-attention is not thought to be required. In this way the day records are continued into the night more than is advisable. I think it is a good plan to push the fires previous to banking up. A part of the night may thus be spared to those in charge without making any appreciable difference in the temperature. As far as possible every care should be taken not to have the full draught going longer at any time than is really necessary, so that there is no escape of heat up the chimney shaft. This can be far more easily accomplished when the boiler power is all that can be wished with plenty of hot-water piping to back it up. There is no economy in a deficiency of either one or the other, but the reverse, with the added anxiety of a possible breakdown during extra pressure. Every attention should be given now to cleansing the flues and boilers of any sooty deposit. This, when allowed to accumulate and become encrusted upon the boilers, means a considerable decrease in heating power. Proper and thorough cleansing at least once a week saves fuel and gives less trouble to the stoker. When it is necessary to maintain a higher temperature than that recorded for stove plants, a great saving is effected by having a small house or pit at command, so that the required heat can be obtained at the least possible cost. Such is the case where early propagation and seed sowing have to be resorted to to meet the demands, these being accomplished in a much more satisfactory manner than having to unduly excite the whole collection of stove plants. Houses suited to these purposes can generally be covered up, at least partially, during the night in order to conserve the heat. This is far better than extra firing when not allowed to be still covered up after day-break, and is the means of saving from 3° to 5° in the temperature. This same covering up, around the sides at least, of other plant structures is also advisable for the same reason, and more particularly so when the position is exposed. Not only is it an advantage in the case of the warm houses, but the greenhouse should be similarly treated.

Mats hung upon hooks are capital mediums for protecting the sides of houses, with a string passed along from end to end afterwards lower down to prevent them from blowing about. For roofs of low houses and pits I have not found anything to equal the dressed cloths prepared by dipping, as in the case of tanned netting, to resist decay. These keep out much cold, being of close texture, at the same time light. These latter, when used upon roofs, can be more easily managed by means of a roller for either covering up or uncovering.

CLEANING THE GLASS.—No one will, I think, dispute the fact that we need every ray of light during our shortened winter days. When situated within the radius of dense fogs and the smoke of large towns and cities, this want of light is even more detrimental than in the pure country air. It is therefore necessary to keep the glass as clean as possible both inside and out. Upon the exterior, where there is most need of cleansing, this can be easily effected by a hair broom not too much worn down. This should be tied upon a pole of sufficient length to reach the top of the house. The glass should first be well moistened with water poured from the top; the broom will then loosen the sticky matter, and another application of water leave all clean. The comparison between glass so treated and that which has not been touched is obvious. To do this work properly, two pairs of hands are needed, one to apply the water, the other to work the broom. Syringing upwards from below should not be attempted, or some of the dirty water may be forced through the laps. For cleaning the glass in the interior I have never found anything to equal the brushes upon long handles, as generally used for applying tar to fences. These are first-rate for the purpose, not necessitating the removal of climbers, or anything which may be trained horizontally near the glass, as these brushes can easily be worked between. Where the glazing has been done with deep laps there will often be an accumulation of minute vegetable growth. This chokes up the intervening space, prevents the admission of air, and also looks bad. When this is very conspicuous it should in all possible cases be removed, this being done with stiff feathers or pieces of thin tin. By keeping the glass clean on the inside there is less risk from injury from drip, especially in houses which are inclined to have rather flat roofs.

OTHER WORK.—This just now should chiefly consist in making preparations for the time when the weather will be more favourable. Empty pots should be washed thoroughly clean, in readiness for use when wanted. The use of pots whilst wet is a bad practice, causing the roots, particularly those of a fibrous character, to cling to the sides, as may be noted when the after-potting takes place. All spare sticks may be looked up, assorted into sizes, and re-sharpened—those which have been used for plants infested with any of our well-known insect pests being well cleansed at the same time. This can easily be done by dipping them in bundles into almost boiling water. No potting for the present is advisable; there is no permanent advantage in doing this work so early in the season. Where, however, the soil for future potting is accessible it is a capital plan to have it in readiness when the time comes. Loam for special work must be passed through the hands, especially if there is any suspicion of wireworm. Peat can be assorted and broken up in readiness for use. In doing this a sharp look out should be kept for any close black soil with no fibre in it, which is often found upon the lower sides of the turves where cut extra thick. This is of a sour, inert nature, not at all suited to good things; it may do later on for mixing with other soils for potting off bedding plants. J. HUDSON.

ORCHIDS.

SINCE writing last week there has been no abatement in the severity of the frost, which continues with less fluctuation than usual. We are thankful to see brighter days and clearer nights in the eastern districts of London, but a full measure of disaster has been meted out to owners of Orchid

collections within the limits of the London fogs. Scarcely a flower is left in one celebrated collection I visited this week. About sixty flowers of *Angraecum sesquipedale*, a few open, others nearly so; many in bud have been reduced to less than a dozen buds, and of these it is doubtful if half will expand. Not a dozen flowers left in a large *Cattleya* house; all the *Calanthes* flowerless. A few *Cypripediums* and *Oncidium*s have not suffered so badly. The leaves soon become dirty when the plants are cultivated in or near large cities or towns, but the sponging they occasionally need to free them from dust is useful to keep down insect pests, and as far as the health of the Orchids is concerned, there seems to be no better plants for town gardens. It is within my own knowledge that they grew and did well in backyards in Shoreditch and other places where one would think it impossible any kind of plants would exist, let alone thrive.

The season is now advancing, and something must be done. Late last autumn I had some strong plants of *Ada aurantiaca* and species of *Odontoglossums* of the *O. triumphans* type. They were planted in clean crocks at that time, and have not even yet made new roots, but the bulbs are plump and in good condition. The roots will push out directly, and they will be all placed in pots next week. These will be quite clean, and the manner of potting is in this way: In the bottom a large piece of broken pot is placed, leaving a considerable clear space between the crock and the base; over this there are larger pieces, all laid in with the concave side uppermost; the smallest pieces are placed on the top, filling the pot at least half full of drainage. Over the drainage there is a thin layer of *Sphagnum* Moss. The potting compound is of good light fibrous peat, torn into pieces by the hand, and clean *Sphagnum* Moss is used in equal portions with the peat for *Odontoglossums*, and a liberal portion of broken potsherds with some broken charcoal. It is well not to over-pot newly imported specimens. In the case of *Odontoglossums*, for instance, I would use such a flower-pot that the bulbs rested upon the sides all round; indeed, a good large piece would be planted in a 3-inch pot, and in planting the base of the bulb should be above the rim when the operation is finished. I always leave pieces of charcoal and potsherds cropping up from the potting material. For potting *Cattleyas*, *Laelias*, &c., I use nearly all fibrous peat and but little *Sphagnum*. *Cymbidium*s, *Calanthes*, and some *Cypripediums* succeed best when a good portion of loam is used in the potting material, with decayed cow manure for the *Cymbidium*s and *Calanthes*. *Zygopetalums* will also do with some loam in their potting soil.

I potted last autumn a number of plants in the *Odontoglossum* house, but not being able to finish them before November the remainder have been left until now, and I will go on repotting, surface-dressing where that is not needed. In repotting such things as *Odontoglossum crispum*, *O. Pescatorei*, *O. triumphans*, *O. hystrix*, &c., the temptation is sometimes strong to reduce the bulk of the old potting stuff by forking it out from amongst the roots with a pointed stick. This is an error in most cases; if a plant has filled the flower pot in which it is growing pretty well full of roots it is time to repot it, but in so doing let the operator be careful with it. Do not give it a very large shift. It may be well, if it has filled with roots a 4-inch or 5-inch pot, to replant it in one 6 inches in diameter, and the roots soon pass through to the sides. Few Orchids do well unless their roots have firm hold of the pots; others may not have to be repotted, but they will require surface dressing perhaps. In that case remove some of the surface soil to the depth of an inch or less, and replace it with the same material as that used for repotting. In some instances a plant may have got into bad health, the soil in the pots may be quite decayed and unwholesome, with few living roots in it. It may in that case have its roots washed and be replanted again in a smaller pot. I will also repot some *Cypripediums* in the warmest house, amongst them a few of the smaller seedlings. These may almost be seen to

at any time that it is needed, but any strong healthy plant of this species of Orchid with its roots quite filling the flower pot in which it is growing may now be repotted. At this season a little more care in watering is needed. The most vigorous of all is *C. grande*, which makes a huge specimen in a few years and might be repotted twice a year unless it receives a good shift. Amongst others which push their roots freely about in the compost may be mentioned besides *C. grande* such hybrids as *C. Sedeni*, *C. Dominicanum*, and the parent of many hybrids, *C. Schlumi*. These may all safely be repotted at any time, for when the frost goes and we get into the month of February work will be pressing in all directions. As a rule such plants as these may be shifted from a 6-inch pot into one 8 inches or 9 inches in diameter, or from an 8-inch one into one 10 inches or 11 inches. I have a specimen of *C. villosum* which has been in this collection for about twenty years. It was a small plant in a 4½-inch pot to start with, and it is now in a 17-inch pot, having been repotted once a year, and as growths were formed they were pressed outwards at each repotting, until the entire surface of the pot is now occupied. It is also a very free-flowering species, which is a great point in its favour. *C. grande* grows well enough, but the flowers are not numerous. *C. Sedeni* and *C. Dominicanum* flower very freely.

J. DOUGLAS.

FRUIT HOUSES.

EARLIEST MELONS.—If these are wanted extra early no time should be lost in sowing seed, though much stronger plants can be had by sowing a fortnight or three weeks later on. Supposing the plants are ready for their fruiting quarters during the first or second week in February, those who have plenty of both top and bottom heat at command ought to be able to cut ripe fruit late in May. The best results attend pot culture, it being possible to fruit plants in pots much more quickly than by any other means. Preference may well be given to such free setting varieties as Cox's Golden Gem, Victory of Bath, Eastnor Castle, and Countess, all having green flesh. There is not much to choose between scarlet-fleshed varieties, none of them being very free in setting, but *Blenheim Orange* ripens very quickly, and is one of the best for early sowing. For raising plants quickly and strongly a brisk top and bottom heat and a light position are essential. Leaves are not recommended, owing to their liability to be stocked with small white slugs, but any other plunging material and a bottom heat of about 80° will answer well. Fill lightly-drained 3-inch pots with light loamy soil, press a single sound seed thin end uppermost well down into this, and plunge the pots into the hotbed. If the soil is at all moist, no water ought to be given till the seedlings are appearing through the surface. Place a small stake to each plant soon after the seedlings are up, water very carefully, let them have all the light and sunshine possible, and keep a sharp look-out for slugs. The top heat ought never to fall much below 65°, and an increase of from 10° to 15° during the daytime will be most beneficial.

POT VINES.—The weather during December was most unfavourable to these, progress being very slow indeed. Thanks to the extra amount of heat kept up in the pipes generally, the bottom-heat was well sustained, and root action is therefore less likely to be very much behind top-growth. The more heat given the greater the necessity for careful and frequent waterings at the roots, dryness at any time being almost fatal to the crop. As a rule, the best results attend plunging the pots in a hotbed of leaves and stable manure, the roots being led by top-dressings of rich loamy compost over the rims of the pots into the decaying heating material firmly packed around them. In watering, little heed must be paid to the top-dressings, as these may be quite moist, while the old soil, and which ought to be crowded with roots, may be dangerously dry. Barbed stakes are best for testing the state of the old soil. If that drawn up with the stake is approaching dryness, then ought a thorough good watering to be given. Liquid

manure, only moderately strong, should be given frequently, this and the soft water used being always heated to about 80°. The Vines can be brought on more rapidly perhaps when the pots are set on the top of hot-water pipes, where, if properly attended to, fairly good crops can be grown. Naturally they will require, and must have, abundance of water, twice or three times daily being none too much when the Vines are in full leaf and rooting strongly. Not much disbudding is needed by pot Vines. The laterals should be stopped at the second joint beyond the bunches, and sub-laterals, if any, at the first joint. Up to flowering time the night temperature may safely be kept at from 55° to 60°, with an increase of from 10° to 15° in the daytime. There is no necessity for or wisdom in admitting air when the sun shines brightly, an increase of temperature for a short time doing more good than harm. Syringe overhead soon after mid-day whenever it is bright and clear, and frequently damp down dry floors and walls.

SETTING EARLY GRAPES.—Vines, whether in pots or planted in small well-heated forcing houses—the latter requiring much the same treatment as just advised for pot Vines—set most surely in bright sunny weather, and, as a rule, from the middle to the end of January is a good time to have them in flower. When the flowering period has arrived, increase the temperature 5° all round, and discontinue overhead syringing. On sunny days give a chink of top air at about 11 a.m., and by 12 o'clock many of the flower-caps will be thrown off and the pollen thoroughly dry. Fertilise the bunches either by means of a camel's-hair brush, or better still by drawing the hand softly over them, this effectually distributing and lodging the pollen grains on the moist stigma of the female portion of the flowers. Dryness in the atmosphere should be maintained during the first half of the day only, damping down being resorted to in the afternoons and evenings. Reduce the number of bunches soon after it is seen which are the most evenly set, and commence thinning out those reserved when about the size of Peas.

EARLIEST PEACHES.—These have come on very slowly, but a few bright days have greatly strengthened the bloom-buds. Not till the flowers are beginning to open should the temperature exceed 45° to 50° by night, and 50° to 55° in the daytime, high temperatures and no sunshine having a most weakening effect on the buds. When in flower give an increase of about 5° all round, and if the temperature increases during sunshine to about 70°, so much the better. If the outer weather permits, give a little top air at 11 a.m., and fertilise the flowers as soon as the pollen is dry. A rabbit's tail affixed to a long stake offers the readiest means of fertilising the flowers, this being passed lightly over them. Varieties with small flowers set the most readily, these having plenty of pollen. If, therefore, these are fertilised alternately with the large-flowering varieties, the camel's-hair brush or rabbit's tail will carry pollen from the free setters to those on which pollen is scarce, and one will then set nearly or quite as well as the other. Discontinue overhead syringing for a few days, and see that the soil in pots or borders, as the case may be, is uniformly moist. If water is needed, let it be warm or heated to about 60°, the preference always being given to soft water dipped from tanks in the houses, that drawn from boilers being somewhat injurious. Not much disbudding is needed or desirable at this early date, but a close look out must be kept for green and black-fly, the latter being particularly difficult to cope with when once it has effected a lodgment on a tree. If the growths on which they are found can well be spared, remove and burn them at once, but if not, moisten and dust over with tobacco powder, syringing this off next day. If this treatment is persevered with it will be found a much cheaper and more effective remedy than fumigating.

STRAWBERRIES IN POTS.—Early dishes of fruit are always appreciated, and are not particularly difficult to obtain. Vicomtesse Héricart de Thury is yet the best for hard forcing. Other varieties

may be had slightly earlier, but in point of flavour they compare badly with the Vicomtesse. Started now and kept briskly moving, ripe fruit ought to be available late in March or early in April. The surface of the pots should first be cleared of rubbish and dead leaves, be well rammed round the edges, and if there is room ought also to receive a top-dressing of rich compost; the drainage holes to be cleared if at all clogged and the pots washed either now or before they are set on the shelves where the fruit is to ripen. They ought not at the outset to be subjected to a high temperature, this causing an early growth of foliage, while the flower trusses will be weakly and short in the stem. Strawberries really start best when plunged in a fairly brisk hot-bed in a warm pit. The bottom heat being about 70° and the top heat 15° lower, the root action will be in advance of the top growth, and strong flower trusses will be thrown up well ahead of the foliage. Several batches of fifty or more plants, according to house room, could be started in succession, or at fortnightly intervals, in heated pits, and introduced to the forcing houses just as they are coming into flower. They do not set well in pits, hence the necessity for their removal to shelves where they can be got at and regularly fertilised when in flower. Directly a good set is effected, a high temperature, or such say as the plants would have if placed on shelves in a Pine stove, suits them well.

PRACTICAL.

THE KITCHEN GARDEN.

In ordinary seasons work in this department would be coming on apace, but, still, as a general thaw may now soon occur, work that it is possible to do must be pushed ahead. The stock of Pea and Bean sticks should be overhauled, additions made where necessary, and the sticks prepared for use. By all appearance spring vegetables will be scarce, except where due provision has been made to meet exceptional cases. The evil of too early sowing of the seeds of winter and spring vegetables is very apparent, over-grown samples being the result, and which quickly succumb to frost. I take advantage of this severe weather to burn up any old scraps or trimmings, or what is termed garden refuse, the ashes remaining coming in very acceptable in assisting the germination of early vegetable seeds. I always have a good heap of well-burned garden refuse for any purpose I may require other than the kitchen garden.

SEAKALE.—A good stock of Seakale is doubly valuable in a season like the present, and where the stock is short advantage should now be taken for providing a full supply for another season. The thong-like roots, from the size of an ordinary lead-pencil to a finger, should be selected, the larger size for preference. These must be cut into lengths of 4 inches or 5 inches, care being taken in making the cuttings that the root end is noted. The top or growth end should be cut off straight and the root end slanting. Tie in small bundles, and lay in damp sand or fine soil in a cold frame, the tops of the cuttings being just visible. Buds will form by the time for planting out. Roots of one season's growth after being forced may also be utilised for sets. Later made cuttings, which may not be sprouted at planting time, may be forwarded in a gentle warmth, such as a spent Potato frame. The lily white variety should be made a note of as being superior to the old kind. It also forces more readily.

TOMATOES.—A pinch of seed of an early fruiting variety should now be sown. Sow thinly, and as soon as the seed germinates place the pot on a shelf near the glass in a temperature of 60° to 65°. As soon as the seedlings are large enough, pot off singly into 3-inch pots. The plants must be kept growing sturdily by being fully exposed to the light, thus inducing the formation of early bloom before they are very high.

EARLY PEAS.—In mild seasons Peas are generally sown on warm soils and sheltered borders towards the middle of the month, but it will be far safer to keep the seed in the bags for some time longer. Early sowings, however, may be made under glass on strips of turves in small pots or in boxes. No forcing must be attempted, a cool or late Peach

house being a good position. As soon as the seeds have germinated and are above the soil, the plants should be removed to a cold frame and be freely ventilated at every opportunity, so as to become sturdy for planting out on sheltered borders as opportunity offers.

HOTBEDS.—Hotbeds of leaves and a portion of well-worked stable litter should be made up as occasion may require for a supply of early Potatoes. Sharpe's Victor is the earliest. I also grow Mona's Pride, while a good selection of Rivers' Ashleaf is very productive for a later crop. Where frames are not available for the present or even fermenting material, a batch may be grown in pots, two sets being placed in a 10-inch pot, a vinery or Peach house just started being a good position. When Lettuces are likely to be scarce, a planting of Early Paris Market should be made on a gentle hotbed of leaves. The seed may now be sown in a gentle warmth and planted out when ready.

MINT AND TARRAGON.—The former will shortly be in demand, and the latter constantly, so due provision should be made for keeping up a supply by introducing a box or two of roots into warmth.

SEED POTATOES.—Seed Potatoes for early planting in the open air should be looked over, and if not laid out singly they must be attended to at once. The early sprouts must be preserved, and be kept from becoming drawn. I do not favour too early planting, but like to have the sets in good condition when the time comes.

VILLA GARDENS.

I WAS much interested in the notes on villa gardens in a recent issue, as my experiences are somewhat similar to those of your correspondent.

The moral is, if you delight in choice flowers do not let the jobbing gardener get near them. Fork up the herbaceous borders yourself, as you alone, in all probability, know the positions of your precious gems. How can a man who is "had in" to "do up" know the exact position of the roots of, say, *Anemone blanda* or *Iris reticulata* which have done flowering and are no more seen. The main effort of the man is to tidy up and make the place look neat according to his ideas, or why was he employed?

It is certainly to be regretted that so few of these jobbing men know anything at all about real gardening or the culture of flowers, but the "doing up" of a villa front or a gentleman's noble carriage sweep is a totally different thing to raising choice plants and putting them into the congenial positions that suit them, and tending them with care when they are there. This may, to some extent, be accomplished by a permanent gardener, but it is utterly hopeless and unreasonable to expect it from the jobbing man.

I had a man in the other day to assist me, and after spending some time with him removing a few shrubs, left him to finish the rest. On looking out of a window a short time afterwards, to my horror he was tearing them up as if they were weeds and had only to be got rid of. I mildly remonstrated with him, upon which he seemed much grieved, and said that "he had worked nigh thirty years and nobody had no cause to grumble with him before."

Later on I started a rockery and put him on to finish it while I went to town. I had serious misgivings about that rockery and hurried home early to see what it was like. It was nearly done, and the man said proudly, "What do you think of it, sir?" "Well," I said, "I am not disappointed," and then turned to and began pulling it down, and told him to back up with earth while I did the rebuilding. As I expected, he had got the stones set up edgeways, loose, and rocking about, without earth between, or if there was any it was in such a position that the first rain would carry it all down into the path. I tried to explain that each stone should be laid on a firm bed, and so arranged that neither it nor the earth would slip away under any circumstance. As he stood looking on with a shovelful of earth in his hand he said, sorrowfully, "Well! I

done moast kinds o' work in my time, but I never done no grottin afore."

I find that the jobbing man is of great use to me when I can work with him, but I should never let him work alone except at ordinary straightforward digging or clearing up where he is a safe distance from my choice plants; and anyone who leaves him among the latter must not be surprised if he sees no more of them. It is unreasonable to expect otherwise.

R. J. G. READ.

Ealing.

GARDEN FLORA.

PLATE 788.

CHOICE HARDY BINDWEEDS.

(WITH A COLOURED PLATE OF CONVULVULUS MAURITANICUS.*)

THIS remarkable genus numbers over 150 species of annual and perennial prostrate, twining, or upright herbs or shrubs. A good type of the annual species may be found in *C. tricolor*, one of the most charming and varied of our summer border annuals. It is half hardy. The plants from seed sown in early March or April produce abundance of deep blue, white, or variously striped flowers from June to September. *C. mauritanicus*, as shown in the plate, may be taken as the type of the prostrate section, and here may be included the charming *C. chinensis*, which has been lost sight of for many years. The plants belonging to this are by far the most useful and effective for small rockeries and borders, and when tastefully disposed over hanging ledges, &c., they form a striking feature. The climbing species, of which our native *C. arvensis*, so useful for hanging baskets, vases, &c., may be taken as a representative, are almost too general in gardens to call for more than a passing notice here. *C. sepium*, *dahuricus*, *sylvaticus*, now removed to *Calystegia*, are amongst the most useful and graceful of this interesting section. For screens, summer-houses, and the like, these twining Bindweeds have few equals during the summer months, so light, elegant, and beautiful are they when allowed free course. A pretty leaved species, somewhat in the way of *C. lineatus*, called *C. stans*, has been known for many years, and although it annually throws up numbers of healthy shoots, it has so far failed to flower. The following are amongst the best of those in cultivation:—

C. ALTHÆOIDES (the Mallow-leaved or Riviera Bindweed) is one of the commonest plants around the basin of the Mediterranean. It is chiefly found on dry banks and among the Olive terraces, and flowers profusely all through April and May. Although a very variable species, both in the leaves and flowers, the form which grows freely round Mentone seems to be the one in general cultivation. Another interesting form found in the neighbourhood of Cannes with silky leaves and much smaller blooms is never seen in gardens, its small flowers hardly making up for its interesting silky appearance. This is the plant which De Candolle called *C. argyræus*, and which Grenier and Godron make a variety of *C. althæoides*. This form has by far the widest range of distribution, it being found in the Canaries, Mogador, and along the Mediterranean shores as far as Egypt, but absent from the Black Sea and Caucasian range. It is also cited by Koch as growing in Istria, and has been called *tenuissimus*, which name has been adopted by several botanists. This species and its various forms stand our English climate very well. Being a non-climbing sort, it is easily accommodated on the rockery where its bright, large, pale purplish flowers are distinct and pleasing. In severe weather I have lost this species through trusting to its taking care of itself, but

* Drawn for THE GARDEN at Gravetye Manor, Sussex, by H. G. Moon, Oct. 3, 1890. Lithographed and printed by Guillaume Severéyns.



BLUE MORNING GLORY. (Ipomoea sp.)

I find a very slight covering sufficient. The variable leaves are usually cordate at the base, more or less entire or variously-lobed, somewhat resembling those of the Malvas, the whole plant more or less hairy or silky and scarcely twining. Along with its near ally *C. mauritanicus* it does well on a warm south border, and is very effective during the summer months. It usually flowers from May to August, but rarely ripens seeds. It may, however, be readily increased by means of cuttings of the young shoots.

C. CANTABRICUS (the Flax-leaved Bindweed) is a native of Southern Europe, where it is found plentifully in warm rocky situations. It is a hardy deciduous perennial, with non-climbing stems, branched, prostrate, 1 foot or 2 feet long, and bearing two or three pale reddish flowers on each. The leaves are oval, lanceolate, pointed, and covered, as well as the stem, with long shaggy hairs. It is a charming plant for the rockery, where it looks well drooping over ledges or among tree stumps. It is hardy enough, unless in low-lying moist situations, where it succumbs to damp rather than cold. It is a choice species for a warm sunny border, and where allowed to run about at will, it makes a very attractive feature from the middle of July until the end of August.

C. CNEORUM (the Silvery-leaved Bindweed), although properly speaking a small shrub, is such a charming species and flowers with such freedom, as to entitle it to a place in every rock garden. It is a native of Southern Europe, and although liable to succumb to severe or damp winters, it is so easily increased from cuttings which keep so well in a cold frame that one need fear no alarm. Against a warm south wall, where I have seen *C. Cneorum* at home, it attained the size of a large shrub, the narrow silvery leaves and large clusters of rose-coloured flowers being at all times conspicuous. It flowers during June and July, and although it never ripens seeds in England it can be increased to any extent from cuttings, which root freely in sand under a bell-glass. A warm spot should be chosen on the rockery, and the young plants placed in light sandy soil.

C. LINEATUS (the dwarf Silvery Bindweed).—A pigmy species, without the slightest tendency to climb. This is a true alpine or rock plant, usually showing little more than tufts of narrow pointed silky leaves, from amongst which appear in summer abundance of delicate flesh-coloured flowers, each over an inch in diameter and in perfection at rarely more than 2 inches or 3 inches above the ground. In warm districts it not unusually attains to 4 inches or 6 inches in height, and flowers with a profusion unequalled by any other dwarf species. It has a creeping underground stem, and few plants are more suitable for covering bare or arid spots on the rockery. It may be increased with great ease by division of the roots. It dislikes all positions not thoroughly drained, and prefers a light sandy soil to any other. Native of the Mediterranean region.

C. MAURITANICUS (the blue Rock Bindweed) is one of the most beautiful and graceful of all our hardy Bindweeds. Entirely free from the rampant tendencies of many of its allies, *C. mauritanicus* is remarkable for its persistent flowering and neat elegant habit. It is one of the hardiest and one of the best plants for grouping I have ever seen. A dry bank entirely covered with this species, each plant forming a dense tuft, and throwing up innumerable elegant shoots, each terminated by a cluster of clear blue flowers, was one of the most beautiful sights I have ever seen with a dwarf subject of similar habit. Distinct as it is from any other species in cultivation, *C. mauritanicus* may be used with fine effect in almost any situation in the garden. In the warm sunny chinks of the rockery, in the border with a southern exposure, or in the summer flower bed this elegant plant will be found equally at home. On a raised mound it will be seen at its best, the long drooping shoots falling gracefully all round and laden with their bright blue flowers being very effective. It will be found a useful vase plant, and may be used with equal advantage in or out of doors. It may be increased with ease from cuttings, which, if put into

sand under a bell-glass in early August, make nice plants for the following spring. Native of North Africa. The variety *sabatus* is only known to grow on the promontory of Capo di Noli, eastward of Finale. It differs from *C. mauritanicus* in its mauve-coloured flowers, with yellow centre, solitary or in pairs, and crowded together at the ends of the short branches. The stem and leaves have a few short hairs, and the anthers are purplish, not yellow. *C. sabatus*, however, it must be remembered, grows only on this great limestone cliff, so that its isolated position may account for some of its peculiarities. On this cliff is also found the well-known *Campanula floribunda*.

C. SCAMMONIA (Scammony).—A handsome twining species of slender elegant growth, and producing throughout the summer an abundance of large creamy-white flowers. Although doing well in any position, it seems to want plenty of sun, and thrives best in a light deep sandy soil, as the large roots go a long way down. Introduced by Miller in 1753. Native of Syria, &c.

C. SOLDANELLA, our native seaside species, is a distinct trailing plant, with large fleshy leaves and pale reddish flowers. It thrives best in pure coarse river sand, and flowers profusely throughout the summer. D. K.

* * The legend of the plate reads *Convolvulus*, which is a mistake; it should be *Convolvulus*.—ED.

ORCHARD AND FRUIT GARDEN.

BOTTOM-HEAT FOR VINES.

HAVING repeatedly tried what could be done both with and without the assistance of a certain amount of bottom-heat for Vines required to ripen their crops in May or June, I have long since arrived at the conclusion that Vines succeed much better with than without it. Inside borders are greatly in vogue now-a-days, and these are most desirable for both early and late Grapes, but there are yet very many, especially of the former, with their roots principally or solely in outside borders, which must always become colder during the winter than is the case with inside ones. It is true much can be done in the way of protecting these outside borders, a heavy covering of leaves or a good thickness of well thatched litter serving to ward off severe frosts and snow. But even if the borders are thus covered the temperature must have become lower, contact with walls, paths, or banks of soil effecting this. In many instances it may be thought that because the roots have access to both inside and outside borders, there is no need to greatly study the latter. As it happens, it is in the outside borders where the most of the roots are generally to be found, and those who force their Vines moderately hard on the assumption that the root action will keep pace with the top growth may eventually find themselves in a dilemma. When it is seen that what should have been bunches are gradually turning to tendrils, it may then be realised how much more satisfactory would have been the results if something had been done towards hastening root action. If nothing is done in the way of warming the borders from the surface, root action seldom commences till the first-formed leaves are nearly fully grown, the first evidence of this being perhaps discernible in the change of colour of these to a deeper green.

The fact of its being possible to so force Vines as to cause them to ripen their crops before any fresh root fibres are formed is no argument in favour of the practice of starting permanent Vines without some attempt being made to warm the borders, as in all such cases that have come under my notice I had not the least doubt that better crops would have been produced had the

root action kept pace with the top-growth. Nor because the few aerated and heated borders that have been formed and worked were comparative failures, as far as any improvement in the crops of the Vines went, does it follow that the principle was at fault. That expensively heated borders are unnecessary I readily admit, but that no heat other than that radiated from the sun is needed I must dispute. Not merely do outside borders require to be warmed artificially, but those inside are equally benefited by it, always supposing these are kept properly supplied with water. The warmer the soil and the fuller of roots it becomes, the greater the need for closer attention in regard to watering. In all probability most of the failures, or comparative failures, attending the practice of heating a border in any way might have been traced to a too dry state of the soil. I have recently met with numerous healthy roots in soils excessively moist, but which happened to be in contact with hot-water pipes, and was therefore quite warm. Vine roots will multiply surprisingly in water, but it must be warm. They positively revel in moisture and warmth, but it is a poor look-out for the grower if his Vines are rooting in a very moist, cold border. Warmth, or say a temperature from 50° to 60° 6 inches below the surface, accompanied by moisture, will start the roots of Vines almost simultaneously with the top-growth, and by the time the greatest strain is experienced the newly-formed root-fibres will be equal to any ordinary emergency. As a consequence, heavy crops of high-class Grapes will be forthcoming, and that, too, without injuring the next season's produce.

There is yet another point to be considered by those wavering in their ideas and which ought to decide them in favour of the practice of warming borders from the surface. The gentle moist heat afforded by a hotbed of leaves and manure, or either separately, invariably attracts the roots to the surface, or at any rate will do so if the old roots are within an appreciable distance, and even if they are not, gentle heat and a rather rich compost will cause the stems of the Vines to emit large succulent roots just below the surface, these, if taken good care of, quickly spreading in all directions and filling the borders with fibres. If surface roots are given some fresh compost to spread into, and also have the benefit of a mulch of some kind directly the heating material is removed, the greater part of them will be kept where they are most wanted. In numerous cases hotbeds are formed in early vineries for affording a genial and moist heat, this causing the Vines to break more evenly and strongly than perhaps would have been the case if fire-heat and the syringe had principally been depended upon. To this ought to be added the good done to the Vines at the roots.

Those perhaps who have not tried it may feel disposed to doubt the possibility of warming a border from the surface, but on giving the plan a trial it may be found possible to even make the borders injuriously hot. Such an occurrence actually took place in a garden where I was once employed as a journeyman. A rather large hotbed of somewhat raw stable manure had been formed on the outside border as usual, and while cold weather lasted everything went on smoothly enough, the top-growth being strong and fruitful. A change to warmer weather led to most disastrous results, the great heat in the bed completely destroying most of the roots in the border underneath, and as a consequence the foliage flagged badly for days, failing to recover again soon enough to save the crop. Luckily, it was a span-roofed house, and the Vines on

one side only were rooting in the over-heated outside border. This demonstrates what can be done in the way of sending heat downwards, and also serves as a warning to those new to the practice. When, however, the hotbed is formed of an equal mixture of leaves and partially sweetened stable manure, there is little likelihood of this heating to an injurious extent. Being shaken well up together and extended over the best portion of the border, commencing near the stems to a depth of rather less than 4 feet, a very violent heat may not be generated; in fact, I often find it necessary to cover closely with straw litter in order to enclose the heat as much as possible. When the bed is formed entirely of leaves it may fail to heat sufficiently, especially on an outside border.

W. IGGULDEN.

TRAINING FRUIT TREES ON WALLS.

I THINK it was Mr. D. T. Fish who remarked, in a contemporary some years ago, of a former gardener at Scone Palace, in the gardens of which fruit trees on walls were trained with rigid precision, that the training of a Morello Cherry, according to his standard of excellence, by any of the young men employed under him gave them the qualification of gardeners. I suspect very few of present-day gardeners will entirely agree with the old gardener in question, but still we must give his ideas a certain amount of weight, as a man who can master the training of a fruit tree, so that it is equally balanced with fruitful wood, and also the distribution of the branches and shoots so as to expose them to the beneficial influence of light and sun, and so not be overcrowded, is generally equally careful with other work entrusted to his charge. The reason why many young gardeners are not good fruit tree trainers, although fully competent in other branches, is simply because very few are initiated into the work, the training, in the majority of instances, being entrusted to a regularly employed handy labourer. The best-trained trees I ever saw were trained by an old labourer, and the fruit used to gain first honours against almost all comers. No doubt many will say, Surely it is not necessary to spend so much time and trouble over training fruit trees as practised by the past generation of gardeners? What time they spent on the trees I am neither in a position to say, nor the results obtained, excepting Pear trees, and to produce such the time is hardly worth mentioning, as the trees have to be fixed somehow. In many gardens at the present day the wall trees are very unsatisfactory, and not in a condition for giving a profitable return for labour expended. As a rule the time spent in training with some amount of precision is no more, and often less, than when the work is carelessly done, and in the end the balance is with the well-trained trees, the future work of disbud-ding, pinching, pruning, and tying being more expeditiously performed, a little extra time and thought spent in the earlier stages of the trees' growth being very apparent. With well-managed trees, again, a young hand can see almost at once the necessary work to be performed; whereas with trees of the opposite description he does not know what to be at, whether such and such a shoot is required or not. Wall trees in good condition are a set-off to any garden, so it should behove those who are responsible when young trees are being planted to see that they are trained in a systematic manner. In giving a few rules for guidance I will commence with

PEARS, the training of which is very simple; whatever form is adopted, whether horizontal or fan-trained, the branches must be sufficiently far enough apart to allow a clear space of wall after the foliage of each corresponding branch is fully out, so as to allow the sun to act upon the fruit and foliage. Very often the foliage from one branch overlaps that of the other. As an illustration, for Winter Nelis and Josephine de Malines 9 inches would be ample space, but with Marie Louise 12

inches would be better, the foot-stalks of the leaves being longer than others I could mention. For my own part I prefer what we style the herring-bone system of training Pears—that is, instead of training the branches horizontally, they radiate upwards at about the angle of 45°. With young trees the centre leading shoot is pruned sufficiently far back, when three shoots are selected, the centre one for training upwards, and the others for the right and left. If by chance only two shoots form, insert a bud in the vacant place during July. In the southern counties on good aspects, two pairs of branches may be secured by shortening the leading shoots again during the summer. With some gardeners it is a practice to shorten back during the winter the side branches so as to encourage spurs, but this is a mistake; the branch should be allowed to extend in cordon form until the allotted space is filled. The shoots will soon form natural spurs, and come into bearing much sooner than when the shoots are shortened back. In the latter case, very often these shortened shoots refuse to break except at the extremities, and so defeat the end in view. The young shoots, as they start into growth, must not be tied too early, or they may break off, but should be secured when far enough advanced to prevent injury from wind-waving. When sufficiently long and strong enough, fix them to their allotted places.

PLUMS, CHERRIES AND APRICOTS.—The training of these is very similar, with the exception of a few details, which I will explain where necessary. Fan training for each of the above three fruits is the recognised form adopted against walls. Young trees when procured from nurseries generally have about six shoots; these are shortened back more or less according to their condition, so as to ensure their breaking sufficiently far enough back, and are then fixed in position. The lower tier of branches is brought down into an almost horizontal position, the other four being equally distributed on each side, the centre being left open. With the subsequent growth the future framework of the tree must be the end in view, care being taken that the branches are distributed in such a manner as to prevent overcrowding. Unlike the Pear, where the force is concentrated in a single branch, each shoot branches out into others, so as to fill up the space. The secondary branches for filling up I like to encourage from the top side of the shoots. Whilst the tree is extending, it is bad practice to shorten any of the leading shoots other than are required for filling up the tree, or checking any that are growing ahead at the expense of their neighbours. Each shoot as it grows must be kept straight, and so trained that one shoot should not interfere with the other. What looks worse with a wall tree than one shoot leading into another, and very often a deal of time is wasted in re-regulating. Apricots, Plums, and Sweet Cherries, as a rule, fruit from natural spurs; whereas the Morello, besides bearing on the spurs, fruits, like the Peach and Nectarine, on the preceding season's growth.

RURAL.

The Olive and its culture.—The United States Consul at Nice gives a few interesting particulars of the cultivation and treatment of the Olive in Southern Europe. The height of the tree is usually 20 feet, but it is sometimes as high as 50 feet, and it reaches an almost fabulous age. One lately destroyed at Beaulieu had a recorded age of five centuries, and was 36 feet in circumference. The Olive tree is exceedingly prolific under cultivation; the fruit yields 70 per cent. of its weight (exclusive of the kernel) in oil. Italy is said to produce 33,000,000, and France 7,000,000 gallons of olive oil annually. The tree does not vegetate readily beyond 2000 feet altitude, or 45° latitude. The gathering of the crop in the Riviera begins in November and continues till May, in three periods of two months each. The oil produced from the fruit thus harvested is classified into fine, superfine, and extra superfine, according to the lateness of the period, the first being a high-coloured oil, the second straw-coloured, and the last pale. Nice oil owes its high reputation to the rule of expressing it from ripe fruit, freshly

gathered, and without any fruit that is unripe or in bad condition.

THE WINTER TREATMENT OF MIDSUMMER AND LATE VINES.

THE work and judgment required to get all Vines, Vine borders, and vineries in large and small establishments into proper order for producing satisfactory crops of fruit the following year are considerable. Due note will have been made of any Vines that happened to show a lack of vigour during the ripening of their crops, and of the means to be employed either before or after the fall of the leaf with the view to invigorate them.

CUTTING AND BOTTLING GRAPES.

There can be no question about the advantage which Vines from which the Grapes have been cut as soon as they were ripe have over those on which the bunches are allowed to hang until the new year. Neither can there be any doubt in the minds of practical men as to the decided advantage which Grapes cut at that late period, and which are intended to continue the supply and keep plump until the middle or end of April next, possess over Grapes cut a month or six weeks earlier and intended for the same purpose. I cut all my late Grapes and bottle them the last week in December, leaving a good length of wood attached to each bunch for inserting in the bottles. The bottles should have a few small pieces of charcoal placed in each, and be refilled with water two or three times during the next four or five months, so that the end of the shoot attached to the bunch of Grapes shall always be beneath the water. I find that charcoal keeps the water sweet, and the water imbibed through the tissues of the wood attached to the individual bunches preserves the berries in a plump and fairly fresh state during the time indicated above.

PRUNING THE VINES.

In performing this operation no hard and fast line should be observed, but simply prune back to a good plump bud, irrespective of its being the first or fourth one from the main stem. If the latter bud is selected the two immediately preceding it should be cut clean away, leaving the bud close to the rod to make bearing wood for another year, cutting the long spurs hard back at pruning time next year, as should be done where any such are found on the Vines this year. If the wounds are likely to bleed dress them with Thomson's styptic. This done, wash the glass and woodwork, the latter with soft-soap and warm water and the former with clear water only, and the brickwork and plaster with hot lime, having a couple of handfuls of sulphur stirred into the wash before applying it with a whitewashing brush. The Vines should then have any loose bark that may happen to be on them rubbed off with the hand, and afterwards be well washed with a solution consisting of about 4 ozs. of Gishurst's compound, the same quantity of flowers of sulphur, and 2 ozs. of soft soap dissolved in a gallon of warm water. This, being well mixed, should be applied to the Vines with a stiff brush, and be rubbed well into the crevices about the spurs as the work is proceeded with, so as to destroy any red spider or other insects that may happen to be located there, care being taken, however, not to injure the buds in doing so. The Vines, having been cleaned, should be tied horizontally to the wires over the front pipes until they begin to burst their buds in the process of forcing or naturally in spring, when they should be untied and trained up under the roof in the ordinary way, care being taken not to damage the buds then bursting into leaf in the operation.

THE BORDER.

The surface of the border next commands attention. The extent of the operations considered necessary in this direction should be guided entirely by the signs of vigour or debility developed by the Vines in each individual vinery during the past six months, as well as by the condition of the border and the roots at the time the work is being done. Prick the surface of each Vine border over with a four or five-pronged fork, but not deep enough to injure

the roots, which, if in a satisfactory condition, will form a network a few inches beneath the surface. Remove the loosened soil and surface-dress to the thickness of about 1 inch with hydrate of lime, forking this slightly into the border, and afterwards watering to wash its virtues down among the roots. Then lay on a thickness of a couple of inches of good sound calcareous loam as a top-dressing, following this with a like thickness of horse droppings as a mulching. Subsequently, and before starting the Vines, give the whole a good soaking of tepid water. This, with repeated applications, will wash the strength of the droppings down to the roots with advantageous results. On the other hand, should the condition of the border be the reverse of that indicated, that is, should there be a scarcity of roots, the fact would point to a variety of combined circumstances alike unfavourable to healthy root action and the production of satisfactory crops, such, for instance, as unsuitable soil, imperfect drainage, injudicious applications of water at the roots, and a lack of energy, if not an entire want of cultural skill, and an imperfect knowledge of the requirements of the Vine on the part of the cultivator. In that case, the best plan by far to adopt is to carefully lift the Vine roots, remove the sour uncongenial soil forming the border, re-arrange the drainage if considered necessary, so as to prevent the lodgment of water at any time about the roots, covering it with a layer of turf, Grass side down, and then, having got the necessary quantity of the compost described below into the house to form the border, replant the Vines in it, taking care to spread the roots out regularly over the soil with a slight inclination downwards from the main stem, and in doing so shorten back with a sharp knife all straggling roots, cutting clean away any that may have sustained injury in the process of lifting before covering them with 6 inches of the same kind of mixture as that forming the border, following this with a couple of inches of horse droppings as a mulching. The whole should then be watered with tepid water, and the house be kept cool until the Vines push into growth naturally towards the middle or end of the following March, cropping them lightly.

A compost consisting of, say, five cart-loads of the best calcareous loam obtainable, one cart-load of wood ashes, and a like quantity of horse droppings and lime rubble respectively, four ordinary-sized garden barrow-loads of freshly slaked lime, two barrow-loads of charcoal, and a like complement of soot, this being well mixed before being wheeled on to the borders, will be found to be a very suitable mixture for Vines to grow in. But should it be necessary to subject some of the badly rooted Vines referred to above to a process of gentle forcing, it will be advisable to only remove a portion of the old soil from about the roots of the Vines and to add a like complement of the mixture recommended above, working it well underneath and above the roots, and finally finishing off the work in the manner indicated above.

OUTSIDE BORDERS.

Should the border or borders that I have thus far been treating of be outside ones, short rotten manure might be substituted for horse droppings, and over this a thickness of a couple of feet of fermenting material, consisting of leaves and stable manure (rather more of the former than of the latter) should be laid on. This having been thrown together ten days or a fortnight before being used and turned over twice during the interval, by heating the surface of the border will have the effect of attracting the roots thither, and in the top-dressing and mulching they will form a network of feeders. In the case of early forcing of such Vines the bed of manure and leaves should, according to circumstances, be freshened up a few times during the interval from the middle of November to the middle or end of February by removing a portion of the spent and replacing it with fresh fermenting materials. About the middle of April, when the sun has increased considerably in power, half the thickness of this outside border covering should be removed, and the other half a month later, by

which time the Vines will have perfected their crop. In conclusion, I may be permitted to say that old-fashioned as the practice of building a semi-hotbed on borders of Vines being forced, and whose roots are all in outside borders, undoubtedly is, there can be no question as to the wisdom of such nor of the good results which invariably attend the practice when intelligently carried out. It is quite obvious that any covering, especially such a simple and inexpensive one, should commend its adoption to everyone engaged in the early forcing of Vines or Peaches whose roots are in a cold outside border.

H. W. WARD.

Longford Castle Gardens, Salisbury.

THE HARDY FRUIT GARDEN.

IN many districts it has been impossible to make any progress in either planting, moving, pruning, or cleaning for several weeks past. Nor ought any attempt to be made to proceed with planting fruit trees till the ground has become both drier and warmer than it will be for some time after the break up of the present severe and long-continued spell of wintry weather. Planting newly moved trees in cold, wet soil is almost certain to end badly, nor do they thrive well if puddled in at any time of the year. Nurserymen, however, will take advantage of the first favourable opportunity for executing orders for trees and bushes, but on these being received they ought to be unpacked, have their bruised roots shortened back to where they are uninjured, and all broken ends cleanly cut over and be then laid in by their heels, the roots being well surrounded by light, moist soil, and both tops and roots covered with straw litter whenever severe frosts are imminent. Better defer planting till March than attempt it while the ground is in such a bad plight, as it must inevitably be when the thaw takes place. Sometimes the bales of trees come to hand while a severe frost prevails, and in this case it may be advisable to place them for a few days in either a cellar or shed where the frosts can be excluded from them. Too often the roots of trees bought in are not properly surrounded by moist packing material before they leave the nurseries, and becoming very dry suffer greatly accordingly. The weather permitting, either plunge the roots in a tank of water for a few hours, or surround with straw litter and saturate this with water.

ORCHARD TREES.

These too often receive little or no attention in the shape of thinning out and pruning, and where there are a number of large trees needing it, the men at this slack time might well be set to work on these. Many of the under branches and those in the heart of the trees ought to be neatly sawn out, the fruits produced on this much shaded wood being few in number and poor in quality. Straggling branches should be foreshortened to well placed inner branches, the latter also being thinned out if need be. The trees being thus reduced in size and lightened will not unduly shade each other, and the reserved branches getting the full benefit of more light and air, subsequent growth will be healthier and the crops correspondingly improved in value. No close spurring back ought to be resorted to in the case of old orchard trees, nor any young shoots be shortened in the least. Quite young trees should have extra strong or straggling growths freely shortened back wherever younger shoots are required to form a well-balanced head, and any that cross other well placed wood ought also to be cut out. Do not shorten the rest, as these when left to their full length will most probably become clothed with fruit-

buds before next autumn. A too free use of the knife in the case of many young orchard trees has been the sole cause of a failure to fruit freely, and should therefore be avoided after a moderately good head has once been formed. Do not be in a hurry to remove the side shoots on the stems of "feathered" trees. There is no good reason why these should not be allowed to fruit for several years, and their retention greatly strengthens the stems. Much may be done towards improving the value of orchard trees by grafting superior varieties on those inferior in quality. All prunings of valuable varieties of Apples, Pears, and Plums ought, therefore, to be saved, these being plunged in moist soil in a cool position, in order to retard them as much as possible.

F.

CORDON PEARS.

THIS system of growing Pear trees is more extensively employed than formerly, and it has much to recommend it, as the fruit produced from upright cordons on a wall is often larger and of better flavour than when grown in any other form. Another advantage is, that many more varieties can be grown. Cordon trees require more attention in regard to feeding, stopping, and root pruning than those grown in any other form; therefore, if this system is adopted, these matters should be taken into consideration, as it is useless to plant cordon Pears without giving them the attention they require.

I do not advise planting a great many varieties, but only those that are well known and good, and that will prolong the season as much as possible. The planting of a great many kinds is a mistake; indeed the number named in catalogues could advantageously be reduced, so that when I say plant more kinds I mean those that will keep up the supply from early to late, which is often impossible when a few large trees are grown on a wall. The best varieties I consider for cordons are Souvenir du Congrès, Louise Bonne of Jersey, Beurré Superfin, Beurré Hardy, Beurré Diel, Doyenné du Comice, Marie Louise, Duchesse d'Angoulême (in some situations), Thompson's, Winter Nelis, Beurré Baltet, Glou Morceau, Huyshe's Victoria, General Todtleben, Bergamotte d'Espèren, and Easter Beurré. There are others equally good in many localities, but the above list I have found suitable. Much depends upon soils and situations, so that in selecting varieties this should be taken into account. Planting will, I fear, this season be late in many cases, as it is almost impossible for the nurseryman to execute his orders till the winter is advanced; therefore, in the case of new plantations, it will be advisable to prepare the borders for the trees as soon as weather permits, so as to have no delay at planting. I like to plant upright cordons 2 feet apart, and to give them a west aspect and a south one in cold northern places. Many of the earliest varieties can be grown as bushes or pyramids, and do not need a wall. Such varieties as Williams' Bon Chrétien and others can be planted for this purpose, reserving the wall space, which is generally limited, for later kinds that require it. Deep planting is a serious evil, and should be avoided. Thoroughly trenching and draining are also of great importance. Heavy, wet clay will require draining and suitable ingredients mixed with the soil, such as lime rubble, charcoal, burnt soil, and other material.

Much of the after management depends upon the stock, as when on the Quince heavy mulchings of good manure should be applied twice a year, viz., in the autumn and spring, as it is useless to starve the trees. The roots being near the surface must be encouraged to remain there, so that a good dressing of thoroughly decayed manure from 4 inches to 6 inches deep is what is wanted to produce fine fruit. Lifting is not required so often when the trees are on the Quince as when the Pear is used as a stock. For cordons I would use the Quince and feed as above. Pears on the natural

stock will require more root-pruning, so as to avoid the excessive top pruning often practised and the loss of crop; careful thinning out and removal of useless spurs are all that is required with judicious root-pruning. The watering of trees grown as cordons must also be attended to, as the roots being near the surface soon suffer in dry weather. It is surprising the amount of moisture the trees require in light soils. The heavy mulch in the spring will also do much good by retaining the moisture, and should, at the least, be 3 feet from the wall. Liquid manure is of great assistance to the fruit when swelling, well washing it down to the roots. On our light soils I mulch all our wall trees, if possible, in May or June, as without it they soon suffer. Care is also necessary in the winter months to unfasten the old ties and shreds, as young cordons grow rapidly; therefore plenty of room should be left to enable the wood to swell properly. Protection from frosts and thinning the fruit are also necessary. Pinching and stopping during the growing season are also very important. If this practice is followed there is not much winter pruning required.

G. WYTHES.

Syon House.

GOOSEBERRIES.

WHEN at Mr. George Bunyard's Allington nursery I was much interested in a long frame erection, standing out in the open ground and covered with a fine mesh, stout wire netting. This was planted with Gooseberry and Currant bushes trained flat to the sides and one centre partition running the entire length. The house or frame was practically an experiment, erected specially in the hope that under flat training and with the fruits fully protected from birds, very fine samples of the respective varieties would be produced. What has yet to be shown, and no doubt next year Mr. Bunyard will be able to tell us all about, is whether the passage of the air through stout wire mesh cools it so much as to prove injurious to the plants within the house. I do not anticipate any such result, but rather anticipate an objection which may be raised. The house is of ample height and width for the purpose to which it is put, and should the venture prove in time a success, there is a very good reason why similar Gooseberry and Currant houses should be erected in all large gardens. We cannot do without the birds, that is very certain, and in the Gooseberry season it is very hard to do with them. The best course, therefore, seems to be to provide the Gooseberry bushes with such protection as shall make the fruits safe from harm just through the ripening period. Were it assumed that the entire exclusion of birds from the bushes might be productive of bad results during the winter and spring, the natural answer would be that the wire roof to the houses could be made movable, and the birds might thus have free access to the bushes for some nine months of the year at least. The general adaptability of wire for the protection of bush fruits needs to be more generally tried. It is not possible to use it on a very large scale, as the expense of covering in acres of Gooseberry or other fruit bushes would be too great. On the other hand, birds are relatively far less harmful where fruit is largely grown than where grown in but small quantities. Far more harm is often done in a comparatively small garden by birds than is done over a 20-acre fruit garden. It is in relation to small gardens where fruit is precious and birds are abundant that Mr. Bunyard's experiment has interest. Far better than cure is prevention, and far better also is it to prevent birds from having access to ripe fruit than to try to cure the evil by using a gun, or otherwise destroying the depredators. We do not do everything in gardens with a view to profit. If we did, private gardening would have to be conducted on rougher and more restricted lines than are now seen. To many ladies and gentlemen it would be worth very much to be able to go into a wire-protected fruit quarter and gather choice Gooseberries from off trained trees as desired. Pleasure of that sort cannot have a pecuniary value placed upon it. Gooseberries may be had for several weeks

on the dessert table now under ordinary conditions, the birds consenting, but employers hardly care to get amongst ordinary Gooseberry bushes to gather fruits for immediate consumption. That pleasure, however, could be fully enjoyed when Gooseberries are grown in a special house, as Mr. Bunyard has shown at Maidstone. I have often considered that in many of our larger gardens it is not the rule to set apart a small select fruit quarter specially for the personal use of employers. How many ladies and gentlemen are there who delight in gathering fruit for their personal delectation, or that of friends, who decline to indulge in that pleasure now because the gardener dislikes it. That it is quite right the gardener should know the going of the fruit under his care is natural enough, and must be admitted, as otherwise he could not fix responsibility in the case of loss. If, however, a particular quarter of the garden were exempted from that requirement and left purposely for the gratification of employers or members of their families, very much pleasure would accrue to them from which they are now debarred. Probably it will occur to many persons that a wire-protected house for Sweet Cherries would be more meritorious than even one for Gooseberries. Cherries are so terribly subject to aphids, that the exclusion of birds from the trees may have disastrous results. Still, as these fruits are produced so admirably in houses, there can be no reason why they should not come equally well in a wire-protected house, especially that frequent washings may be found efficacious in clearing the trees of the insects. But to have plenty of rich Sweet Cherries hanging long and secure from birds in a house of this kind and on well-trained trees, would be a precious boon indeed. Would that experiments of this nature could be tried at Chiswick as well as at Maidstone.

A. D.

Late Apples.—Can anyone recommend a better cooking Apple than Dumelow's Seedling to come in for use in the new year? I am of opinion that if we had this Apple only from now onwards, and more of it, we should fare much better. Of course it is useless for dessert, owing to its excessive acidity. Newland Sack keeps equally well, and may be used for dessert, although not handsome or tempting in appearance, and only known locally.—W. CRUMP.

Hardy fruit exhibitions.—As arrangements are now being made for this year's shows, will you allow me to suggest that in collections of Apples and Pears, only five fruits should be required to form a dish, and perhaps also in Peaches and Nectarines. This is rendered necessary by the greatly increased size of the fruit, which also looks better when set up in this form. Orchard house fruit should have a separate class to itself, as the public are apt to be misled by the abnormal examples staged. All fruits should be properly named.—GEO. BUNYARD, *Maidstone.*

Peaches Hale's Early and Dymond.—I quite agree with Mr. Iggulden in regard to the useful and good cropping qualities of Hale's Early. It is truly a very fine early Peach, and seldom fails to crop if reasonable treatment is given it. Outside I find it one of the best in its season, while inside I have a very fine tree and would be very sorry to destroy it, as the fruit grows to a good size, is bright in colour, and also of good flavour. I cannot help thinking that where the flavour of this variety is deficient there is something wrong. It is not a Royal George certainly, but a well-grown fruit will satisfy any reasonable Peach lover. Indoors I find the tree rather subject to bud-dropping; still, I always get plenty of fruit. It has one drawback, that is, the fruits clasp so tightly around the shoots that it is very difficult to part them from the tree without injuring the flesh. All the early American Peaches should be gathered a few days before they are ripe, as if left on the trees the flesh becomes almost tasteless. These remarks apply more especially to the Waterloo, Alexander and Amsden varieties, considered by some to be almost useless. Dymond is a variety I would strongly recommend to those about to plant. This ripens about the same time as Royal George. The fruits are very fine, good in colour, excellent in flavour, and the

tree crops well; in fact, I consider it one of the most reliable and best Peaches grown both for indoors and outdoors.—H. MARKHAM, *Mereworth Castle.*

KITCHEN GARDEN.

IMPROVING SOILS.

FOR the production of good crops in the kitchen garden, the condition of the soil previous to planting is of the utmost importance. That some soils are naturally adapted for the production of good vegetables we are well aware, but there are far more the reverse. Many soils are in an unprofitable state on account of their water-logged condition.

DRAINING.—Without draining the site where the above state of things exists, it is impossible for the crops to be satisfactory. A water-logged soil is cold; consequently the crops are late in coming to maturity, independent of being subjected to other evils, while late frosts are much more injurious than on drained land. Test holes should be dug to the depth of 3 feet or more, and the quantity of water collected will be a gauge for the depth and number of drains necessary. That it is not so easy to drain some soils I must admit, especially when the site is so low that a difficulty is experienced in providing an outlet of sufficient depth. The drain must be formed on an incline, and run into a main drain; 2-inch tiles are large enough for the cross or side drains, 3-inch or 4-inch ones being provided for the main. Pits at one or two junctions for collecting or rather catching any sediment which may collect in the pipes are very useful, and save a deal of labour in after years should any of the drains get choked. The drains should not be filled in until all the tiles are laid. In case the number of cross drains should not be sufficient, dig other test holes midway between, and if water is still retained, increase the number of drains. Where the soil is of a retentive nature do not place it over the drain tiles, but put a layer of stones or clinkers or any open material above them. With even ordinary digging and manuring, soils when drained have been brought into the most productive condition.

TRENCHING.—Some soils are certainly benefited by trenching, and others the reverse. Besides labour wasted, instances have come under my notice of kitchen garden soils, those of a clayey nature in particular, having been ruined for years by injudicious trenching. Light or gravelly soils may be so improved, but even here caution is necessary, especially where the soil is thin and the sub-soil of an indifferent description. Many old gardens where manure has been applied heavily for years are very rich in humus; in fact far too rich. Where trenching in such cases is systematically carried out with little improvement, a dressing of fresh-slaked lime is of marked value. A dressing of lime in some gardens for a season, instead of applying animal manure, would certainly produce a better state of things. A bushel to a square rod of ground is a fair dressing. The ordinary mode of trenching is to turn over the soil two or three spits in depth, placing the top soil in the bottom of the trench. This may act in some gardens very well where the soil is good to a fair depth, but not in the majority, where the subsoil is of an indifferent description. Bastard trenching, which is much to be preferred, is performed by marking out a trench of a convenient width, and taking out the top spit, and wheeling it to the far end of the plot. The bottom trench is now turned over, working in any manure or whatever is to be

applied for improving the staple. The top spit of the next trench is now placed on this, and so on until the plot is finished. The depth will have been increased without altering the position of the top and pulverised soil. The materials which may be applied for improving the staple, other than ordinary decayed stable manure, include dry road scrapings, burnt garden refuse, wood ashes, charcoal dust, and such like. For turning over the soil, unless too light, I prefer a good five-tined digging fork, this dividing the soil better than a spade. The best time to dig for spring cropping is a matter of opinion. Clay soils are generally recommended to be dug in the autumn or early winter, so as to receive the beneficial influence of frost and snow. This sounds very well in theory, but unfortunately in practice the result is rather the reverse. I have about as heavy a soil to contend with as it is possible to have, but to dig it in the autumn it would be spoilt for the coming season. Any time during February when the weather is fine I choose for the work, and any frosts and drying winds we may have after make the ground admirable for cropping. Manure is applied at the time of digging. Light soils may be dug at almost any time when the weather is suitable.

A. Y. A.

LEEKS.

THE present very severe winter has forcibly demonstrated the great value of Leeks as a hardy wholesome vegetable, not a few owners of gardens having recently given them a fair trial on the dining-table for the first time. High class they will never become, but most serviceable they will always remain. Their



Leek Musselburgh.

good qualities entitle them to rather better treatment than is accorded by most cooks, who use some for flavouring soups and spoil the rest of what are sent to them. Half what are grown in the majority of gardens in the southern counties of England are usually spoilt either in the house or the open ground where they remain till they run to seed, but this season I fancy will become the exception to the rule, and it may be the taste for them will become as pronounced in these parts as it long has been in the more northern part of Great Britain.

As far as cultural requirements are con-

cerned, these are simple enough. For ordinary purposes, sufficiently early and strong plants can be obtained by sowing seed thinly on the open ground early in March, these when about 12 inches high being planted where they are to grow to their full size. A cool, well-manured site suits them well, but the majority of cultivators rightly prefer to locate their plants on an open, freely manured, and not too heavy breadth of ground in connection, say, with Celery. All that is necessary in this case is to form good-sized holes 8 inches deep with a blunt dibber, and about 12 inches apart each way, a plant being then dropped into each. Being well watered in, no other fixing is needed, and hoeing among the plants will gradually close the holes sufficiently to well blanch the fast swelling stems. In mild winters they continue to increase in size, and being perfectly hardy ought always to be left where they are grown till the spring, when what are left may be lifted, laid in closely on a north border, and their old site otherwise cropped.

When extra fine Leeks are wanted, more than ordinary pains must be taken in their cultivation. The seed may be sown in gentle heat in February, and the seedlings pricked out and otherwise treated similarly to early Celery. When large enough and sufficiently prepared for the open air, they ought to be carefully



Leek Broad or London Flag.

transplanted, each with a good ball of soil and roots attached, to shallow trenches, into which rich solid manure has been freely forked. Given good room, or placed not less than 12 inches apart, and kept well supplied with water in dry weather, the progress is rapid. How to blanch them thoroughly and cleanly is the next consideration. Some growers mould them up when nearly fully grown, merely taking the precaution of preventing the soil from working down between the leaves and blanched stems. Others go to the length of bandaging them up with brown paper and then surround with soil, and very clean, well-blanched Leeks are thus obtained. After being moulded up they are not, however, left to take care of themselves, as it is quite possible for the plants to become injuriously dry at the roots long before they have ceased to grow. They require liquid ma-

nure nearly as much after they are moulded up as before. There are three distinct and popular types of Leeks, of which illustrations are here given. The Broad, or London Flag, is a great favourite with the market growers in the home counties, and is a thoroughly good and reliable variety. Ayton Castle Giant differs but slightly, if at all from it, but this is the



Leek Large Rouen.

stock largely grown in Scotland, and is there considered superior and milder in flavour to all others. The Musselburgh is longer in the stem than all other varieties or selections that have come under my notice, and it is a fine-grained, generally excellent variety. Large Rouen is sturdier in growth and has broader foliage than either of the foregoing, and it is this, or re-named selections from it, that is principally grown by exhibitors or all who require extra large Leeks. The Lyon, a Scottish selection, is a stock now much in favour with exhibitors, extra fine samples of this having been shown during the past two or three years in various parts of the country. Model and Prizetaker are also largely grown for exhibition. Carentan had a short-lived popularity with exhibitors, being much too coarse. W. I.

THE EFFECTS OF FOG ON VEGETABLES.

IN the last volume of THE GARDEN (p. 607), "R. D." writes of the effects of fog near the metropolis, and those who reside in the country districts can scarcely imagine the injury fogs have done this season to forced plants, especially vegetables. For the past three weeks in this locality we have not seen a gleam of sunshine, and with a thick fog and little daylight forcing of every kind has been carried on under great difficulty. Of severe frosts with the wind chiefly north we have had more than our share. Tomatoes have gone off wholesale, no matter what the temperature has been. Of course, being close to the glass, they suffered more, but no matter how protected by mats, &c., the fog penetrated and the crop was lost. I had some healthy plants in 8-inch pots with a nice lot of fruit set and some in bloom. These plants, having been well hardened and not unduly forced, were trained up the front of a forcing house. Every shoot is gone; the main stems also are showing signs of decay, and the fruits are all shrivelled. Some may say they were frosted, but the temperature was never lower than 55°, and we have other things, such as bulbs and flowering plants on shelves close to the glass, in the same house that have not suffered in the least. The leaves droop, then the

shoots, and finally decay near the main stem and die. Strange to say, the plants raised from cuttings in September and October do not suffer nearly so much. Perhaps some of the readers of THE GARDEN who grow Tomatoes for winter may have had the same experience. In previous years I have only grown winter fruiting plants from cuttings; but, on the other hand, it is seldom we get from three weeks to a month of darkness and fog, with a few bright intervals between. Cucumbers have suffered in a similar manner. No matter how robust the plants, they have gone off at the joints, first turning yellow and then decaying all at once. Young and old have suffered alike. Small seedlings, hardly in the rough leaf, have a sickly look, but have so far not died. This I attribute to being further away from the fog than the older plants. Melons suffered in the same way. Asparagus, which can generally be forced with little difficulty if good strong crowns are used, has failed to come to perfection. The growth will hardly push above the soil, and it turns yellow and soft, and of course is useless. Some may imagine it is want of bottom-heat, but such is not the case, as the roots are placed over a bed of sweet, fresh, warm leaves with a temperature of 60° to 70°, and the pit is kept at a temperature of 50° to 60°. With less fog during the past three days, the growth is better and remains firm, but much of the vigour seems to have left the plants. Seakale and Mushrooms do not suffer, fortunately, but these are much less exposed than the plants named. Capsicums lose all their foliage, but otherwise do not damp or go off in the way described. Many flowering plants are in a sad state and have not got a leaf on them, but with care they will come round. They are not like Tomatoes, Cucumbers, and such like vegetables.

Syon House.

G. WYTHES.

ORCHIDS.

ONCIDIUM CHYSOTHYRSUS.

A "CONSTANT READER" sends me a flower of this species saying it is from a plant imported from Brazil some few years ago. I am under the impression that this Orchid is very scarce in this country. In habit it is something in the way of *O. varicosum*, but its bulbs are different in not being swollen at the base and in being destitute of the black markings which distinguish those of *O. varicosum* near the top. In *O. chysothyrsus* the bulbs are nearly 3 inches long, pale green, ribbed when old, and bear a pair of oblong-acute leaves, which are each nearly 6 inches in length and pale green. The spike is erect, some 2 feet to 2½ feet or more in length, and bears from fifty to a hundred flowers. I do not think it has ever been seen with a hundred flowers in this country, but I have seen sixty flowers on its much-branched spike. The spike, however, although much-branched, is close and compact. The flowers are each scarcely more than an inch across, so that a side branch from the spike is a very pleasing object when cut and placed in a finger glass upon the table in company with a frond of some *Adiantum* or other graceful Fern. The sepals and petals are small and reflexed, pale yellow or yellowish-green, transversely barred with purplish-crimson, the lateral sepals being united to the middle. The lip is broad and flat, bilobed in front, and soft golden-yellow in colour. The plant, I should imagine, would be an autumn bloomer, as it is upon the young growth that its spikes appear, and these, too, when the growth is finished. The flowers last a long time in perfection. This plant is well worth growing with such kinds as *O. varicosum*, *bifolium majus*, *calanthum*, *excavatum*, *flexuosum*, and sundry others, the flowers being well suited for cutting for room decoration, independent of the cheerful appearance they give to the Orchid houses at

any time of the year, but more especially at this season. It has been recommended to grow this *Oncidium* on a block of wood, and in this manner I have grown it. I have, however, found that when properly potted the growth is stronger and a larger spike is produced. The soil should consist of fibrous peat, from which all the fine portion has been beaten, mixed with a little chopped Sphagnum Moss. In potting, add some moderately sized nodules of charcoal. Let the soil be made very firm. In the winter months the soil will keep moist for a longer time than when the plant is grown on a block of wood. I do not believe in drying these plants up at any season.

WM. HUGH GOWER.

Lælia anceps Percivaliana.—J. Stokes sends me a flower which certainly is of this variety, a figure of which will be found in THE GARDEN. The sepals and petals are white flushed with rosy-blush; the three-lobed lip is also white. The interior of the side lobes is streaked and dotted with purplish-magenta, yellow in the centre. It is a conspicuous and very beautiful variety, and my friend, who says it is flowering freely with him, gives it warm treatment and plenty of air during the summer months.—G.

Cattleya Forbesi.—"Wrangler," lamenting about a plant of this species growing out of season, asks what he shall do with it. I should advise him to throw it away, as it is the worst *Cattleya* I know. If, however, he wishes to keep it, he should grow it as well as he can by giving it heat and a moist atmosphere, so as to make its growth quickly. Another growth will very likely be produced this season, but in all probability it will not be a strong one. Rest it and keep it cool at the end of 1891, so that it may start at the proper time in 1892.—W. H. G.

Dendrobium heterocarpum (*G. Dunford*).—It is nearly sixty years since Gibson sent this plant from Khasia, but since then it has been found all over India, and has yielded a lot of colour varieties. It has entered largely into the hybridisation of the *Dendrobes* we have, and to all, if I mistake not, it has transmitted its peculiarly grateful fragrance. It was named *D. aureum* by Lindley. The sepals and petals are of a deep cream colour; lip a deeper shade of yellow, streaked with lines of purple.—G.

Dendrobium Wardianum (*S. Waites*).—Yours is the first flower of this species I have seen this year. I also saw some plants in bloom in November last year. Yours is a large flower, thick and fleshy in texture, but it is easy to see that it is from a plant collected in Burmah, as it lacks depth of colour. I have no doubt that your plant with thirty flowers, as you say, is a magnificent picture. The flowers may come of a deeper colour another year, especially if you do not have the plant in bloom so early in the season. You introduced it to too high a temperature too early.—W.

Calanthe Veitchi.—"J. R." says, "Thanks for your hint about the best flowers from straight bulbs. I bought some last season, rejecting all those with a closed-in neck. This season they are very fine, and I send you a spike that you may judge for yourself." This is a very nice spike, some 2½ feet long, and the colour of the flowers is very brilliant. I am quite aware I made this remark last season and the year before. It will not do, however, to accept this as a rule, as a few instances have occurred where the opposite is the case, but it may be taken for granted that the deeply-coloured flowers will mostly be found on the straight bulbs.—W. H. G.

Odontoglossum hastilabium.—A spike of this species comes from "J. O." Manchester. I should imagine the plant has been kept too hot, or it would not have flowered so early. When I used to grow this plant I found it made fine large pseudo-bulbs in the cool house with the other kinds, and it never flowered before April and May. The variety now to hand is an excellent one, the sepals and petals creamy yellow, profusely streaked and barred with irregular lines of purple. The lip is hstate, the broad front lobe of the lip white tinged

with purple, whilst the basal part is very deep purple. The flower is considerably over 3 inches across, and the sepals and petals bronzy. I frequently hear complaints of this species being a shy bloomer, but such I have never found it to be. The scape is some 4 feet or 5 feet long and much branched. It has been known for about fifty years.—G.

PLATYCLINIS.

WHILST none of the four cultivated species of *Platyclinis* possess any marked attractions in colour, they are, on the other hand, unsurpassed in the grace and elegance with which the flowers are displayed. That their delicate beauty is being appreciated is shown by the greater frequency with which they are to be met with in collections. About ten species are known to belong to this genus, several of which are natives of Java, but the whole of those in cultivation have been introduced from the Philippine Islands. The more prominent generic characters consist in the small tapering pseudo-bulbs, the single narrow leaf, and in the very long pendent or arching racemes, on which the numerous small flowers are set in two opposite rows. *Dendrochilum* is the older name by which these plants are known in some gardens, but the greater part of the species that used to constitute that genus was separated by Mr. Benthams and given the present name. So far as I am aware, none of the true *Dendrochilums* are in cultivation.

P. COBBIANA.—Both in regard to robustness of growth and size of bloom this takes the first place. The flowers are on racemes a foot long, the greater part of which hangs perpendicularly. The blooms are arranged alternately, and as the main stem bends back from each bloom, the whole raceme has a curious zig-zag appearance. The flowers are of a very pale straw colour, the lip, however, being of a deeper orange shade, and making a pretty contrast. It is about eleven years since this species was introduced by Messrs. Low, having first flowered in the collection of Mr. Cobb at Sydenham.

P. GLUMACEA was originally discovered by Cuming in the Philippines, and flowered in Messrs. Loddiges' nursery in 1841. The flowers are in long graceful racemes, and are of a yellowish-white. Although by no means showy, the elegance of its growth and the delicate fragrance of its flowers (resembling that of new-mown hay) render it a charming little plant. It flowers in March and April.

P. FILIFORMIS.—In the same year this opened its flowers for the first time in this country in Mr. Bateman's garden at Knypersley. The flowers are small and canary-yellow in colour, being borne in great numbers on drooping, thread-like racemes, 1 foot to 15 inches long. Large plants of this species have a very striking appearance when in flower.

P. UNCATA is the only other species known in gardens. It was introduced by Messrs. Low a few years ago. The racemes are stouter and instead of drooping, as in the previous species, are semi-erect and arching. The flowers are set regularly in two opposite rows, and are of a pale, almost transparent green. It is rather remarkable that each of these four species blooms at a different season. *P. uncata* is in flower now; *P. glumacea* blooms in spring, *P. filiformis* in June and July, whilst *P. Cobbiana* is at its best in autumn.

Although it has been frequently stated that *Platyclinis* require a place in the East Indian house, my experience is that an intermediate temperature is the best for them. *P. uncata*, indeed, I now grow with the *Odontoglossums*, after having struggled unsuccessfully with it in the warm house, and what was a small weakly plant a few years ago is now a large healthy tuft, with over a score spikes of bloom on it. Although they come from a very tropical part of the world, they occur at elevations of 3000 feet to 5000 feet. According to the collector Porte, they are never found at lower altitudes than 1600 feet. They are purely epiphytal, growing on the trunks of trees at a distance of 3 yards or 4 yards from the ground. Under cultivation, nevertheless, they should be grown in pots, giving them abundance of drainage and a compost of peat fibre and Sphagnum. The atmosphere of the forests in which they grow is saturated with moisture for several months of the year, a condition which shows the necessity of giving them copious supplies of water during our summer. Provided the drainage is perfect, they

can scarcely have too much. In winter much less is required, but at that time even they should be kept moderately moist. W. B.

SHORT NOTES.—ORCHIDS.*

Dendrobium speciosum (J. W.).—If this plant is throwing its spikes up from the nodes, it should have the assistance of a little extra heat and some water. Do not allow wet to stand upon it, and do not yet let it have any amount of moisture in the air. You say you have eleven spikes showing. This will make a fine show.—G.

Odontoglossum Rossi (S. G.).—The flowers are all varieties of this species, but there is not an extra good one amongst the lot, the markings being very poor; they should be bold and dark chestnut-brown instead of pale greenish. This species I have seen grown very cold—in fact, I have seen it frozen hard, but I do not like such extremes.—G.

Lælia autumnalis alba.—"J. W." sends flowers of this lovely gem, but I do not think they are so white as some I received last season. The flowers have the sepals and petals pure white, but there is a tinge of rose colour in the lip, just that shade which robs the *Cattleya Trianae* delicata of the name of alba.—G.

Odontoglossum Andersonianum.—A beautiful variety of this form was recently blooming in the collection of Sir Trevor Lawrence at Burford Lodge. The sepals and petals were creamy-yellow, prettily spotted with chestnut-brown, and with the single characteristic large blotch on the lip. A fine form of this variety is magnificent.

Lycaste cruenta (Paul Gaze).—The flower sent is not that of *L. aromatica*, but that of *L. cruenta*. I very often see *L. cruenta* called a fine variety of *L. aromatica*. The flower sent has not the shape, and it lacks the perfume of that of *L. aromatica*. *L. cruenta* has a deep red spot at the base of the lip, which is quite absent in *L. aromatica*. They are both plants that are too much neglected.—W. G.

Lycaste Skinneri Regina is a remarkably rich and large-flowered form, having flowers 6 inches or more over, the sepals large, white tinged with a deep rosy hue, the petals entirely dark purplish-crimson, the middle lobe of the lip rich crimson. Such striking varieties everyone should try to secure, as they serve to brighten the Orchid house, and at this time of the year are especially welcome.

Dendrobium amethystoglossum (W. C.).—The flowers you send are those of this species. This Orchid is a native of one of the islands in the Philippine group, but of which one I cannot say. It enjoys strong heat through the growing season and plenty of moisture in the air, but it must be kept dry through the autumn months. The plant was introduced by Messrs. Veitch and Sons, Chelsea, nearly twenty years ago.—W. G.

Orchids and the fog.—No plants in bloom suffer more from fog than Orchids, which have had an unhappy time this year. At Kew, where about this season there is usually a good display, there were very few kinds in bloom, and these chiefly *Cypripediums*. It may be interesting to note them: *C. Sedeni* candidulum, the richly spotted *C. Boxalli*, *C. concolor*, *C. Leanum*, *C. barbatum biflorum*, *C. politum*. Besides these several good spikes were to be seen on *Angræcum sesquipedale*, but we have seen many of the massive blooms absolutely destroyed by a smoky fog; *Ansellia africana*, the pretty pale yellow *Platyclinis uncata*, *Dendrobium Wardianum*, one variety having a larger flower than usual; *Angræcum eburneum* and its variety *virens*, and *Sarcophilus luniferus*, an interesting little flower.

Destruction of Ferns.—A writer to a contemporary deplores the destruction of Ferns. "Round about Midhurst," he says, "people are constantly seen in the hedges pulling up Ferns and carting them off to London. The result is that Ferns are absolutely disappearing from a neighbourhood where till lately some rare varieties were to be found. Time was when nobody cared about Ferns. Someone then discovered their beauty, but it is hard that they should be doomed on that account to extermination."

Market gardening in Cornwall.—I would feel obliged if you could refer me to any article, book, pamphlet, or other publication on early and choice vegetable and flower gardening for market as carried on in Cornwall and the Scilly Isles, giving particulars

of the mode of culture, packing, prices, &c., such as a practical man would require. I was under the impression that I had seen such an article or series of articles in one of the gardening papers, but searching through the volumes for the last two or three years I have failed to find such.—VIATOR.

STOVE AND GREENHOUSE.

STEPHANOTIS FLORIBUNDA.

THIS well known favourite is without doubt one of the very best of all stove climbers, looked at from any point of view. Under but ordinary conditions it is of easy cultivation, its foliage alone is handsome, and good forms of it produce flowers most profusely. As regards its perfume, hardly anyone complains unless an extra quantity is present at one time. The season of its flowering extends from March to October, and that without any very great difficulty. Many gardeners are possibly deterred from growing it through the impression that it requires an excess of heat; this is not so, however. It may be grown fairly well in a house that does not fall below 50° for any length of time, whilst 5° added to that temperature as a minimum will winter it well. The first plant of which I had charge some years ago was placed out of doors, the stem being brought through into the stove close to the base of a door-post. The solution of this apparently singular circumstance was explained by the close proximity of the boiler, which no doubt warmed the soil. The plant had all its roots outside, and never as long as I knew it received any artificial watering or top-dressing of fresh soil. No plant could possibly thrive better than this one did, nor flower more freely. It covered part of the glass at the back of a three-quarter span stove some 40 feet in length, and had to be pruned rather severely to keep it within bounds. At the same place a large specimen in a pot used, for the sake of retarding it, to be kept in a greenhouse for part of the winter, where it stood over a portion of the flue which heated the house. I mention these circumstances to show under what conditions it is possible to grow it. The secret of success in the cool treatment is to keep the plant quite dry at the root during the resting season. No harm will ensue if the leaves do turn yellow and fall off provided the main part of the wood does not shrivel. Plants so treated when started into growth need to be pruned; in fact, any pot-grown plant will bear that treatment well, and often be the means of inducing those hitherto shy in flowering to bloom freely. The drying off, the cool course, the pruning hard and starting afterwards in a brisk heat have that tendency. In many cases non-flowering in the *Stephanotis* is, I consider, to be attributed to seedling plants which grow freely enough, but are undoubtedly in many cases shy flowering; cuttings from such, I think, also inherit the same weakness. Propagation should always be from plants that bear out the specific name.

In order to secure an early crop of bloom, the plant should be pruned when it has become somewhat dry at the root after the flowering season is past, say about June, then another growth will be made which the same autumn will show its trusses at the nodes. These growths must be carefully preserved through the winter, then with extra heat applied early in the season they will soon start and produce their fragrant flowers. Such plants only need when started to have the points of the shoots taken off beyond where there is any prospect of bloom, but at no time during the winter should the temperature fall much below 60° at night. The succession to these plants can be had from others similarly treated, but kept drier at the root for some time longer, or from pruned plants, as before alluded to. Take, for instance, a plant that has been kept cool and dry; its flowering time may be calculated to a nicety. In an ordinary stove it takes about eleven weeks from the introduction into heat until the first flowers expand. The young shoots of these pruned plants are better trained singly upon strings upwards towards the glass, remaining so until the plant is nearly in flower, when

they may be taken down and tied to the trellis. It is a great mistake to tie the young shoots to the trellis as they grow; in that way not half of them will usually flower. When growing freely the syringe should be frequently used; morning, noon, and night will do no harm. This will keep in check red spider, scale, and mealy bug, which should not, however, be present at all upon such a plant as the *Stephanotis*, which is so easily cleaned. Good mellow yellow loam with a little peat should be the staple compost, and to this add a free amount of silver sand and a few handfuls of bone meal. Firm potting is preferable to a loose state of the soil; top-dressings should be applied when the roots are seen upon the surface. Propagation is easy enough, taking the short stocky shoots with a heel. J. HUDSON.

Bomarea oligantha.—About eight or nine years ago several new species of these beautiful climbing *Alstroemerias* were introduced, and it then appeared likely that some of the best would in time occupy a more prominent position in gardens than they had hitherto done, but for some reason or other, though so showy and not very particular as to their cultural requirements, the *Bomareas* seem to be even less grown than formerly. Some species grow more or less throughout the year, and as the umbel of blossoms is developed when the climbing stem has reached its limit, it is evident that the flowering season will not be confined to any particular period. One of the freest is *B. oligantha*, introduced from Peru in 1887. The shoots reach a height of 8 feet to 10 feet, and are terminated by drooping clusters of very showy blossoms, marked with red and orange. These flowers, which are borne about a dozen in an umbel, are 1½ inches or so in length, and make a good show at this season of the year, or indeed at any other time. In this species the capsule when ripe partially opens and exposes the bright coral-red seeds, which remain in this state some time before they drop. This *Bomarea*, and, in fact, all the others, make better growth when planted out than they do in pots, but in preparing a place for them, a thoroughly drained spot is absolutely necessary. The soil used should be good fibrous loam, lightened by an admixture of sand and well-decayed leaf-mould, while, if required, some fibrous peat and broken charcoal may be added. The temperature of a warm greenhouse just suits this *Bomarea*, which should be trained up in a good light position, as in winter at all events the colour of the flower is richer when fully exposed to the light than if shaded in any way. A sharp watch must be kept on the young shoots, especially during their earlier stages.—H. P.

Winter-blooming Pelargoniums.—That a beautiful show of these tender flowering plants may be had in private gardens is evident from what I saw recently at Maiden Erlegh, where no contrast could well be greater than was seen in the universal whiteness as well as intense foggy coldness of Nature outside and the warmth and rich glow of colour seen in the Pelargonium house—a span-roof structure of some 12 feet wide, and which was full of plants in abundant bloom. Of these, and chiefly singles, were many well-known kinds, such as *H. Jacoby*, *John Gibbons*, &c., but all blooming so profusely and of such remarkably rich hues that the house resembled for the moment a magic change, and evoked wonder and admiration. It seems so comparatively easy to have both double and single zonal Pelargoniums in abundant bloom at Christmas, that plants in flower should be as common under glass as are plants of the same outdoors at midsummer. It seems to be only needful to strike cuttings in the spring, grow these on in various sized pots through the summer, also pinching the points and keeping down all bloom until the end of September, when they should be put into a well-heated house, given a little weak manure water, and ordinary attention to produce a brilliant harvest of flower. If the singles be the most free to bloom, the doubles furnish the most enduring flowers. As all sorts and varieties are found doing well here and there, it is assumed

that all will do more or less well in the winter. It is not everyone who can grow hundreds of sorts as Mr. Cannell does, or have his remarkable choice. Those who have a dozen sorts, if they do them well for the purpose, usually find even in that small number a liberal reward.—A. D.

CULTURE OF FREESIAS.

LIKE your correspondent A. Locke, I am anxious to grow *Freesias* as well as possible, the flowers being as much appreciated here as anything we grow; therefore any notes that appear in *THE GARDEN* about the culture of these lovely Cape bulbs I always read with great interest. That their culture is very imperfectly understood, there can be no doubt, and how can it be otherwise when there appears to be such a diversity of opinion as to their requirements. Some of the notes that have appeared from time to time are very misleading and confusing, particularly to beginners, as they read in one place that the bulbs must be dried off, and in another that they must be kept continuously moist. I have tried both ways, and I would emphatically say to all who wish to grow *Freesias* well, give the bulbs a good roasting after they have finished flowering. I consider there are several drawbacks to cultivating them, and one is, that if they are not shaken out annually, but simply potted on, the stock could be increased but very slowly, and the bulbs would get so crowded that they would in time be too weak to flower. Another disadvantage, and the worst of all, is the large pots into which they would be put in time and the room they would occupy. Those who only grow a few might manage, but in my case it would be impossible to produce the quantity I do if I adopted the plan of potting them on. By shaking them out every year the stock can be rapidly increased, and they can be always grown in small pots. I potted a dozen on last year and kept them moist for trial, and they were put in to force at the same time as those that had been dried off. They are now just showing their flower-spikes and are weak in comparison to the others, which were in flower a fortnight ago.

The following is the plan which I have practised for several years with the best results: After the bulbs have finished flowering they are placed in cold pits, and when the weather is warm outside on ashes, and water is gradually withheld until the foliage has quite died down; they are then put on shelves in the sun and no water is given for at least six weeks. About the middle of August they are all shaken out and the bulbs sorted, being placed in saucers in their sizes. They are then potted, eight or nine bulbs of the largest size in $4\frac{1}{2}$ -inch pots, and the medium-sized ones in 4-inch pots, while the small ones, put quite thickly into cutting boxes, make capital flowering bulbs for the following year. The compost used is loam, leaf-mould, cow manure, and sand. After they are potted they are placed in cold pits. Some people cover them over with ashes or cocoa fibre, but it is not absolutely necessary, for they are liable to grow weakly if covered, particularly if the covering is left on too long after they have started. No water is given for some time, but after a hot day the walls of the pit and the pots are damped with the syringe or a fine-rosed can, and the pit kept closed. When they have commenced to grow a little water is given, but very sparingly, until the pots are full of roots. I have noticed that any that happened to be under a drip have had a yellow and sickly appearance. When top growth has commenced abundance of air is given, and on fine days the lights are drawn right off. They

are kept in the cold pits so long as the weather is mild, but on the approach of frost they are removed to a greenhouse where heat can be given, although they are by no means tender, and may be safely wintered in cold frames if well covered up. A lot that I had not room for have been in a cold pit during the extreme weather we have had for the past few weeks, and they appear very little the worse, although they have been covered up for a week at a time. From choice I would not keep them in pits all winter; they are certainly better where they can be attended to regularly. The above facts, however, show how accommodating *Freesias* are, and that they may be grown by those who have little glass at command.

If wanted in flower by Christmas, a batch ought to be put into heat the first week in November in a temperature of 60° to 65° at first; after the flower-spikes show they will stand 70° , but they are never so fine nor so sweetly scented when forced too hard. To keep up a continuous supply of flowers I put in a batch to force once a week, and plenty of manure water is given after they are put into heat. Those who allow them to come on steadily in an intermediate house or even a greenhouse will be well repaid



Freesia refracta alba.

for their patience, for the flowers have much more substance and smell more sweetly than when forced. The bulbs increase so freely, that a large stock may be got up in a few years. I bought sufficient bulbs some seven or eight years ago to fill six $4\frac{1}{2}$ -inch pots, and from those I have raised my present stock which amounts this year to upwards of 500 pots besides several boxes of store bulbs. Where cut flowers are in demand I consider *Freesias* are invaluable, either for making bouquets, button-holes, or for room decoration, a small bunch filling a room with a delightful perfume. I cut the first flowers on Christmas Day morning, and shall have them without intermission until nearly midsummer.—J. TURNER, *Pierrepont Gardens, Farnham.*

I have grown the varieties *Freesia refracta alba* and *F. Leichtlini major* for several seasons now, and I think that if the bulbs are to be grown to perfection the second year, a thorough ripening and a season of rest must be given. The treatment I have given them after flowering is to put them on a shelf in the greenhouse, water them as carefully as

before blooming until they show signs of going to rest, then gradually withhold water, and when the foliage has quite died down to clear it away. I let the pots remain on the shelf in order that the bulbs may have a good roasting. The bulbs were kept there until the end of August, then turned out of their pots, and potted in ordinary loam, leaf soil and sand. About one dozen of the very best bulbs were placed in a 5-inch pot. I find the smaller bulbs do not flower well, but will do to grow for stock. After they are potted I place them in a cold frame, and water sparingly till they have made some foliage and also roots. In November I put them on a greenhouse shelf or stage if not too far from the glass. When they have made plenty of foliage I give them weak manure water frequently, and do not let them get too dry. The plants will require a few very thin sticks or wires to hold the foliage in position, and the flowers will hang from amongst it in quite a natural way. I had some capital pots in flower last January, brought on gradually in a warm greenhouse. I have never tried to force them much. I have had stronger growth and bloom from bulbs given the above treatment than from those bought and grown on for the first time.—W. E., *Harborne.*

I pot my first batch of bulbs at intervals during August, placing six bulbs in a 5-inch pot. I then put them in a cold frame, cover them with 2 inches of Cocoa-nut fibre, and give no water. When the shoots are an inch through the soil the plants are taken into the greenhouse, where the temperature is kept at 50° , and put on a shelf as near the glass as possible and where they get full sun. They are thoroughly soaked with water once a week. When the shoots are 3 inches high I give plenty of water, and when they show their flower-spikes liquid manure is applied twice a week. After flowering I put them back on the shelf, and do not reduce the water until the growth turns yellow, when I gradually stop, and when perfectly ripe shake them out and put in paper bags until they are wanted for potting. My first batch is now in flower, and I have twelve flower-spikes in a pot with six and seven flowers on a spike. The *Freesia* is one of the sweetest flowers grown, and it should be in every garden, as it is invaluable at this time of the year for house decoration, &c.—J. HARRISON, *Auley Hall, Settle, Yorkshire.*

I find the best method of growing *Freesias* is to start the bulbs the first week in July; 5-inch pots are used, and six large, well-ripened bulbs are put into each pot. The soil I use consists of two-thirds fibrous loam to one-third of leaf soil and rotten cow manure, with a liberal amount of silver sand. It is an excellent plan to put a little hoof flings over the crocks. The pots are then placed in a cool pit or frame, and not watered until the bulbs commence to grow, unless the soil becomes very dry, when a little water is given. If the bulbs are thoroughly ripe, they soon begin to grow when abundance of air is given them, the lights being taken off during fine weather. By the end of September the pots are full of roots, and manure water is then given once a week. The plants remain in the frame as long as they are safe from frost, after which they are taken to the greenhouse. By this cool treatment dwarf, sturdy growth is made; the plants require no stakes, and the sprays are much larger. I have at the present time several sprays with thirteen and fourteen blooms each, and many with eleven and twelve. The bulbs should remain in a greenhouse temperature until the seed is ripe; up to this time I water freely, and gradually withhold water as the foliage begins to ripen. It is most important that the bulbs be thoroughly ripe; if not ripe they will not start when potted up again.—C. BROOKS.

I have a large stock of *Freesias* here and have cultivated them successfully for many years. My employer had some seed sent him from the Cape by his friend, Sir Hercules Robinson, who was then governor. Amongst the seedlings I have six or seven varieties, all very beautiful and fragrant. A stock of *Freesias* may be raised in two ways, either from seed or from small bulbs, which are produced annually at the base of the

old bulbs. For seed shallow pans should be employed and half-filled with drainage; a light sandy soil is necessary, only covering the seed lightly and placing the pans on a shelf near the glass in an intermediate house. The seeds quickly germinate, and when the shoots have ceased growing the tips may be observed turning yellow. At this stage, water should be withheld gradually until the foliage is completely dried up. The second year the seedling bulbs should be treated in the same way as recommended for seeds. The third year they will bloom well and continue to do so. Some growers go so far as to say that seedlings will bloom the first year. If they do so the first or second year, they lack both size and colour and are worthless. For bulbs that are to flower I employ 7-inch pots half-filled with drainage. I then fill up with a mixture of two parts leaf-mould, one of loam, and one of silver sand. A shelf or stage in an early vinery or intermediate house is a good place to start them. A slight shower of tepid water from the syringe will be found beneficial to them on bright days, as they are subject to the attacks of green-fly and red spider. I give Freesias a complete rest throughout the summer months, which they require. When the foliage has completely died down I shake them out of their pots and store them away in small boxes in a dry place till August and September, when I start them again, at the same time removing the small bulbs from the base of the large one, and keeping them separate; these small bulbs will bloom the following year. By accident some bulbs that had not been shaken out in the summer (a few years ago) received water; the bulbs grew, but were a failure. Even when growing Freesias do not like too much water at the roots, neither should they be allowed to become dust-dry.—SAMUEL BRIEN, *Gilltown*.

For years I have taken special interest in the cultivation of this most useful and beautiful of Cape bulbs. Freesias are invaluable during the dull months of winter, as then they can be had in abundance with but little difficulty. Early in June I shake out and repot in a compost of good fibry loam, leaf-mould, wood ashes, or fine charcoal, and a little sand the first batch, placing twelve bulbs in a 6-inch pot. Having been well watered, they are then plunged in a cold frame, where they require but little attention until they appear above the soil. They are then raised up to the glass and carefully tended with water, giving air freely. When the roots have taken possession of the soil, they are liberally supplied with liquid manure made of horse droppings and soot. This I find suits them best, as it does not cake on the surface of the pot. In October they are placed near the glass in a greenhouse, and being well watered and fed, send up their flower-spikes in abundance by the end of the month. A portion is then placed in a temperature of 50°, where they soon open their lovely flowers. The late and principal batch is potted in August and treated as above. In this way their flowering season is greatly prolonged. When flowering is completed, the plants are placed on a shelf in an intermediate house, where they are supplied with liquid manure until their foliage begins to wither. After this they are given clear soft water as required until they are quite at rest, when they are placed under a stage in a cool house until again required. It is important that the growth should continue as long as possible, so that the bulbs attain full size and be thoroughly matured. I have not tried the system laid down by "E. J." at p. 558 in THE GARDEN for December 13. I will this season carry out his directions as an experiment with one dozen pots, and I shall be very pleased if the result proves more satisfactory than those obtained by my present mode of treatment. Here Freesias ripen seeds freely, those sown in pans and not disturbed, but treated liberally, flower the following spring and make grand bulbs for pot work the second year. Freesias cannot be relied on to come true from seed, but all are well worth growing.—ANDREW CAMPBELL, *The Gardens, Ashford, Cong. Co. Galway*.

The culture of Freesias is very simple. Take clean pots, well drain them, and fill three parts full with a compost of half loam, the other

half leaf-mould and well decomposed manure and sand. Place the bulbs about an inch apart (5-inch pots being a nice handy size), just cover them with soil, and do not press them too firmly. Stand them outdoors plunged to the rims in ashes. When the weather becomes rough place them in a cold frame so as to protect them. Open the lights all day when the weather permits, and give water in abundance when the plants are about 2 inches high. If a succession be wanted, place the strongest plants on a shelf in a greenhouse near the glass, and when they show their spikes afford more heat. After they are out of bloom the best place for them is on the shelf of the greenhouse. Give plenty of water till the leaves die off, and then let the bulbs be well roasted in the sun. The stock bulbs from which I have raised my collection were treated in a most indifferent manner. Sometimes after flowering they were stood on garden paths; sometimes they were dry, at other times wet. The result was that when they were potted and began to grow some were in flower, while others had not even started, which can reasonably be put down to an undecided rest. I have known many failures with these bulbs, but under the treatment I have pointed out success is sure. At the present time my first potted bulbs are in flower, while the later ones are waiting to be brought forward. I have had ninety-two flowers in a 5-inch pot, the foliage not being more than 9 inches in height.—A. W., *The Ainges, Jersey*.

Eucharis amazonica.—Mr. J. C. Tallack (see p. 585) gives an interesting note on the culture of the Eucharis in vineries, and as it differs from the mode usually adopted, it may meet the wants of many gardeners who have not got suitable stove houses at command for growing it on the more generally adopted plan as an evergreen bulb. In the case mentioned Mr. Tallack dries the bulbs off and stores them on the pipes until the vineries afford suitable quarters for starting them again. I am sure it would interest many besides myself to know whether this drying off is any advantage, and if it is advisable to keep the leaves green as long as possible. We all know what can be done where plenty of heat is at command all the year round, but where there is not anything like a stove temperature available in the winter months it would be a great advantage if the pots could be stored where there would be heat enough to keep them sound until vineries and forcing pits were in action again in spring. That the Eucharis will grow well in summer in vineries I have frequently proved to my entire satisfaction, but that the bulbs will suffer in winter unless something like a stove temperature is available is pretty clear, for I have had splendid clumps greatly weakened by using them in winter for decoration where the rooms were allowed to cool down below 45°. I am well aware that it makes all the difference whether they had been previously grown in a high temperature, for then a sudden fall of 20° would prove well nigh fatal to them. It would help small growers considerably if the bulbs could be kept in an entirely dormant condition through the winter, as many could grow them then who are deterred from doing so now, by reason of the lack of stove heat in midwinter.—J. G., *Hants*.

Carnation Souvenir de la Malmaison unhealthy (A. B.).—There is really no disease upon the leaves enclosed. They get into such a condition owing to the plants being grown out in the open borders, or neglected in some way. There is no hint in the letter as to the treatment they have received now or previously. I had a dozen plants sent to me in October last in pots. The outer leaves were exactly like those sent, and I found they had been taken from plants grown in the open borders, but grown in pots for the winter. I replanted them at once in what I thought was more suitable soil and placed them on a shelf near the glass in a greenhouse. They speedily recovered, the later formed leaves being quite healthy. This popular Carnation should really be treated as a greenhouse plant in order to produce flowers of large size and good quality. Suppose the layers are now well rooted in 3-inch pots, let each plant be placed in a 6-inch or 7-inch pot according to its size, using good open

soil composed of fibrous loam, leaf-mould, decayed stable manure, and coarse sand. The plants do best placed near the roof-glass of a greenhouse, and after they are established they may be forced into flower earlier by a little heat. When in bloom, or as soon as the flowering period is over, they may again be layered, using some fine sandy soil to peg the layers into. When the layers are rooted pot them up, and they may be placed in a frame at that time, where they will do very well until the end of the autumn.—J. DOUGLAS.

THIBAUDIAS.

FROM Mr. Pearce come a flower and leaf of a plant from the Andes, which he says came up amongst some things imported four or five years ago; it has been grown in the house with Odontoglossums, and is now flowering. It is *Thibaudia acuminata*, and very handsome. Mr. Bateman some years ago was very successful with them, and I wish to draw the attention of the growers of Odontoglossums to the many fine-flowered vacciniaceous plants which would succeed with their Orchids, and well deserve good cultivation. They grow in Nature mostly as epiphytes, and the house before-named would suit them well, as here there is little fear of their being infested with thrips, with which they are likely to be covered if grown in a warmer or drier atmosphere. I do not know what kind of accommodation was afforded them by Mr. Bateman when he grew and flowered so many kinds at Congleton, but we are told it was in a warm greenhouse. The soil best suited to *Thibaudias* is a mixture of light turfy loam, peat, and leaf-mould, the whole well incorporated and made sandy. The pots should be well drained, as an abundance of water is required, and therefore it must be quickly sent through the soil and taken away in order to keep the leaves fresh and healthy. A few species have from time to time come into my hands in a similar way as did this plant of *T. acuminata* which Mr. Pearce now has; they grew well with the Odontoglossums, but were invariably taken away by gentlemen having a collection of New Grenadian Orchids. I have seldom heard of their having flowered, and subjoined is a short description of a few good kinds:—

T. ACUMINATA.—This is the plant now before me; it has somewhat ovate-lanceolate leaves, which are strongly veined, smooth, and dark green above, paler beneath. Mr. Pearce tells me that the young shoots are tinged with rosy-purple when young, but they change to a dark green with age. The flowers are terminal, produced in a short raceme from the ends of the branches, and these sometimes form a dense head, the flowers being tubular, the tube bright red, and ending in a five-lobed limb, these lobes being green. They continue long in beauty.

T. CORDIFOLIA.—This is a species which I had come up amongst Orchids from Bogota. It is similar in general appearance to *T. acuminata*, but I do not think the young growth is tinged with colour. The flowers are produced in dense heads on the points of the shoots, the individual blooms being shorter and more swollen than those of *acuminata*, but they are of the same brilliant red colour; the limb is, however, white in this species.

T. CORONARIA.—This is a very pretty plant which flowered with Mr. Bateman some years ago at this season. It forms a neat branching shrub, with small, shining, deep green leaves, which are paler beneath. The flowers are borne on long peduncles from the axils of the leaves, singly and in pairs; they are tubular, five-angled, and deep red. This is a most desirable plant, having much the appearance and habit of *Agapetes buxifolius*, an East Indian member of the same family, but its five-angled flowers, which are more open at the mouth, at once distinguish it. The plant is said to be a native of the mountains of Venezuela.

T. JESSICA.—A remarkably strong-growing plant, bearing large ovate leaves, coriaceous in texture, and dull green; the flowers are in dense heads, not terminal. They are tubular, tapering upwards, and pale red. It blooms through the autumn months, and comes from Caraccas.

T. PENDULIFLORA.—A distinct-looking plant from Caraccas, having leaves dark green above, paler beneath, and short axillary racemes of bloom, which are tubular and bright scarlet, the tips green.

T. SARCANTHA.—This is a beautiful drooping plant from New Grenada, with fleshy, oblong-ovate leaves,

which are strongly nerved and deep green. The flowers are produced from the axils of the upper leaves, as well as on the ends of the branches. These are numerous, globose, and deep red, with the tips greenish yellow. It blooms during the spring months.

W. H. G.

POINSETTIA PULCHERRIMA.

I HAVE never found this useful plant suffer much from fog. It stands alone almost in this respect, for I know of no other bright-coloured subject that will make such a display during the winter. The large heads of brilliantly coloured bracts would be acceptable at any season of the year, and are doubly valuable at Christmas, for at this festive season there is nothing that can equal them for effectiveness. It also has the advantage of lasting well either as a pot plant or when cut. I have now a fine head of bracts which was cut more than a week before Christmas, and is now (January 9) fresh and bright. I have kept heads quite fresh for fully a month after being cut. In the culture of the Poinsettia, one great difficulty is to keep the foliage fresh and green, and generally the plants are inclined to run up too tall. To avoid both these evils they should be propagated later in the season than they are generally. A low temperature is another cause of loss of foliage, as is also neglect in watering. I find that it is best to keep the old stock plants dormant as long as possible, and as soon as they do begin to start place them in a good position to encourage strong growths, for good plants can only be obtained from strong healthy cuttings. The first cuttings will be ready about the middle of May, but those struck much later will make the best plants. It is, however, advisable to begin early, and the first batch may have the tops taken off and rooted later on. The cuttings should be put in singly into small pots, using some good compost, with a little extra sand at the base. When they are taken off a little dry sand should be applied to stop bleeding.

The first cuttings may be removed with a heel close to the old wood, but those from the young plants in which the stem will be hollow between the joints must be cut off close below a joint, otherwise they will not callus over. If they are kept quite fresh and put into the close propagating pit they will not require any water for a few hours, which will give time for the base to heal over to avoid further bleeding. They must be removed from the close pit as soon as they have taken root. When the plants have made a start they should be kept up as near to the glass as possible. Where the watering is properly attended to they will not require any shading throughout the summer. They should be potted in a good rich porous compost. I like good fibrous loam with a little leaf-mould and manure, but they are often grown in a much lighter soil. After the plants are well established liquid manure may be used freely, but this should be withheld for a few weeks while they are forming their bracts, and as soon as the colour begins to show, manure should be used again until they are well developed. Poinsettias will do very well during the summer in cold pits, but it is a mistake to keep them in any place where heat cannot be given after the first week in September. I have seen plants in a cold house in November looking quite fresh and healthy. After they were put into warmth, however, the foliage soon began to turn yellow and drop off, while those which were kept in a warm house retained their leaves and developed finer heads of bracts. The best plants I have ever grown were those propagated in July and August and kept in heat throughout the whole time from the start until the finish.

F. H.

Passiflora edulis.—I have grown this in different temperatures, and though it fruited well enough planted out in the conservatory, the fruits were thick in the skin and the pulpy matter not nearly so large, and it was lacking in that delicate acid flavour always found in the fruits ripened in the stove. The fruits in the conservatory even when ripened never put on that deep purple-brown tint which warmth alone can give. There is no difficulty in its cultivation, as it may be grown in

a large pot standing on or near the hot-water pipe, but if a heavy crop of fruit is desired, plant it in a good bed of loam and leaf-mould with some crushed charcoal to keep it open. A warm corner of the stove or a forcing house is the best position, leading the main stem up to the roof, then letting it branch out in all directions. Fertilise the blossoms to make sure of setting, though in a general way there is not much difficulty in this. Do not use seedlings, as plants rooted from cuttings are much better, being so much more prolific. After the crop is gathered prune away the young shoots, and keep the roots rather dry during winter. When the roof is covered, a succession of fruits will be produced for a long time, as every new growth produces blossoms. When about half ripe, the fruits, preserved whole in sugar and before the skin gets hard and tough, make a nice dish for dessert.—E. H.

SHORT NOTES.—STOVE AND GREENHOUSE.

Ichroma grandiflora (T. West).—This is the name of the specimen sent; the large rich purple flowers are very handsome. It belongs to the order Solanaceae, and always blooms in winter, but usually earlier in the season. The plant is little cultivated, probably because it is such a strong grower, but it has been known to me over thirty years, so that it cannot be called new.—G.

Alloplectus peltatus.—I saw a fine plant of this recently in a country garden. It is of erect growth with oblong fleshy leaves, the basal part rounded and quite peltate, dark green above, paler beneath, and with large clusters of tubular flowers deep creamy-white, with orange-brown markings in the throat, whilst the very large calyx is rich purple shaded with red. It is a singular and beautiful species, and the wonder is that more of these showy plants have not been introduced.—W. G.

Nægelia multiflora.—A correspondent sends me flowers of this plant asking for the name. It is the same plant that was sent out by MM. Van Houtte in 1857 under the name of *N. amabilis*, and I suppose they still maintain that name, for I see it in their list for 1888. I had the plant at Kew under the name of *multiflora*. It is a good winter bloomer, having large hairy leaves and long racemes of tubular flowers which are pure white, with a stain of lemon-yellow in the throat. These last a long time and make an elegant display.—W. H. G.

Phyllea plumosa.—"Afriander" sends me a dried specimen from the Cape of Good Hope of the above plant for a name. It belongs to the order Rhamnaceae, and is a plant that most of our gardeners forget. I do not suppose it could be procured from any nurseryman, so rare have hard-wooded plants become in England. It forms a handsome shrub, with narrow leaves, dark green above, white beneath, the shoots terminating in heads of creamy white flowers, somewhat resembling those of *Pimelea*. It is nearly 150 years since it was introduced.—W.

Passiflora arborea.—I am asked by a writer signing himself "Odontoglossum" if I know anything of a tree Passion Flower. He says he has never heard of one, but something of the sort has grown out of some soil from New Grenada. I have not the slightest doubt but it is this species, as it is a common plant in that country, but it never can have such a beautiful effect as the climbing kinds with their long festoons of bloom. *Passiflora arborea* was sent out by Mr. Bull, of Chelsea, upwards of twenty years ago. The leaves are each more than 2 feet in length, deep green on the upper side, slightly glaucous beneath, the peduncles axillary, pendulous, bearing several flowers, which are white, tinged with green; stamens yellow. It is an interesting and pretty plant, well deserving cultivation.—W. H. G.

Calla æthiopica.—I noticed a fine lot of these Nile Lilies at Castle Hill, Englefield Green, recently, producing very fine blooms. There were several dozen of these plants in 9-inch pots, each one having some three or four very stout stalks with some small growths. Every plant had been lifted from the open ground in the autumn, but the pots now are full of roots, showing the readiness with which properly treated lifted plants become established in pots during the winter. Mr. Swan mentioned that when turned out in the spring every clump was broken up into two or three and planted out into a trench in good soil in

the kitchen garden. Here, in spite of being well watered, most of the leaves would die down, but speedily new growth was made, and the plants later on being well fed with manure water, the stalks became very strong and stout. They were ready for repotting at the end of September. It does not seem possible that any other form of culture could have produced finer growth or blooms. It is, perhaps, the best practice to keep some established in pots all through the winter for early forcing, but the bulk of the lifted plants bloom freely and finely in a moderate temperature during mid-winter. Callas, when finely grown, are really effective in a greenhouse as foliage plants, but when to the handsome leafage are added some fine blooms, the plants become singularly ornamental.—A. D.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JANUARY 13.

THE first meeting of the year was influenced, of course, by the severe weather recently experienced. There were several exhibits, comprising almost wholly rare Orchids, but not a single Cyclamen. It was a mistake to notify that a show of this winter flower would take place, although one could scarcely expect it under present conditions. Two able papers were read in the afternoon on the Cyclamen, one dealing with the greenhouse section by Mr. Warren, Isleworth; and the other with the hardy types by the Rev. W. Wilks.

There were no first-class certificates awarded, but an award of merit went to each of the following:—

BEGONIA WINTER GEM.—This is another beautiful hybrid winter-flowering Begonia of the *B. socotrana* race, raised by hybridising the flowers of *B. socotrana* with pollen from a crimson-flowered Andean type. It completes the trio of these valuable and attractive flowers, the others being John Heal and Adonis, all Mr. Heal's successes. The latest addition justifies the name of Winter Gem. It is unlike the hybrid John Heal, but has some resemblance to *B. socotrana*; the habit is dwarf, more compact, and the peduncles less lax, the flowers having more substance, of larger size, and of a more brilliant colour, which is a rich carmine, almost crimson. The small pan of it from Messrs. J. Veitch and Sons, Chelsea, showed its value, and conspicuously so, for the reason that the flowers were untouched by dense fogs, that at Chelsea are as thick and nauseous as in any district of the metropolis.

LÆLIA ANCEPS BALLANTINIANA.—This is a brightly coloured variety, and certainly one of the finest forms of this variable Orchid. It was shown by Messrs. Sander and Co., of St. Albans, and the flowers are conspicuous for breadth of petal and deep colour in the lip, which is intense velvety maroon-crimson; the sepals of a light pinky shade, the broader petals coloured towards the apex with a deeper tone. A mass of it would make a rich glow of colour.

LÆLIA ANCEPS GRANDIFLORA.—A very noble variety, remarkable for the size and colour of its massive flowers. The sepals and petals are broad, rose-purple in colour; the lip deep crimson, and inner face of the side lobes striped with crimson on a yellowish green ground. From the Rt. Hon. J. Chamberlain, M.P.

The whole of the exhibits consisted practically of Orchids. A large and interesting group came from Messrs. B. S. Williams and Son, Upper Holloway, who showed *Clivia miniata robusta* and several *Cypripediums*, as *C. Ashburtoniæ*, *C. Lee-anum superbum*, *C. Fitchianum*, *C. Sallieri*, and its lovely variety *aureum*, *C. vexillarium*, *C. Harrisianum vivicans*, *C. Dauthieri* and its variety, and *C. Warneri*, besides the richly spotted *Oncidium Phalaenopsis*, *Brassia antherotes*, *Lælia anceps Dawsoni*, besides other Orchids. The specimens were admirable of their kind considering the weather, and we wish to point out the harmlessness

of fogs to the *Cypripediums* generally. In several nurseries near London they are almost as fresh and beautiful as in spring (silver medal). Messrs. Sander and Co. had a small group, but of rare things, especially the white form of *Lælia anceps*, named *alba*. This is an exquisite flower, absolutely pure white, save a butter yellow coloured suffusion in the throat and conspicuous raised disc. Both sepals and petals are broad, and make up a robust flower. *Dendrobium Leechianum* was represented by a splendid spike, the flowers white, tipped with rose in the sepals and petals; the lip deep purple-rose, front part creamy white, and the extreme apex rose. *Cypripedium hybridum Kramerianum* and a species of *Catasetum* were also exhibited. The Right Hon. J. Chamberlain, M.P., also had *L. anceps* and a series of the best forms, as *Barkeriana* and *oculata*. A white form of *Cattleya Trianae* named *alba*, and very promising, came from Mr. Quartermain, gardener to Mr. A. S. Smith, Cobham, Surrey, and Mr. G. Burnham, Stoke Newington, sent a plant of *Cypripedium insigne*, presumably to show how well it comes through even the densest fogs.

There were several other Orchids. A very pretty hybrid *Cypripede* is *C. Galatea majus*, from Mr. Ballantine, The Dell Gardens, Egham; the lip and sepals are of a purplish-rose colour, the dorsal sepal white in the upper part, centre and lower portion thickly blotched with deep crimson on a green ground. *C. Harrisianum superbum* from the same collection was an unusually fine variety, the dorsal sepal nearly 3 inches across, and the whole flower of the richest possible colour.

The Orchids of Messrs. J. Veitch and Sons were worthy of note. The daintiest gem was *Cypripedium Niobe*, represented by several seedlings that varied somewhat, but all of the same delicate and tenderly coloured character. We hope to give a coloured plate of this hybrid between *Fairrieanum* and *Spicerianum*, in which we have happily much of the *Fairrieanum* blood. *C. Creon* is a curiosity. It is a hybrid between two hybrids, these being *cenanthum superbum* and *Harrisianum superbum*, both splendid types, but the progeny has gone back. As an ornamental flower it is valueless. The fusion of the two beautiful hybrids resulted in a dwarfed and ungainly flower. A very richly coloured *Calanthe* is *C. excellens*, a hybrid between *Regnierii* and *C. vestita*; it is a beautiful thing, the sepals and petals creamy white, the lip deep crimson with richer coloured central blotch. *Dendrobium euosmum roseum* was exhibited, also *Cypripedium Calypso*, another pretty *Lady's Slipper*, the result of a cross between *C. Spicerianum* and *C. villosum Boxalli*; the parents are fairly well blended, and the result is a brightly and distinctly coloured flower. Mr. J. Charlton Parr, Grappenhall, Hayes, Warrington, had *C. hybridum Carnusianum*, an interesting and prettily coloured flower. Messrs. Pitcher and Manda, Swanley, sent *C. Leeaeum burfordense* and *C. Masereelianum*, a very finely spotted variety of *C. Leeaeum*, the dorsal sepal white blotched with deep maroon, the extreme base green; the petals are wavy at the edge, green, lined and blotched with brown, the lip light brown. *C. magniflorum* we think scarcely justified its name; it is a form of *C. longiflorum* evidently. *C. Savageanum superbum*, from Mr. W. Franklin, gardener to Mr. S. F. Ebner, Horton House, Beckenden, is a good form.

A few late *Chrysanthemums* were shown by Mr. W. C. Leach, gardener to the Duke of Northumberland, Albury Park, Guildford. A display of flowers of *Narcissus monophyllus* was made by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham. A potful showed its value for this form of culture. We wish more would grow this charming *Narcissus*.

A large collection of Apples came from Mr. John Watkins, Pomona Farm, Withington, Hereford. The colour was remarkable, especially of such varieties as Cox's Orange Pippin, New Hawthornden, Mère de Ménage, Dumelow's Seedling. Fine samples of Bedfordshire Foundling, besides other well-known sorts, were also shown, all in the best condition (silver medal).

HARDY CYCLAMENS.

Although not represented, as might have been expected, by a display of the Persian Cyclamen, the papers read at the Drill Hall, Westminster, last Tuesday were at least seasonable. Chiefly natives of Southern Europe, these charming and interesting hardy plants are great favourites with growers of alpine. In one form or another they may be said to be almost always with us, beginning in early spring with *C. coum* and *C. ibericum*, continuing with *repandum*, *cilicium* and the fragrant *C. europæum*, until *C. neapolitanum* begins in early August. As a rule, Cyclamens are cultivated with the greatest ease, sandy peat and abundance of limestone soil being their favourite medium. In their native habitats they affect, as a rule, districts in which calcareous soil predominates; this may be easily afforded them under cultivation by adding abundance of powdered mortar, which answers the purpose very well; the more free and open the soil the better will be the results. Stagnant moisture in any form is their greatest enemy, and of this they are most impatient at all seasons. This, no doubt, accounts in a great measure for the health and vigour they attain when planted under trees, more especially Elms, where the roots are numerous and greedy. In making beds for these plants it is always safest to raise them above the surrounding ground, so as to ensure a good surface drainage, which will be found to be half the battle. In all respects these hardy Cyclamens are similar to *C. persicum*, unless in their being smaller in all their parts. The colour of the leaves is most varied, some of the species having them beautifully marbled, while the underside of *C. coum* is of the brightest purple. *C. neapolitanum*, which flowers in autumn, is supposed to be a British plant; we believe, however, it is an escape from gardens and is now reduced to about two localities in these isles. *C. coum*, *C. ibericum*, *C. Atkinsi*, *C. repandum*, *C. cilicium*, *C. græcum*, and *C. cyprium* were treated in detail by the Rev. W. Wilks, reader of the paper.

BRITISH FRUIT GROWERS' ASSOCIATION.

THE annual meeting was held on Thursday, January 8, in the Hotel Windsor, and the report submitted to the members showed that good work had been done since the foundation of the association. It is a complete review of events, and finishes by announcing that a list of thirty qualified lecturers has been prepared, and the committee undertake to make arrangements with local horticultural societies or other bodies requiring practical lecturers or demonstrations of fruit culture in any part of the kingdom. In response to the wishes of correspondents, meetings will be held in as many country districts as possible during the year. The hearty co-operation of all interested in fruit culture is earnestly invited, and if this be freely accorded, the committee will have the pleasure of recording at the end of 1891 an even greater advance than has taken place in the past year.

The election of officers resulted in Lord Brooke, M.P., being unanimously re-elected president, with the following gentlemen as vice-presidents: Duke of Bedford (since deceased), Sir Charles Barrington, Bart., Sir Edwin Saunders, Hon. A. L. Pelham, Mr. Robert Hogg, LL.D., Mr. Maxwell T. Masters, M.D., Dr. J. Stanislaus Makovski, Mr. W. B. Waterlow, Mr. E. T. Rait, Mr. J. F. Lambard, J.P., Mr. W. H. B. Hall, M. C. Faunce de Laune, Mr. Charles Whitehead, Mr. Philip Crowley, Mr. E. J. Baillie, F.L.S. The other officers remained the same as last year, and only a few names were added to the committee.

Cordial votes of thanks were accorded to the officers, committee, lecturers, exhibitors, and to the hon. secretary, Mr. Lewis Castle, for his work during the year, and this concluded the business of the evening. At a committee meeting held before the annual meeting fifty-nine members were elected, the largest number elected at one meeting, and affording substantial indication of the increasing popularity of the association.

Grass for pheasant covert.—Would you kindly give me the names of any strong-growing coarse

Grasses suitable for pheasant covert? The land where the cover is wanted is under the shade of some old trees which could be partly cleared away to allow the young plants to get up. My place is in Northumberland, and about 300 feet above the level of the sea, the soil mostly of a peaty nature. What hardy Evergreens would be suitable?—WILD BIRD.

The weather north and south.—The interesting facts noticed by Mr. Thomson, of Clovenfords (p. 22), in reference to the superior temperature of Scotland over England, become more pronounced as the winter advances. In the general thaw of yesterday (the 12th) we had within two days a general rise of from 8° to 18°, and the temperature in London rose to 43°, or nearly the average, which we had not before reached for over five weeks. But with this great rise in London and over large districts in England, the north of Scotland, Aberdeen, and Stornoway still continued about 10° warmer than London and the eastern counties. This, notwithstanding the Gulf Stream, is difficult to explain. The longer I live the more I am convinced that latitude and longitude are not always the most potent factors in determining the temperature of localities. Distance from seas, volumes of lakes and rivers, heights of mountains, qualities of soils, character of vegetation, form of surface, amount of vapour in the air, &c., create local disturbances of great diversity and force. Judged by its vegetable products, the climate of Scotland is preferable to that of East Anglia, and these two climates are most unlike in their rainfall and the degree of vapour in their respective atmospheres. If my friend Mr. Thomson could devote a paper to the effect of vapour on the superior temperature of Scotland this winter, he might do something to solve the problem of how it is possible to travel 500 or more miles due north and find a rise of 10° in temperature. As to the exquisitely green and glossy foliage of shrubs, coniferous and other trees, these are as much or more the products of Caledonia's soft moist airs and dripping clouds as of any accidental or growing increase of warmth.—D. T. F.

RAINFALL DURING 1890.

Month.	Total depth.	Greatest fall in 24 hours.		Number of days on which '01 or more fell.
	Inches.	Depth.	Date.	
January ...	2.01	.47	26	25
February ...	.78	.32	15	13
March ...	1.85	.76	19	20
April ...	.64	.16	6	15
May ...	1.61	.39	11	15
June ...	1.73	.34	30	16
July ...	1.88	.46	18	23
August ...	2.25	.43	11	22
September ...	1.27	.56	21	12
October ...	1.41	.36	16	16
November ...	3.10	.80	23	25
December ...	.84	.27	19	12
	19.37			214

—J. H., *Rotherby Hall, Leicester.*

Names wanted.—I enclose fruit of a fine avenue tree if you will kindly name it in your next issue. I gathered it from the streets of Sion, Valais, and should be glad to know if it will succeed in this part of England, if procurable. There was also an avenue tree (*Pyrus*?) with scarlet fruit in bunches like a Mountain Ash, only much larger; leaves cut like those of the Oak, upper surface coloured deep shining green, under surface pale green. The berries are too shrivelled to send you.—W. I. CAPARN, *Oundle, Northampton.*

Fruit of the Plane tree, probably the Western Plane. Certainly hardy with you, though it does better in London and the warmer counties. The other is the wild Service Tree (*Pyrus torminalis*), so far as we can tell without specimens.—Ed.

Names of plants.—J. B. Jones.—*Chrysanthemum frutescens Etoile d'Or*.—Subscriber.—Please send four specimens only at one time.

WOODS AND FORESTS.

THE LOMBARDY POPLAR.

I SHOULD like to say a few words on behalf of the specialities of this charming tree. In speaking thus of the Lombardy Poplar I do not forget the common prejudice, not wholly groundless, so generally unfavourable to the Poplar. The genus is, of course, a large one, containing many kinds, all more or less differing from each other, and possessing qualities in some cases of no inconsiderable value when properly employed. Flooring boards, for instance, very tough and lasting, are made from some of the kinds, and are said to be all but fire-proof—naturally, therefore, very unsatisfactory fire-wood.

It is not, however, my present purpose to enlarge upon the merits or demerits of the Poplar trees as a class, though it is true that some of the kinds, such as the Black Italian, the Abele, and others, are the most rapid growing of all our deciduous trees, and on this account they are often found valuable as screens among buildings in the suburbs of large towns, and as boundary shelter for young plantations in exposed situations.

It cannot be said that longevity is a quality that belongs to the Poplar as a family; it is rather distinguished for rapid growth and early decay. In its general aspect in the landscape it is justly held in very low esteem, though in maturity and in what may be called old age some of the kinds, such as *Populus tremula*, though never very picturesque, are always beautiful. Though this is one of the most ornamental, perhaps the only one, of the genus with much pretension to the beautiful, it is nevertheless all but wholly wanting in that dignity and grandeur of aspect so justly claimed for the Lombardy. This is especially the case when advantageously placed and surrounded with suitable adjuncts. Unhappily, in matters of this kind no written description is possible by which to convey to the general reader with any clearness and force what these adjuncts require to be. Nevertheless, let it be assumed that three, four, five, seven, or indeed any number of Lombardy Poplars form a group in the general landscape, it will be readily understood that the effect of such a group will be greatly influenced by the nature of the surrounding objects; but at any rate whether as a group or a single tree, when in full maturity and vigorous health, the stately grandeur of the tree itself will always be an object of attraction. In the general landscape the Lombardy is a delicate, but most effective instrument to work with, easily capable of misapplication, but when rightly employed a most valuable tree. As already remarked, it is difficult to convey anything like a clear notion of what is a right and what is a wrong application of its use. Without, however, venturing upon a detailed discussion of the principles of art, it will be sufficient to take again, for example, some feature of the ordinary landscape, such as a group of trees, whether large or small, near or distant, is immaterial, but consisting mainly of Oak, Elm, and the like, forming a somewhat dull and heavy mass. Appealing, therefore, once more to the exercise of the imagination, and assuming that it is desirable to make some addition to this rather monotonous group, and that the addition shall consist of Lombardy Poplars, the question naturally arises as to where these majestic and towering Lombardies are to be placed in connection with this group of trees.

The answer ought to be, by all means place them either towards one side of the group or the other, and, depending on the number to be used, let them be so arranged that some stand close together and others at 5 feet, 10 feet or 20 feet apart. It may be right to say that the preceding remarks are made with the view of drawing attention to and with the hope of correcting a somewhat absurd habit not unusual with those who are occasionally entrusted with the management of work of this kind, viz., their love of uniformity and their terror of doing anything which they call "lop-

sided," leaving them no alternative but to place the tall towering Lombardies in the middle of the group, and this is done in order, as they assert, to form a centre. It need hardly be said the result of this proceeding is to produce an artificial cone, and, of course, a thing discordant with all the natural features around. Admirable as the Lombardy Poplar is in many of the positions in which it is employed, it is sometimes made fatally mischievous in forming long and straight sharp lines across the natural scenery. In some of its more happy positions it is occasionally met with growing on the banks of streams at the end of a bridge with a long horizontal parapet. Placed in this and in similar situations, it is often productive of the most charming and picturesque effects.

It may have been noticed when looking abroad on the general landscape, in undulating districts and under particular conditions of the atmosphere, how extremely effective a group of this tree becomes when seen on the horizon occupying the apex of some distant knoll. The Lombardy may frequently, and with very good effect, be planted close to buildings, such as the entrance front of a mansion, and especially at the point of junction between the main front and office wing—that is where such an arrangement exists. This can often be done with marked success, particularly when the horizontal lines of the buildings are prominent and considerably extended. Owing to its compact, upright habit, the Lombardy is perhaps the only tree that can begrown with impunity close to buildings. As an aid in this way to the picturesque effect of buildings, whether they be large or small, this tree is highly effective. As time goes on we shall all become more artistic, and derive increasingly more and more enjoyment from the knowledge and study of whatever is beautiful. The Lombardy Poplar, as a consequence of all this, will have its own share of growing patronage, and will doubtless be much more extensively employed, not only in the neighbourhood of buildings, but also throughout the country as a valuable help to the picturesque in the common landscape.

M.

PLANTING AND MANAGEMENT OF QUICK HEDGES.

FOR a cattle-proof fence in parks or anywhere on an estate, there is nothing to equal Quick, and in such situations it is worth while to bestow a little extra labour on the preparation and planting, so as to obtain a fence that will be a protection in every sense of the word. With a thorough preparation of the ground, and good Quick, well planted at the proper season, and well cared for afterwards, in a few years a fence will be obtained more formidable to either biped or quadruped than any ordinary wall. It is perfectly useless to plant Quick where there is anything approaching stagnant water in the soil; consequently, if the land is not dry enough, it must be made so, either by an open ditch or covered drain. Next, it is a plant that will bear any reasonable quantity of manure. If the soil is shallow and wet, I should recommend a ditch to be formed on the outside of the hedge. It should be made 3 feet wide and 1 foot deep at the side next the hedge; the soil taken out goes to raise the bed on which the hedge is planted, elevating it in a way that precludes its suffering from stagnant water. The ground should be trenched 18 inches deep and 4 feet wide, with 6 inches of rotten manure well worked into it. This work should be done in autumn, if possible, before the land gets saturated with rain; it will thus be in a much better state for planting than if the work were deferred until late in the winter. Planting should never be delayed, as is often done, until the buds have begun to swell; the sooner after Christmas it is completed the better. In selecting Quick, mere size should never be the first consideration; on the contrary, choose robust stocky plants that have been twice transplanted, and the last time not too long before the final planting. Large old Quicks that have stood for years without being moved are all very well to tempt the inexperienced planter, but he afterwards finds out that they are some time before they make much progress, smaller plants,

in proper condition for planting, far-outstripping them. For such situations as those under consideration, I should recommend a double row of Quick, 1 foot apart in the row, and a similar distance betwixt the rows. In planting, angle the plants thus: * * * *. The practice of heading down to about 6 inches from the collar, at the time of planting is still carried out by some, but it is a bad practice; plants so treated make wretched growth the first year, and correspondingly little root progress, to enable them to make more than half the growth they should do even the second year. Heading the plants down to within 6 inches of the ground is a most essential operation, but they should never be so treated until they have had a year's growth after planting, and then it should be done in the winter, before the buds begin to push, using a good sharp pruning knife for the purpose, always cutting upwards, so as to leave the stools smooth and clean. This cutting back is to cause each plant to break a number of shoots, instead of running away with one leader, leaving the hedge thin at the bottom. To the non-initiated it often seems a pity to cut them back in this way, and appears a waste of time; but the omission is fatal to the hedge ever acquiring the first essential—a thick close bottom. When headed down as described, this double-row fence will break back so thickly as to be almost fowl-proof, and by the autumn of the second year after planting will be at least half a season's growth ahead of the fence that was beheaded at the time of planting. In the autumn of the second season after planting, any time after the leaves have fallen, the growths should be cut back to within a foot of where they were headed back to the previous winter, always using the switch-hook in preference to the shears. If all goes on well, the fence will each season make rapid progress, branching out and getting strong.

Every autumn go over it with the hook, cutting back within a foot of the preceding year's cutting, always preserving the hedge widest at the bottom, gradually tapering up to a point at the top. No other form of cutting will keep a fence full and thick at the bottom, which this does by counteracting the natural tendency of the plants to run too much to a head. Local circumstances will regulate the height. A fence 6 feet high is suitable for such situations as those under consideration; but there is no objection to one even higher than this. It must be borne in mind that the higher the fence is allowed to grow, the wider it must be at the bottom; otherwise it will there get weak and thin. A hedge 7 feet high must not be under 4 feet 3 inches wide at the base. When full size has been attained, the hedge must, at every pruning, be cut right back as near as possible to where the hook went at the preceding cutting; otherwise it will soon get too large, which would require its being cut back into the old wood, giving it for some time an unsightly appearance. I have, as yet, said nothing about the usual paling to protect the young growing fence from cattle. When it is situated where it will be liable to injury from this cause, the paling must be put up before the Quicks are planted. One of the chief things to be kept in view is to get the young hedge on so that it will be a sufficient fence before the paling is worn out and requires renewal. Neither have I alluded to the all-important matter of keeping the young Quicks perfectly free from weeds, especially during the first two years; but, where this is not attended to, it is useless to expect them to thrive. If, after the second year, the hedge does not make satisfactory progress, being at all weak, in the spring, before growth commences, give it a good-top dressing of farmyard manure; this, unless there is something wrong in the soil, through its being too wet, or other local cause, will assist it greatly. F.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

KITCHEN GARDEN.

TOO EARLY SOWING OF VEGETABLE SEEDS.

ONE of the greatest mistakes that can be made in the management of the kitchen garden is in the too early sowing of vegetable seeds. Seasons and the condition of the soil have a certain bearing on the subject. Seeds cannot germinate properly or even make an after healthy or free growth on an indifferent seed bed. Some people, irrespective of the condition of the soil and who have a weakness for fixed dates, will insist upon sowing the seed when they think the time has arrived for so doing. I never lost a crop yet through waiting a few days, or even a week or more, if the soil was not in condition for sowing the seed. We all like to take the opportunity when the ground is at all suitable for getting in early crops of Peas and Beans. Onions, in many instances, are often sown far too soon, especially on heavy and cold soils. With light soils more limit may be allowed for this crop. The first week in March is a favourite time with many gardeners, but I never feel the least anxiety if the main crop is not sown before the 25th. I make a rule of sowing any time after the 10th when the ground is in good condition. Parsnips may be sown about the same time. But it is not exactly with Onions, or even early Cauliflowers or Lettuce, which are forwarded under glass, that the mistake of early sowing is made, but with the winter Kales, Broccoli, Celery, Beet, and the planting of early Potatoes. With Potatoes it is all very well planting early, should they escape late frosts and so come in for early digging. The main breadth should not be planted until all danger of frost is over by the time the tops are through the ground. The seed tubers being laid out thinly, or in layers in a light place, the sprouts made are strong and sturdy; consequently in capital condition for making a vigorous start when planted. It is from such carefully selected seed as this that the danger of being overtaken by frost is apparent, as they are soon through the ground. Not so tubers which have been huddled thickly together, and have so lost their first sprouts, and consequently half their producing qualities. Celery when sown too early and not then pricked out often has the foundation of "bolting" laid during this early stage. The seed should not be sown if the seedlings have to be kept any length of time after being fit for pricking out. Beet, again, is often sown too early, and instead of medium-sized roots, which we should try to secure, coarse and overgrown samples result. I never think of sowing until the first week in May, except a small breadth of the Turnip-rooted for early use. Winter Kales and Broccoli are more often than not sown far too early, and perhaps kept huddled together in a small bed, through being sown broadcast either for the want of labour or space for planting. Even if planted out when ready, these grow far too large and coarse; consequently are not in condition for withstanding a severe winter like the present. I do not feel the least anxiety concerning our crops, as these were not at all overgrown before the storm set in. They are also better able to withstand the frost. I sow

the seed in an open position in rows 15 inches apart; consequently the plants do not get drawn up weakly through overcrowding. I would not tolerate broadcast sowing. For Kales I generally sow about April 20, and Broccoli three weeks later, excepting, of course, such as Veitch's Self-protecting and Snow's, for late autumn and early winter use. Snow's has been of no service this season, as the small heads were frozen through when about 1 inch across.

RURAL.

FROZEN POTATOES.

LONG before there were any signs of a break-up of the frost numerous complaints were heard of Potatoes being spoilt, and the "half had not been told." When innumerable heaps and clamps come to be uncovered, it will in many cases be found that a considerable portion of the tubers has been injured by frosts, while a good many tons have been spoilt outright. What may have been sufficient to protect them in ordinary winters has proved, in several instances that have come under my notice, altogether inadequate to save either a corner, the bottom, outer surface, or the whole heap, as the case may be. In lofts, rooms, sheds, and out-houses there is generally a weak spot, a cold current of air contriving to find its way either up through the flooring, a crevice in the walls, or a badly closing door, and occasionally the spot chosen is far too cold for the safe storage of Potatoes. Underground cellars being exempt from these rushes of cold air, and the temperature therein seldom falling to below freezing point, are the safest storage places as far as frosts are concerned. Unfortunately, this very warmth has its bad side, the tubers kept in cellars being most liable to sprout prematurely. We have roomy cellars with doors opening outside, so that either daylight or air can be admitted as required, both being most needed by the tubers required for planting. All we have to do is to keep these doors closed and frost is excluded, and it is our good fortune to have abundance of Potatoes for all purposes quite uninjured by frosts.

Where the clamps or heaps of Potatoes stored in the open are little exposed to north winds, which on two or three occasions during this winter have been most penetrating, it may be that no harm has accrued to them, or, at the most, only the outer layers will be touched. One point in favour of these heaps is their gradual thaw, those more exposed to the air being liable to thaw very suddenly. All who have had to do with the management of kitchen gardens will have noticed how well tubers left in the ground by careless diggers keep through the winter, these usually being very sound, late in sprouting, and of good quality when cooked. Those very near to the surface come to grief, but, as a rule, any covered with 3 inches or more of soil escape uninjured. These must have been frosted several times during an ordinarily severe winter, yet, thanks to the air being to a certain extent excluded from them, the thawing process is slow and no harm results. Contact with fresh soil has apparently a most beneficial effect upon frozen Potatoes, and in all probability growers who have practised covering their heaps first with soil to a thickness of 12 inches or thereabouts, a good thatch of fresh straw being placed over this, will have good reason to congratulate themselves upon the result. Competent authorities have long been of opinion that the more common plan of covering the heaps with straw, on this banking a good thickness of soil, is faulty. The thawing of a heap of tubers, first covered with soil and then given an outer covering of straw, is certain to be slower and safer than if the positions of these layers were reversed.

Frosted Potatoes too suddenly thawed, and which is almost unavoidable in the majority of cases, will, if firm, keep fairly well, but there will be a most objectionable sweetness about them when cooked. Those badly frosted will, however, soon become soft, and these are not worth keeping, being unfit for cooking and equally as useless for

planting. Not a few of those apparently uninjured are yet much weakened, and if they do sprout eventually the shoots will most probably be very weak. At the present time, doubtless the most concern is felt as to what is best to be done with the "ware" Potatoes, or those stored for consumption, and I can heartily sympathise with all who have to depend upon these for their daily supplies. Cooked and served in the ordinary manner there will be too much of the Chinese Yam in their flavour to please British palates, but if carefully boiled and then mashed, new milk or butter being freely added, the sweetness will be less observable. If mashed, formed into rather thick fritters, and then fried, both sides being well browned, only the finest palates will discern the sweetness. The professional cook can adopt various ways of cooking and serving Potatoes, all of which would nearly or quite obviate the objectionable sweetness.

I. M. H.

SOWING CAULIFLOWERS AND LETTUCES IN HEAT.

THE useful note of "E. H." (page 19) will suggest to many the need of sowing some other vegetables besides Cauliflowers under the shelter of glass this season. In many gardens the long-continued severe weather has made sad havoc among vegetables this year. A clean sweep has not only been made of autumnal-sown Cauliflowers, but likewise of Lettuces and other things usually considered hardy, with such help as the aid of a simple hand-light or other protection in the open ground. Hence in sowing such compact varieties of Cauliflowers as Snowball, Veitch's Forcing, or other early variety, it will be most useful to sow a liberal patch of an early strain of Cabbage and Cos Lettuces and a pinch of Brussels Sprouts. The more the last are improved, the longer the time needed to bring them into use, and hence the necessity of early sowing, especially for a portion of this most useful vegetable, which is not only consumed in greater quantity, but is asked for earlier every year. Hence the growing importance of sowing Cauliflowers in heat in the spring, and treating them in the way so clearly described by "E. H." There are one or two great advantages of this short cut to success in Cauliflower culture not, however, pointed out by your correspondent, and these are the saving of time and seeds and the shunting of blindness and bolting. None, unless those most familiar with old-fashioned practice, can have any idea of the enormous sacrifice of good seed involved in the practice of autumnal sowing. The plants had to feed the slugs through the winter and spring, as well as battle bravely against frost and thaws, fostering sunshine and scathing winds. Escaping all these dangers and starting into vigorous growth in the early spring, how often the fair promise of fine early Cauliflowers closed in sheer blindness or bolted into provokingly precocious efforts at seed-bearing. It was these fiascos in the production of early Cauliflowers that first turned my attention to the spring sowing of Cauliflowers in heat. By this simple expedient a whole host of checks and dangers to the plants so fertile in blindness and bolting was at once shunted off the line, and, as a matter of fact, there is but a very small percentage of failures among spring-sown Cauliflowers, provided the plants are protected from sudden checks and suitable varieties are chosen. The most compact and precocious sorts are the best for this special treatment. Very few of the Early London strains are suitable for a first sowing in heat. The habit is too open, the leaves too numerous, the tendency to blindness and bolting generally linked rather closely together too strong. But with any good, compact early strain, and care taken to avoid severe checks from sowing and final planting out, a month or six weeks will be gained as to time, and nearly every plant will produce a model Cauliflower, tender, white, and sweet.

D. T. F.

Winter Tomatoes.—I do not see how winter Tomatoes can be regarded as a profitable crop in any way when the market price for even the finest samples is only 1s. per lb., above which it has not

risen at all this winter, and was scarcely exceeded during the whole of that of 1889-90. Only those who have tried it know how slowly the fruits swell and ripen, supposing a good set to be secured, even in a moderately warm temperature, and the small quantity of fruit that can be gathered weekly from a good-sized houseful of plants. I do not believe that it pays to produce Tomatoes in the depth of even an ordinary winter (not to mention such a one as we are now having) under 1s. 6d. to 2s. per lb. The best prices are now made in April, May, and June, and those who want to make money should sow the seed early and keep the plants growing on steadily, when the first ripe fruit ought to be cut in May. As early as November last a grower near London told me he could not sell a pound where he had sold twenty a month before. The fact is there is not the demand, and nineteen out of twenty people who eat Tomatoes in the summer will not touch them when the cold weather sets in.—B. C. R.

VEGETABLES AND THE FROST.

"A. D.'s" remarks on hardy Coleworts were very opportune, as at this date they are specially valuable when many other green vegetables are destroyed. I usually plant a large number of the hardy green for spring use, and find them most useful. They last till the end of April if sown late, and though not large they are tender and of good colour when cooked. Many of the autumn Cabbages will have perished during the severe weather, especially if planted early; therefore the late Coleworts will be valuable. It is strange that this useful vegetable is not more grown in private gardens, and in some parts of the country it is not grown at all. I remember sending them up to table for the first time in the west of England, and the cook would not use them until begged to do so. As "A. D." remarks, after frost they have not the unpleasant taste that the Cabbage has. I sow at three dates—June, August, and September—and plant the late lot even thicker than recommended, 8 inches each way, this last planting keeping up the supply till the middle of April. I prefer the hardy green for late use, as it is harder than the Rosette, but for the early autumn supply I sow the Rosette. Borecole or Kale is one of our best winter vegetables, and will stand a lot of severe weather if the dwarf kinds are used at this date. It has stood 24° of frost and is uninjured. Only the tall kinds suffer, as they are so much exposed. I only plant the dwarf late curled, reserving the tops for late use, thus protecting the stems. Early sowing is often at fault, as the Kales stand the winter better when sown late in April, or even the first week in May, sowing them and planting in firm ground. I usually plant after summer Spinach without manuring the ground. Spinach, generally a precarious winter crop with us, stands well, and in this case early sowing is an advantage, as strong plants must be had by the end of November; if not, it succumbs to the first severe frost. As I have noted in THE GARDEN before, I only use the Victoria Improved Round, and so far it has stood well, being now in fine condition. I find the greatest enemy to winter Spinach with us is wireworm. Broccoli will, I fear, be scarce; our earliest kinds have all been killed, but Model, the latest we grow, has not yet succumbed. I plant the Broccoli with a bar on hard trodden ground, and the variety Model being very dwarf, not making much stem, is so far in good condition. A later lot on a north border has been covered with snow, and looks none the worse. Brussels Sprouts have suffered badly where tall, but a very dwarf late lot are little damaged. I certainly like the dwarf kinds best; they may not be so productive, but are far harder. Our best Celeries are undoubtedly Standard-bearer and Sandringham. These varieties have suffered least during the severe weather, as being dwarf they are more readily protected. Dry Bracken is one of the best protecting materials when it can be obtained in quantity, if cut whilst green. If cut when the sap is gone it does not last long, being brittle and soon rotting. Dry leaves may also be used with advantage. Of salads in the open ground, it is impossible to form an opinion.

In frames, only protected by the lights, the Round-leaved Batavian Endive and Hammersmith Cabbage Lettuce are uninjured.

G. WYTHES.

Syon House.

Cabbages as manure.—Our market growers are somewhat troubled to know how most easily to clear the soil of the rotting frosted Cabbages and green-stuff generally, amongst which the frosts have made slaughter almost unexampled in memory. Even such ordinarily hardy stuff as Scotch Kale has been killed, whilst white and Savoy Cabbages are rotting on the ground, which is covered with the browned decayed matter. Prejudice seems bent against the ploughing in of green crops; but in farming a green crop for manure is common enough, and the objection that soil lies light or hollow is met by the use of the roller; but in the present case the green stuffs are half rotten already. That is a fact which should assist to obviate some of the objection to using such material as manure, as it will soon entirely decay; then the ploughing in would take place very early in the year, and as cropping could hardly follow for a few weeks, not only would the soil be well settled down, but the manure would be half incorporated in it by the time cropping took place. It is very difficult to understand why fertile elements taken from the soil, and of course returned in the form of vegetation, should not be as recuperative as when consumed by animals and applied in the form of manure. After all, manures are merely gases in some form or another, and it seems of little consequence how returned to the soil, so long as they become liberated and available for plant fertilisation. We find leaves, plant refuse of all sorts, indeed all kinds of vegetation in a state of partial or entire decay, to make very good manure, and it is hard to understand why rotten Cabbages should not be excellent manure also, especially for quick or summer crops. Whatever course is taken with the frosted green-stuffs, the sooner they are cleared from the fields, the better for the public health.—A. D.

Tomatoes Horsford's Prelude and Golden Nugget belong to the small fruiting section, but the fruit is borne so freely as to justify entitle them to the rank of heavy croppers. Owing to their delicate and delicious flavour they are eminently suited for eating uncooked, for which purpose I believe they are as yet unsurpassed, if not, indeed, unequalled. In this I find I am borne out by a great connoisseur in Tomatoes, who informs me that the above varieties having outdistanced all others he had tried, he will this season grow no others. Apart from their usefulness, the plants are also decidedly ornamental when laden with numerous clusters of golden and crimson fruit.—J. R.

ROSE GARDEN.

SELECTIONS OF ROSES.

MANY of us will agree with Mr. C. J. Grahame, THE GARDEN, January 17 (p. 41), as to the tendency to grow too many varieties of Roses. The number of kinds might be advantageously reduced and the loss made up by increasing the quantity of those that are retained. The importance of this is most apparent in gardens where Roses are grown for their beauty and effect, as well as for supplying plenty of flowers for cutting. It has been repeatedly remarked in THE GARDEN that for small gardens it is infinitely more satisfactory to grow say six or twelve kinds, and a dozen of each, than to have that number of plants in as many kinds. The number of kinds and quantities of each may be increased in proportion to the size and extent of the garden. Those who wish to create striking features in their gardens do not gather together all the members of any particular family of plants, but only the best, and make the most of them. An attempt to show all that is beautiful among plants and flowers by growing a specimen of everything obtainable, if not disastrous, is not productive of good results. An

amateur with 100 good kinds of Roses ought to be happy and never lack plenty of blooms during the season, provided he has room to grow three, six, or, better still, a dozen plants of each kind. In our flower garden Tea Roses are a leading feature, and there are more than 1000 plants, but certainly not more than 60 kinds. There is ample room for them all, each kind being individually, but boldly grouped. With such a collection there is no desire to be hankering after and trying every novelty. Hardly a year goes by without some fresh and really valuable addition being made to the list of good kinds. We are not obliged to pay fancy prices in order to test the new candidates for favour. There are always those who will try them and if there are any really meritorious it is not long before they are singled out and offered to us at a considerably reduced rate. It is doubtful whether large classes at shows foster the production of many new kinds, since in these competitions it is generally only the older well-known and well-tried kinds that figure. May not the cause be found in the fact that this raising of new Roses is at the best but a slow and uncertain process, and certainly not very remunerative? Consequently, when raisers have obtained something they think will compare favourably with other kinds already in commerce, they offer it, partly from a natural weakness and a particular interest in a kind of their own raising, which in the eyes of its raiser may seem to have distinctive qualities and merit which others detect not. Of course, it is necessary to use discretion, and to their credit it must be said that English raisers are more discreet, for if the kinds they offer of their own production are fewer, they are of high merit. A long list of novelties from the Continent, even if only 10 per cent. of them were worth looking at, in no way affects or diminishes the value of the many good kinds we have. If we accept Mr. Grahame's total and number them at 100, how long will it remain so when by a gradual and steady access now from year to year fresh kinds come so good that we must admit them to first rank, whilst we cannot keep the list in prescribed limits by discarding those kinds we have loved so well and so long?

For the guidance of those who do not know, it may be well to have lists of first-rate kinds and selections for special purposes, and even these cannot be made absolute, since aspects, soils, &c., vary so greatly, and local peculiarities favour one kind, but are detrimental to others. We may take it that Mr. Grahame's selection consists of kinds that he has found satisfactory, and doubtless some inexperienced or commencing Rose grower will profit by it. But to growers resident in distant localities the list will appear to have weak points, and they will wonder at the inclusion of some kinds and the exclusion of others. If we could get an expression of opinion from such readers, however, and lists of the kinds they had found most reliable, we could at least know what were the most meritorious.

Taking, for example, the Tea Roses, Mr. Grahame would not generally recommend such kinds as Etoile de Lyon, Jean Ducher, Devonensis, and Sunset. Concerning the first three, I fully agree with him, and, speaking from my experience, be inclined to exclude them from the list. On the other hand, Sunset upon heavy soil in Sussex and upon light soil in Suffolk has proved a magnificent Rose, and its freedom and amazing profusion of fine flowers last season, coupled with great vigour, were quite phenomenal. In some respects the list might be considered hardly up to date, for Dr. Grill (figured in THE GARDEN, Jan. 18, 1890), might

certainly take precedence of Mme. Kuster. It is comparatively new, unique in vigour and freedom of bloom, whilst for continuity of flowering it surpasses many of the most truly perpetual Teas. There is often a break among the Teas during the hot days of August, but Dr. Grill keeps bravely on, whilst the varied brightness and beauty of its flowers defy description. Again, Mme. Falcot is a good old Rose, but Mme. Charles is an improvement, and so good that it should be given first place, the flowers being fuller, more perfect in form, and deeper in colour. Belle Lyonnaise is pronounced almost universally tender, and certainly the weakest or most uncertain of Dijon Teas. The new Mme. Chauvry, with its deep apricot-coloured flowers, is superior in every way. Mme. Cusin is far from being everybody's Rose, and I have discarded it because, especially if the weather be cold or damp and the flowers open slowly, the pink or rose tint assumes such a dingy lilac hue. Princess Beatrice is good in form, but may we not sometimes have form at the expense of other qualities? I never planted it, because one of the leading trade growers told me he could not recommend it otherwise than as a pot Rose. Perle des Jardins is not in the list, and yet among the lighter yellows it stands out pre-eminently as one of the very best. Again, those who grow Roses for pleasure cannot possibly dispense with Comtesse Riza du Parc. It is a sturdy and vigorous grower, like many others, but it is also quite unlike any other Rose in the rich, bright China Rose, copper-suffused flowers, which it produces long and freely. Those who grow Grace Darling and Viscountess Folkestone must not exclude Camoens, the flowers of which are bright rose, and produced in great clusters. We have these three in one large bed in separate groups, and of the three, if one had to be given up it would be Grace Darling. Ethel Brownlow with me has never yet shown first-rate qualities, but Souvenir de Victor Hugo all through last season was one of the most conspicuous in the garden. The discussing of the merits and demerits of the list of Hybrid Perpetuals I leave to those more fully acquainted with them. There is absolutely no lack of really fine Roses, but in how few gardens do we meet with them in quantity. Those who grow none ought to, and those with few might grow many more even upon the same amount of ground.—A. H.

I have read with pleasure Mr. C. J. Grahame's article on the above subject, and quite agree with the advice he gives respecting novelties. If inexperienced amateurs would be content to grow only proved varieties, and allow the exhibitors to test the value of the so-called novelties introduced every year before adding them to their collections, they would save themselves much trouble and expense. Gardens generally would be far more effective if only a few of the best were grown in quantity, but perhaps not quite so interesting to the enthusiast. It is necessary before making a selection to decide whether the flowers are required for exhibition, garden decoration, or for cutting. If for exhibition it would be difficult to make a better selection, and most of the varieties would be useful, but for garden purposes half the quantity would be more than enough, and many varieties not included more useful. For instance, what has become of the beautiful button-hole Rose Wm. Allen Richardson, the favourite with most ladies; Mme. Chedane Guinoisseau, lovely in the bud; L'Idéal, Dr. Grill, and Ma Capucine, all unique in colour; Celine Forestier, Amazone, and Souvenir de S. A. Prince? Lamarque if well grown is one of the sweetest, but requires a good position, and must be grown on

a wall. Among the hybrids, Rosieriste Jacobs is grand, but perhaps too much like the Duke of Wellington; Duke of Connaught Splendid autumnal; Dr. Sewell and Duchess of Bedford rich in colour, the latter rather delicate; Dr. Andry, Charles Darwin, John Bright, Eclair, Lord F. Cavendish, Francois Michelin, Lord Macaulay, and the old, but valued Victor Verdier.

If Mr. Grahame admits the above as worthy of note the 100 varieties would be exceeded, even if the twelve that require special attention were omitted. It is very rare to find a decent specimen of Devoniensis or Maréchal Niel in this part of the country grown out of doors. Her Majesty as a garden Rose is useless; the growth is strong, the flowers are few and far between, and the plant always subject to mildew. If Mr. Grahame will say on what stock it is grafted to avoid the above evils, many readers will be indebted to him. Homère grown under glass is good, but as a garden Rose unsatisfactory. I do not know the following varieties: Eugène Furst, Mme. Joseph Desbois, Comtesse Panisse, Cleopatra, and Margaret Dickson. I should be glad of further information.—HERBERT ROTHERA, *Notts.*

OWN-ROOT MARECHAL NIEL ROSES.

ALL lovers of golden Roses will thank "J. C. C." for his instructive note on this (p. 41). The constitution of this glorious Rose is getting worse instead of better on its own roots, and all others, so far as I have observed. Some years since the Gloire de Dijon was supposed to have brought long life and good health to the best of all golden Roses; and it did for a time, and many brilliant successes were achieved on this foster stock. But the more rapid the growth and the more brilliant the success, the more sudden and crushing the wreck and ruin. The hard grip of gnarled warts, the hardening of the bark, the development of an ugly blotch of gangrene or canker, and the proudest plants were suddenly wrecked and ruined. And now to-day, notwithstanding the magnificent lots of the Maréchal grown in pots to single stems like Grape Vines in several nurseries, and the large quantities as bushes or standards in others, yet the old plants met with on walls in the open and in houses mostly lack their old vigour, and many of them seem as if smitten with impotency, contrasted with the freedom and vigour of twelve or more years ago. Then all the Maréchals seemed full of growth, overflowing with energy and vigour. Now perhaps 75 per cent. of them grow but little and bloom less, and hardly any are found in possession of their pristine robustness and glory. The uncertain behaviour of this Rose under the most painstaking management, whether the plants have foster roots or not, is such, that I regard every young plant with suspicion, whether it will start vigorously or not. This is exactly my experience of late years, and yet it seems but as yesterday when the Maréchal rushed ahead anywhere and everywhere. On its own roots, the Brier, the Manetti, the Gloire de Dijon, it seemed all the same to its health and vigour, though some of these stocks, notably the Gloire de Dijon and the Banksian, sensibly affected its flowering. Occasionally it seems to display a little of its old daring, but mostly it sulks or dies off suddenly. D. T. F.

Among the Roses.—Frosts, varying in severity from 10° to 24°, have hung over our Roses for weeks, and yet now a thaw has come (perhaps only a temporary one), they do not present any traces of injury. The need of protection will always be a debatable point, and in a slight measure it is ruled by locality and surroundings. In THE GARDEN of Jan. 10 (p. 20), "D. T. F." tells us that "the dripping fostering weather of the last autumn led the plants into a trap," &c.; but if memory serves me rightly, the weather during the last autumn was exceptionally hot and dry, thus favouring the thorough ripening of the wood. Although when

the frost came it found bushes smothered with buds and blooms, the wood was firm and well ripened. We can do nothing now to benefit our Roses, or assist future prospects, but the prolonged severity of weather has done and is doing much good. The Roses this year are in a more restful, consequently safer state than they were in the corresponding period of last year, when under the excitable influence of warm thaws that succeeded short and by no means severe frosts. In any case, whether winter begins early or late, it generally finds the majority of our best garden Roses budding and blooming, some even lasting up till Christmas, yet this does not constitute a state of unpreparedness. The cultivator may assist, but only in a slight measure, just as tenderness may be engendered and plants lost by mistakes of culture in an opposite direction. We need not fear that the present winter will exterminate half of our Roses, and leave the rest crippled and ghosts of their former selves. Such certainly will not be the case with ours.—A. H.

WINTERING OF DELICATE ALPINES.

TO THE EDITOR OF THE GARDEN.

SIR,—I should be greatly obliged if you or any of your readers would give me a word of advice under the following circumstances. My garden, though within 6 miles of the centre of Manchester, is favourably placed for the growing of alpine. It is on the south side of the city, which is by far the best side as regards smoke. It is on a sunny bank, facing west and south, overlooking Cheshire. The subsoil is gravel. Under these conditions, although but a novice of two or three years' experience, I have been able to grow alpine with most encouraging results. The one difficulty, which with some of the more delicate plants—indeed to a certain extent with most of them—is very serious, is the damp. Our climate is a wet and sloppy one, especially in winter, and most unfavourable to many of these plants, such as Androsaces. I have, nevertheless, succeeded in saving most of my tender ones by special care. My Androsaces, for instance, have great cavities filled with brickbats beneath them, and the soil in which they are planted is full of grit. By this means and by taking them into the frames or protecting with bell-glasses in winter, I have kept them alive and pretty healthy and have made them flower. It seems to me, however, that the bell-glasses are sometimes better than the frames, but whether this be really so I know not. One would think that the frame, which can be closed at night and on wet or foggy days, and ventilated in the daytime when the air is dry, and in which the young plants are well away from the cold surface of the glass, must be better than a bell-glass, which, however careful you may be, must surely at times let in the fog and wet too much, or else be too confined and stuffy. If the bell-glass is sometimes better, I can only think the reason is that it avoids the check of taking up and potting and leaves the plant undisturbed. I write of this in my ignorance as a novice, and shall be grateful for instruction.

The idea has occurred to me of a protected rockery—a little well-drained rockery, say 6 feet by 12 feet, made specially for experimenting with the smaller and more tender alpine, over which a frame could be dropped in autumn, and from which the frame could be removed in spring. By this means I could have all the protection of a frame, and yet avoid removal and disturbance. My friends whom I have consulted say the notion is a very old one, which I believe to be the case. But there are certain questions upon which I want advice and cannot get it, and it is for this reason that I

write. First, I would ask, is the plan a good one? And are there any special features to be aimed at or avoided in the making of the rockery and frame? Then about the damp. On cold wet days the frame would be kept quite close, and at night it would be always so. But still, our northern wintry fog and drizzle will affect the atmosphere inside. Now is there any inexpensive chemical or other substance which I could suspend in pans about the frame to absorb the moisture, changing and drying from time to time as might be necessary? Or is there any other way in which the damp can be obviated? Also as to light. Are not these plants when in their native mountains mostly buried in the snow all winter, deep hidden from the sky until it is bright and warm? And are they not in a state of more or less suspended animation? and, if so, should I not try to imitate this condition in a frame, and can it not be done? It seems to me that the plants occasionally exhaust themselves with work in winter; but how am I to stop them without destroying them? It seems hardly conceivable that it would be proper to plunge them into total darkness, and yet I suppose they are so naturally. Any assistance or advice which I can have in this matter will be received most gratefully, and I cannot but think it would be acceptable to many other beginners like myself.

ROBERT W. WILLIAMSON.

The Croft, Didsbury.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS FOR WALLS.

IN answer to "Zitella," the varieties which have their petals imbricated are the best for growing in this way, for the reason that the moisture from heavy dews or rain is not retained in the centre of the flowers, which would cause them to decay. From this it will be gathered that those belonging to the reflexed section, the same type of Japanese varieties, and pompons are the best. The incurved and large Anemone varieties are the least desirable for this form of culture on account of the formation of their florets. The cell-like character of the florets in the centre or disc of the Anemone flower forms a thorough receptacle for water, and so do the petals of the true incurved kinds. The great point is to keep the flowers as dry as possible, and, except in the case of well-made coping boards or other protection, the way out of the difficulty is to choose only those varieties that are what might be termed waterproof. Even in the case of those sections which are favourably spoken of here it is not wise to plant those kinds which produce flowers of the largest size, as by the extreme fleshy nature of the florets the points suffer before the blooms are fully developed in the centre. The single kinds are well adapted for growing against a wall, as the blooms dry so quickly after rain; besides, the smallest and medium flowered kinds of this type produce blooms in such quantities from the side shoots, that they are specially to be recommended. Even a few of the pompon Anemone section for the sake of variety may be planted with reasonable hope of success, as they are not like the larger Anemone kinds. One of the best out-of-door kinds we have is the old Dick Turpin. The growth of this variety is very neat, and the flowers, which are produced freely, are set off to the greatest advantage against the deep green background of foliage, which this sort carries quite late in the season.

How the varieties and sections shall be planted is purely a matter for individual taste, and is best decided on the spot. Some prefer a mixture of colours and kinds, while others like a few of decided shades kept apart. Even a low wall may be made to accommodate all the sections by judicious arrangement, but in this case it must be irrespective of class. The tallest growing sorts are to be found amongst the Japanese. By planting

these at wide intervals and training the branches crosswise in a slanting direction the tallest sorts can be accommodated. The dwarf-growing kinds should be planted between these last-named. By adopting this plan of arrangement, either a high or low wall can be covered with both foliage and flowers. It is not wise to cultivate the plants too generously, as the growth will be sappy and soft.

If the soil is poor, some of it must be removed and fresh added at planting time. Old potting soil answers well with some partly decayed manure mixed with it. Plenty of water during dry weather at the roots and frequent washings of the foliage must be given, as it should be borne in mind that the bricks forming the wall absorb much moisture from the soil. Therefore, any stint of moisture during such times cannot be attended with the best results. The growth of the plants should not be crowded, but sufficient space be allowed for the shoots and leaves to thoroughly develop, removing any surplus growths rather than overcrowding the remainder. I prefer the roots or stools of those plants which flowered in the greenhouse the season previous to planting at the end of March or early in April, according to the weather, rather than plants struck from cuttings a month or two before being required, for the reason that a greater number of shoots close to the ground are obtained than from cuttings, which is a consideration when the whole wall space has to be covered. Especially is the matter of choice of roots important when the wall is low.

The following sorts will be found useful for wall decoration, and require nothing more than proper attention to cultural details to make this form of growing these plants quite as interesting as any, not excepting the inside flowering of a first-rate collection:—

Japanese.—Avalanche, white; Bertie Rendatler, orange, shaded with yellow and red; Bouquet Fait, soft rose-pink; Fair Maid of Guernsey, white; Florence Piercy, creamy white; M. Bernard, purple-violet; Mr. Garnar, rich yellow; Source d'Or, orange, gold shaded; Amy Furze, blush-rose, lilac tinge; Dr. Macary, rose and white; L'Africaine, crimson-red; La Nympe, lilac-peach; Maiden's Blush, creamy white, blush tinted; W. Holmes, chestnut-red, gold tipped; Triomphe du Nord, bronze-crimson; Val d'Andorre, chestnut-red, shaded orange; Edwin Molyneux, crimson and gold; Peter the Great, lemon-yellow.

Reflexed.—Golden Christine, light fawn-yellow; Pink Christine, pink; Peach Christine, peach; Mrs. Forsyth, white; King of Crimsons, rich crimson; Annie Salter, golden yellow; Distinction, golden yellow centre, shaded red outer part; Emperor of China, white, suffused blush.

Single varieties.—Mrs. Langtry, blush-pink; Oscar Wilde, dull red; White Perfection, white; Oriflamme, reddish brown; Mrs. Le Mout, puce; Mary Anderson, white, changing to blush.

Pompon.—President, deep rosy carmine; Snowdrop, white; Primrose League, primrose; Prince of Orange, light orange-amber; St. Michael, rich yellow; Lizzy Holmes, canary-yellow, tipped rose; Nellie Rainford, buff-yellow; Rosinante, blush-rose; Sœur Melanie, white; Black Douglas, dark crimson.

Pompon Anemone.—Dick Turpin, magenta-crimson florets, yellow disc.

E. MOLYNEUX.

SHORT NOTES.—CHRYSANTHEMUMS.

Chrysanthemum Cythere.—This Chrysanthemum belongs to what is usually spoken of as the Japanese decorative class, that is to say, a good free-flowering Japanese variety, but one whose blooms are too small to hold their own in a cut state against the large massive blooms of some of the others. Still it is very useful for its late-flowering qualities, as some remarkably fresh and clean examples were shown at the Royal Aquarium, and their colour, a kind of purple-amaranth, made them conspicuous. It is also a good variety for growing in bush form, a very desirable feature among Chrysanthemums of this class.—T.

Chrysanthemum Sunset.—Once this season have I seen this Chrysanthemum shown with a full centre. This, I think, was at Ascot, where its bright, yet peculiar colour struck me as being novel and new.

The flower in question was staged among others in a twenty-four bloom class. Although it was not so full in the centre, not having nearly so many florets as one is accustomed to see now-a-days, yet there were sufficient to connect it with the double section, being some distance removed from even a semi-double. This variety certainly deserves cultivation on account of the striking nature of the colour of the florets.—E. M.

Chrysanthemum Leon Frache.—I have never seen this variety occupy a place in any selection of late-blooming Chrysanthemums; yet it was one of the best of those shown at the National Chrysanthemum Society's January exhibition, the flowers being large, well developed, and clean. The colour is a kind of satiny-white, tinged with pink, thus forming a very pleasing tint. As a rule it blooms about the time for the usual November shows, but is not often seen, owing probably to the fact that it is almost new. Unlike many of the large-flowered kinds, it is a good pot plant, as I had a couple of satisfactory specimens carrying half a dozen large blooms each in the autumn. The plants which were not cut down in any way stood about 5 feet high, but the foliage was retained in good condition nearly to the pot.—T.

LATE WHITE CHRYSANTHEMUMS.

THE first place, I think, amongst light-coloured late Chrysanthemums must be given to that much-named variety Lady Trevor Lawrence, which, according to the National Chrysanthemum Society's catalogue, is synonymous with Mrs. Beale and Robert Bottomley, to which Mr. Cannell in his present catalogue adds Jean de Lut, sent here from the Continent. Among the numerous blooms of this that were shown at the Royal Aquarium many were fresh and clean, the massive incurving petals being of the purest white. This variety is distinguished by an unusually broad petal, and the entire plant is of a stout bold style of growth. The early history of this Chrysanthemum is somewhat singular, and well shows the absurdity of giving a separate name to every one imported from Japan, instead of previously ascertaining if they are distinct from those already in cultivation. Thus it was one of Mr. Cannell's set sent out at the same time as Edwin Molyneux, Mr. C. Orchard, Mr. and Mrs. H. Cannell, and others; while by Messrs. Carter it was distributed as Mrs. Beale, and, lastly, Robert Bottomley from our American friends has turned out to be the same. It is certainly a very desirable late-blooming variety. A most beautiful flower is Princesse Blanche, which, though described as of a creamy tinge, appeared, during a dull winter's day, to be of the purest white, and some very fresh examples of it were noted. This variety belongs to what is known as the Japanese reflexed, the flowers being small to medium, just the size to be useful for cutting. Its value in this respect is still further enhanced by the fact that the flowers are borne on strong stalks. Another flower a good deal in the way of the last is Crystal Queen, which was also well represented. The American introduction (Mrs. A. Waterer) is one of those huge flowers with broad straight petals, which, though admired by some, is not such a general favourite as many of the others. That old variety Mrs. Charles Carey, which for many years has occupied a place among the best of the very latest flowered Chrysanthemums, still holds its own; while Ethel, Fair Maid of Guernsey, Meg Merrilies, and Mlle. Lacroix were also represented. This last, which flowers before the bulk of Chrysanthemums, is usually to be met with at these late shows, the blossoms, which were small and fresh, being apparently secondary blooms. One feature that detracts from Ethel is the peculiar dark centre, otherwise this flower, with its curiously upright petals, would be grown to a greater extent than it is at present. No mention of late-flowering Chrysanthemums would be complete without a word or two in favour of the little button-like pompon Snowdrop, of which a good bunch was shown. It is a very old, but extremely useful variety, of which a few plants will yield a great quantity of cut flowers just at a time when they are most needed. T.

FLOWER GARDEN.

CARNATIONS AND PICOTEEES FOR GLASSES.

Few realise the great value of these beautiful sweet-scented flowers for indoor decoration. Nothing can be learned from the professional bouquet-maker except what to avoid. He can do nothing, or will do nothing without wires, and if Carnations are used for "bouquet work," they are usually arranged over the face of a half globe, each flower stiffly wired sticking out of the bouquet with the utmost regularity and precision. At the florists' shops one of the most popular flowers for button-holes is the Carnation. I noticed one in a gentleman's coat the other day which I recognised at once as the beautiful pink Carnation Miss Joliffe. This is an excellent variety, never producing flowers above the medium size and seldom bursting the pod. I happened to be at the

best; and for this purpose pink, blush, or white-flowered varieties are preferred. Next to the selfs, the rose-edged Picotees are the most delightful, especially such an one as Liddington's Favourite, which is superior to every other for this purpose. Those who like a heavier colour, such as Redbraes, would choose Mrs. Sharp, a heavy rose edge, or the paler rose Edith D'Ombraïn. The best heavy-edged red is Princess of Wales, and the best light edge of this colour is Mrs. Gorton. Mrs. Chancellor is the best heavy purple edge, and I like a seedling of my own named Sylvia best for a light-edged purple. None of the above are pod-busters. An excellent new white Carnation which I saw in the north of England last year named Mrs. Muir is not so much known as it ought to be. In my opinion, it is the best pure white variety we have. J. DOUGLAS.

Iris Bakeriana.—Will you allow me to call



Flowers of Picotee Redbraes.

floral meeting when Mr. Masters exhibited this variety for the first time, and have never since seen larger blooms except the coat flower alluded to. I was anxious to know more about it, but the gentleman knew nothing except that it cost a shilling. I found that it was not one bloom, but three flowers tied closely together, and made to look like one. The woodcut accompanying these notes is an arrangement of flowers of a pretty border variety of Picotee named Redbraes. The flowers with a few sprays of their own leaves have been arranged just as they have been cut from the plant. I constantly use Carnations as cut flowers when I have them, and always with Carnation leaves. For the foliage I grow seedlings, and cut it from single varieties or from double ones of no value. From three to six fully open flowers with buds half opened or in the green state, and three sprays of foliage in small glasses I like

attention to some of the newer Irises as being valuable conservatory plants at this season? *Iris Bakeriana* is a perfect gem, the standards pale blue, the falls intense dark blue with white centre, spotted with rich blue. *Iris reticulata* var. *histrionides* has the standards bluish-lavender, the falls blue, with yellow and white markings; in different plants the lavender shade is more or less pronounced. I have planted bulbs out of doors, but rather fear their standing the frosts of this exceptional winter. I believe that we owe to my friend M. Max Leichtlin the bringing into commerce of both these Irises.—GEORGE F. WILSON.

* * A coloured plate of this beautiful *Iris* was given in THE GARDEN May 17, 1890 (p. 462).—ED.

Pentstemons.—On cold soils Pentstemons have suffered severely, and have not a bit of live wood left on them above the soil. How they may fare below has to be seen later, but as we are some way from the end of winter, there is plenty of time for further attacks from frost, so that few plants

will probably be saved outdoors. Those who have put in plenty of cuttings and have them rooting in pots in frames or greenhouses will be able to replace their old plants very well. It is surprising how soon rooted *Pentstemon* cuttings placed out in April break and become almost stout bushes. If the cuttings have been taken from the best forms, seedling or named, of course, those good properties are preserved. Where no cuttings have been preserved and all plants in the borders seem to be dead, a sowing of seed should be made as soon as possible certainly next month, as the seed will germinate freely in a cool house or frame and give plenty of strong plants to dibble out early in May. The cutting-made plants having the start will flower at midsummer and the seedlings well into the autumn, so that a long season of bloom is thus produced. It may be worth while after cutting the old plants down to the ground-line to cover the roots with small mounds of soil to protect against later frosts. Should the bare stems or crowns of the roots remain uninjured, they will presently break up strongly, and the new growth will soon replace that which has been killed by the frost. *Antirrhinums* seem to have been more severely hurt than *Pentstemons*. An early sowing of seed will soon give plenty of plants to replace those so generally destroyed.—A. D.

THE CLEMATIS.

THE beautiful plate of *Clematis Viticella* var. which appeared in THE GARDEN on January 10 I take to be *C. Viticella rubra grandiflora*, only that the plate is darker coloured than I have ever seen the flowers. It is a charming variety. The only wonder is that it is not more grown. Fine as *C. Jackmani* is and desirable in every way, there are still others that deserve a place in every garden.

The raisers of new kinds, it has always appeared to me, have directed their efforts too much to the production of very large flowers, which, I admit, have a telling effect when grown as we often see them in pots. But, except for convenience of exhibiting, that is not the kind of cultivation which it is desirable to encourage. There is an unlimited number of fine kinds of plants which are more or less tender that must be grown in pots if at all, and I have always looked upon it as a mistake to occupy the room in plant houses with hardy subjects such as the *Clematis*, that ought to be reserved for tender things. The kinds with medium-sized flowers that bloom freely are much preferable for growing outside to the big-bloomed sorts.

There is one thing that not unlikely has had something to do with *Clematises* not being grown to the extent in most gardens that their merits entitle them to—that is, the numbers that fail to make headway after planting, though at the time they are turned out of pots they appear to be in a free thriving condition. It looks to me as if the stock that is now almost invariably used for grafting does not suit a good many sorts, or rather that it is not to be depended upon for the greater number. The old way of increasing *Clematises* was by layering, which, though much slower than grafting, is more certain in its results. Of all that I plant now I have about 10 inches or 12 inches of the stem from the collar upwards layered at the time of planting, pegging the layered portion securely down, and covering with about 2 inches of fine soil. This layered portion emits roots, and soon gets the plant independent of the stock. The old stems of *Clematis* will push out roots freely, however thick and strong they may be. I have a plant of *C. Jackmani* that was turned out fourteen years ago; it was getting impoverished at the roots and crowded out at the top by Ivy growing in the same border. The *Clematis* was too big to take up, and last spring I had the old stem layered to the extent of some 18 feet. It was taken across a walk and was covered the whole length to a depth of about 4 inches. Before the close of the summer it had thrown out roots from end to end of the length layered as freely as the stem of a Vine when layered; and evidently from the greatly improved way in which it flowered last autumn as compared

with several years previously, the roots which the old stem had formed had benefited it.

This variety, in common with others, often suffers through the encroachment of the roots of other things, by which the soil becomes so much impoverished that it is insufficient to sustain the Clematises, which require a good deal of sustenance, and are not able to hold their own against Ivy and some other things.

Another way in which Clematises, especially such kinds as C. Jackmani, C. rubella, and others of the same section, suffer when grown against buildings is through want of sufficient water in the summer. This causes the flowers to mildew to an extent that completely spoils the blooming. That it is want of moisture which produces the mildew I am satisfied, as when plants that have in previous years been in this way affected have had copious soakings of water during the summer and through the early stages of their flowering, the mildew has not appeared. T. B.

CARNATION COUNTESS OF PARIS.

WE have grown this in greater quantity each year since 1887, thoroughly testing its hardiness and value for the flower garden. The habit of growth is bold and vigorous, and of the hundreds of plants that have been propagated and grown by us, planted out in autumn and left fully exposed all through the winter, none have ever perished, even on a cool soil. The groups we have had of this kind, made up of strong plants, have been almost as effective in foliage in winter as in summer. The flaked and striped kinds, so dear to the heart of the florist, are weak, poor, and ineffective in the flower garden when compared with Countess of Paris. The colour of the flower is white, suffused with the most delicate rosy-lilac, which is deepest in the bud state, and gradually grows lighter and fades as the flower expands. The buds rarely burst. The finest quality of this Carnation, in addition to its freedom, is its continuity of blooming. Its season of flowering out of doors is from July till November. Long after other kinds, even first-rate selfs, have ceased to bloom, this continues flowering upon secondary flower-spikes from the side shoots, and even strong growths that have been layered have rooted and bloomed. It may be truly called a perpetual-blooming hardy self, as plants in bud potted up in autumn will flower through winter and spring in warmth under glass. It would prove as valuable for pots as for the open-air garden. This perpetual-flowering habit, as seen in Countess of Paris, if extended in a race of hardy selfs, would create new interest in Carnation culture. It will be found a valuable kind for cutting, as quantities of flowers may be obtained from a group of even moderate size and never missed.

It is the queen of light-coloured Carnations for the flower garden. There are others of somewhat the same colour, but they are too small or burst; whereas this is a large and perfect flower, and only the early flowers burst in wet seasons. The autumn blossoms are most beautiful in colour and form too!

Martynia fragrans.—Some day this plant will be taken in hand by a grower who can appreciate its value, and who will exhibit it, and then wonder will be expressed that it has been permitted to be so long neglected. A native of Mexico, handsome in appearance, and highly fragrant, it was first flowered in this country by Miss Harvey, of Hayle, in Cornwall, who had received seeds from Real del Monte. It is an annual, having large, angular, cordate leaves, and bears a spike of six or eight flowers on the summit of the stem. Lateral branches are also produced, and they bear flowers also. This species possesses a remarkable peculiarity, for, as in the case of the Mimulus, its divided stigma collapses on the slightest touch. At first this plant was thought to require stove treatment, and it was grown as such, but with indifferent results. When planted out, however, in an open frame it did well, being protected from high winds, which damage

the plants. It is best to raise the seeds in a gentle heat in spring, the species being a tender annual, and then plant the seedlings on a warm sunny border in light rich soil. If the main shoots can have a support in the way of a stake, so much the better. —R. D.

EXHIBITING HARDY PLANTS.

THERE is perhaps nothing which disfigures our leading London exhibitions more during the spring months than the hardy herbaceous and alpine plants shown in pots; and who is to blame for all this, for surely there must be a reason for such a long-continued season of neglect in one direction? We visit these exhibitions, and we see plants from far and near, not mere pigmies in 2-inch and 3-inch pots, as so many of our loveliest alpine are shown, but huge specimens requiring the assistance of perhaps four or even six men to carry them to their appointed place in the exhibition where they emphatically demonstrate the high state of excellence that has been attained in their cultivation. This is no isolated case, for we see abundant proof of it year by year in fine-foliaged plants, in Azaleas, in Pelargoniums, in hard-wooded plants, in Roses, in Clematises, in stove-flowering plants, and other things besides, until, alas, we come to the hardy plants which invariably present a very pitiable state indeed. As a partial excuse for such a deplorable state of things, it will undoubtedly be urged that the prizes offered will not permit of any special care being given to the preparation of *bona fide* specimens, though any such excuse could have but little weight, inasmuch as the same style exists whether the prizes be large or small, or even nothing at all. But even supposing no prizes be given, seeing that hardy plant specialists are those who most frequently err in this matter, would it not be to them a decided gain to grow the things they exhibit into specimen form, and stage them in a manner calculated at least to speedily bring them into greater public favour even than now, for it should always be borne in mind that the great mass of those interested at all in gardening can better afford to cultivate hardy plants than they can either Orchids or stove plants, simply because they are more easily procured in the first place, and as easily maintained afterwards. Nothing, I feel sure, can be more highly detrimental to hardy plants as a whole than for the thousands who visit our London shows in spring-time to witness the flagging masses of subjects absolutely unable to support either their foliage or flowers, simply because they have been ruthlessly dragged from the ground and crammed into pots a day or two before the exhibition comes on, a manner which never can possibly bring them into favour, but the reverse. Fifteen or twenty years ago hardy plants were far better shown than they are now, because the compilers of schedules did their portion of the work in a far more satisfactory manner than now. They did then what is rarely seen now-a-days, viz., cited the size of the pot in which the plants should be shown, and also the number of plants to be shown, and, finally, what is very important, that these plants should be "grown in pots." Under these rules fewer plants were shown than now, it is true, but what were exhibited were very creditable indeed. Since these rules have fallen into disuse, a slovenly method of exhibiting hardy plants has predominated, which could at once be checked if societies insisted upon having the plants grown in pots of a given size. Another somewhat lax mode of procedure is that which allows an indefinite number of plants, or, still worse, an indefinite

space to be filled by any one exhibit. A group of stove and greenhouse plants arranged for effect on the turf is invariably allotted a given area, and why should not the same law apply in the case of hardy plants? thereby allowing each exhibitor an opportunity for contesting the prize on an equal footing. Let the prize be awarded for effect, and we should soon see these discreditable arrangements of lifted plants dwindle into oblivion, and not this alone, for the society that adopts such a measure and adheres to it will be doing not only a great and good work for extending the better cultivation of hardy plants, but will at the same time be the best friend to those who grow such, for as surely as the public see these plants as they should be seen, they will also, if I mistake not, become desirous of cultivating them. A very large proportion of our best hardy plants can be grown into really good specimens in a couple of seasons, and many in one half the time, so that the question of waiting for such is not very great. We certainly have no subjects capable of producing such excellent results when judiciously grouped together as hardy plants, by reason of their great variety either in foliage or flower; and such being the case, exhibitors of them are to blame if they do not present them in their best garb to the public view, and certainly, in the words of the time-honoured maxim, "What is worth doing at all is worth doing well."

In some respects hardy herbaceous plants differ when grown in pots from some other things, as stove plants, for instance, and unless they are grown and shifted into larger pots year by year they are best planted out into good ground when they have ceased flowering, and potted up again in early autumn. Others, again, particularly Funkias and such things as *Achillea ptarmica plena*, are better when confined permanently to pots. Under this treatment the former group will stand very hard forcing if occasion requires, while the latter may be brought on in the greenhouse, and in this way its blossoms are whiter than usually seen. I have referred above to the noble examples of plants requiring several men to lift them, and while we may to some extent imitate this with the bolder and more showy perennials it is too much, I suppose, ever to hope for such among our really good and choice alpine; but if we cannot expect this, it is certainly within the bounds of possibility to vastly improve the present mode of exhibiting these plants. Some may say that gigantic specimens, while being very imposing and so forth, are not required in sufficient numbers to fill an exhibition tent entirely. Certainly not of any one class; yet if we traverse the various departments, hot and cold, we shall find abundant material in each to make a wonderfully diversified display, whether grown in specimen or half specimen form, while their very stature and various habits of growth will afford all the variety requisite. But it is not even growing plants into specimen form that will add to the beauty and interest of the exhibition if these things are not effectively grouped, for if we recall those extremely interesting banks of miscellaneous stove and greenhouse plants which the visitors to the Royal Botanic Society's exhibitions generally admire so much, the most noticeable feature about them is the taste in arranging, and not the size of the plants individually. Yet, on the other hand, if we turn to a collection of alpine as usually exhibited, we find a collection certainly of rare species or varieties in 3-inch, 4-inch, or 5-inch pots, but for taste in arranging there is simply none, and so far as I have seen no attempt to produce it, and yet at

the same time, what unlimited scope, not only for an interesting display, but for an effective one also. The usual wording of the Royal Botanic Society's schedule runs thus: "Collections of alpine in flower in pots"—a few words having a broad and extensive interpretation. This being so, why is it that we only see scraps of plants in very small pots jammed there by a pair of stone wedges, as it were? Why should not the wording of the schedule be fully realised? and if we cannot have 12-inch pans of our best *Androsaces*, *Gentians*, and *Saxifrages*, such as *aretoides* and its variety *primulina*, with *coriophylla*, *squarrosa*, *cæsia*, *valdensis*, *sancta*, *Burseriana* and its forms, and many more, we might certainly very much improve the general aspect by making additions which are at present only too conspicuous by their absence. For instance, a little study of the subject would reveal a most interesting assemblage of early-flowering bulbous alpine much too rarely seen, and of these alone a most charming display could be made; large pans of the most distinct mossy *Saxifrages* could also be introduced. Pans of the most showy alpine *Phloxes*, *Gentiana acaulis*, *Lychnis Lagasceæ*, than which we have no more truly beautiful or easily-grown alpine, *Adonis*, many species of *Primula*, not omitting those grand and showy kinds as *rosea*, *cashmeriana*, *denticulata*, *capitata*, and such like, large pans of these having a most telling effect; *Aubrietias* again, *Aster alpinus*, *Saxifraga pyramidalis*, with others of the crustaceous group too frequently left at home. Far less showy subjects are taken to exhibitions simply because of their rarity. *Soldanellas* and *Sisyrinchium grandiflorum* and *album*, *Dianthus alpinus* and many more we see, but rarely in anything like good form, and hardy plant specialists would, I feel sure, be doing themselves a good turn by making exhibits of these things far more attractive than they now are. The taller-growing herbaceous plants should also receive greater attention than is given them by growing them into specimen form in pots. Very few, if any, have given these so much attention in this way and with such complete success as Mr. Robert Parker did prior to his retiring from the nursery business at Tooting some years ago. Very rarely indeed was a plant lifted from the open ground at all for exhibition, but instead a series of beds were set apart in the nursery and known as the specimen beds. From this source many large plants were taken and potted into 12-inch pots (which formed the limit of size then) in the autumn of each year, and afterwards plunged two-thirds their depth in a set of beds devoted to the purpose and protected by hedges of evergreen *Privet*. The selection of plants included double *Pyrethrums* in goodly numbers, also home-grown *Spiræa japonica*, which always flowered and forced well; *Dielytra*, *Saxifraga cordifolia* vars., *Iberis*, alpine *Phloxes*, *Scillas*, *Muscari*, *Iris reticulata*, *Solomon's Seal*, and many more, and by introducing some into warmth, plants were obtained before they flowered out of doors; but what was better than all, the plants exhibited were always beautiful, but, as too frequently seen now-a-days, lifted but a day or so before the exhibition, they are the reverse of creditable. We have at the present time a far greater number of really good subjects suitable for exhibiting than at any former period, and if these received the attention they justly deserve by properly preparing them in advance, *i.e.*, the previous autumn, hardy plants would constitute one of the leading features in the spring exhibitions throughout the country. Since I commenced the above notes the schedule of the Royal Botanic Society

for 1891 has reached me. Upon looking through it I see a prize is offered for "12 *Scillas*, 6 varieties," for March 18, but how is this to be done, for *Scillas* required to flower at this date should have been potted in October last, that is, to do them justice? Why could not such a society as this encourage hardy spring bulbous plants generally to include *Chionodoxas*, *Leucojum vernum*, *Starch Hyacinths*, *Dog's-tooth Violet*, *Fritillaria Meleagris*, *Crocus* species, *Scillas*, &c., and allow would-be exhibitors an opportunity of obtaining their bulbs in early autumn? E. J.

THE CARNATION.

At the present time the plants, whether they are out in the open ground or in frames, are quite dormant; they are all under the sway of the ice king. This cannot last very long, and when the break-up does come, work in every garden will be pressing. We are content to let the Carnations alone with the glass lights still covered with snow, and as the plants are frozen hard underneath, it does not matter if they do not get any light.

The Tree or perpetual flowering Carnation is a more useful plant in the garden than the fancy show kinds. "Tell me," said an amateur cultivator of Carnations, "how I am to get flowers at mid-winter. Anyone can grow these," alluding to the boxes or trays of blooms in the Drill Hall two years ago; and this question has often been propounded since. Many cultivators do not need to be told that the summer and winter-flowering types of Carnations are quite distinct from each other. The perpetual-flowering varieties are not new to cultivation. My earliest experience of them dates from the year 1854, in the early summer of which I was sent to nail some old plants to a wall. They had flowered during the winter, and it was a good idea to plant them out in the open ground, where they bloomed against a south wall during the late summer and autumn months. The plants, I remember, were about as tall as I was, and the flowers at that time were of inferior quality. Those who are desirous of obtaining a stock of good flowering plants for next season should set about propagating plants without delay. I obtained single plants of a few choice varieties in the autumn, and being anxious to obtain a good stock of each of them, cuttings were put in about the middle of December; every one, large and small, formed roots in a house where we could get a little bottom-heat with a temperature of about 45°. The cuttings do not form roots freely unless they are covered over with glass, but a square or two laid upon the labels is sufficient to prevent evaporation. If rightly treated they form roots in three weeks or so, and as soon as they are fairly rooted place them in small pots, still keeping them in a warm greenhouse temperature, for it is important that they should continue to make steady growth without any check. They succeed best if placed near the roof glass, where they get most light and air. A succession of cuttings may be obtained and put in until March if a large number of plants be required, but it is better to grow a less number well than attempt to grow too many and fail to get good results. The plants require good treatment, to be repotted when they need it in good soil, and kept quite free from insect pests. It is in the early stages of their growth when under glass in the spring that they are likely to be checked in their free development, for in the summer months, that is from May to the end of September, they are best out of doors, arranged neatly in an open position where they are fully exposed to light and air. They make the cleanest and best growth out of doors. Some persons plant them out in the early summer and lift them again in the autumn, but this sometimes gives them a serious check.

Another class of Carnation amateurs or cultivators care nothing for the winter-flowering group, being taken up entirely with the flakes, bizarres, and *Picotees*, and especially such as produce exhibition blooms. These are, as stated above, quite frozen up in the frames; but in a month or so it

will be time to repot some of them, and others may be planted out in prepared ground in the open garden. In replanting or repotting them, it is well to be careful not to disturb the ball of roots more than may be required to turn the plants carefully out of the small pots in which they have passed the winter. Another class of cultivators plant out in the autumn. They do this in the north of England more than in the south. It is rather beyond the power of any cultivator to give adequate reasons for the healthy growth of the plants and the perfect development of the flowers in one district, when the same things cannot be cultivated successfully with the same or even greater care bestowed upon them in another. I do not know any other cause except climatal or atmospheric conditions. I saw large beds of as vigorous and healthy-looking Carnations as anyone could desire in Scotland, about the end of November last. These had not been long planted, and the same system of culture has prevailed in the counties of Northumberland and Durham for generations. The plants are put out in the open ground in September by some, notably Mr. Elliott, gardener at Harbottle Castle, and by others, as Mr. Adams, a good grower at Swallow, near Newcastle-on-Tyne, in November. Mr. Adams informed me that the sweepings from any cattle market is the best manure for Carnations. The amateurs in the north are most attentive to their plants, and obtained splendid large flowers with, I think, much richer and brighter colours than ours in the south, at least near London. The winters in the north are, perhaps, more steady when they once begin, and the growers more often have their plants well covered during winter with a thick coating of snow. This is the best of all coverings for tender plants, or rather for Carnations, which are not really tender, but suffer from wet and frosts combined. Mild weather one week and frozen hard the next is generally our portion near London (the present season being the exception). Such alternations of temperature throw the plants out of the ground, unless they are planted very early and are firmly established. Where gardeners have to contend with these conditions, they have learned in the school of experience that it is much better to pot up the layers in September or October and plant out in March, or at any time in the spring months when the weather is favourable and the ground in good condition. In setting out the Carnations, which ought to have been preserved in frames through the winter, each layer having been planted in a small pot, the roots ought to be disturbed as little as possible. The soil should be rich, but no manure, except such as is well decayed, should come in contact with the roots.

Those who grow for exhibition grow a number of plants in pots, and these can be repotted in March likewise. The compost should be prepared at once, and may consist of good loam four parts, one part decayed manure, one part leaf-mould, and some coarse sand. Here again we learn from experience that some of the best flowers of some sorts can be cut from plants in the open garden; others do best when cultivated in pots, and it is not always the most weakly-growing sorts that succeed best in pots. *Brunette* (Kirkland) is one of the finest of the heavy red-edged *Picotees*, but it is of very weakly growth, yet we can sometimes cut the best flowers of it from outdoor plants.

There are, of course, so many details of culture and so many different opinions of what is best in different districts, that one is not prepared to treat the matter dogmatically. The best of us are ever-learning and afraid to come to any conclusion as to what is right when the conditions under which the plants are grown are not well known to the cultivator. From a long experience I can tell what to do in our own neighbourhood, and I would not like to, as they do in the north, trust all the plants out in the open ground for the winter. Some will say, indeed it has been said, that if a Carnation will not stand out of doors in the open border through winter's snow and summer's heat, it is not worth growing at all. Many amateurs do not think so; they would rather grow it as a greenhouse plant than not have it. A very popular *Picotee*, for in-

stance, is Janira (Nye); it has a buff ground, heavily edged and barred with maroon, but it seems to dwindle away, either as a pot plant or under border culture, unless a plant or two may be prevented from flowering for a season. This seems to develop the layers, and they become strong enough to produce flowers for the next year. Thus it requires for this and similar varieties two sets of plants, one to be grown for layers and the other for flowers; they are not vigorous enough for both. There is much want of knowledge amongst amateurs as to what constitutes a Carnation and what a Picotee. For very many years they have been grouped as under. Scarlet bizarre Carnations are such as have a white ground with stripes of maroon and scarlet. Crimson bizarros have purple and crimson or rosy red stripes. Pink and purple bizarros explain their own colours. There are also three divisions in the class for flakes, viz., purple, scarlet, and rose. All are more or less deeply marked with the above colours on a white ground. The selfs constitute a group by themselves, and are usually termed border Carnations; they are of one colour only—white, yellow, rose, crimson, scarlet, purple, maroon, &c. Tree or perpetual flowering Carnations produce growths from the flower-stems more or less freely, and thus prolong the blooming season. They will in some cases produce quite large plants with woody stems. Picotees have either white or yellow petals, and the colours are imprinted on the edge of the petals, sometimes in the form of a narrow margin-like fine wire; these are termed light-edged. The colours of others are an eighth of an inch or more in depth, and are described as medium or heavy-edged. The colours are red, purple, or rose of many shades. Yet another group termed fancies are such as cannot be included in the other sections. Any pretty thing may be put in this section.

J. DOUGLAS.

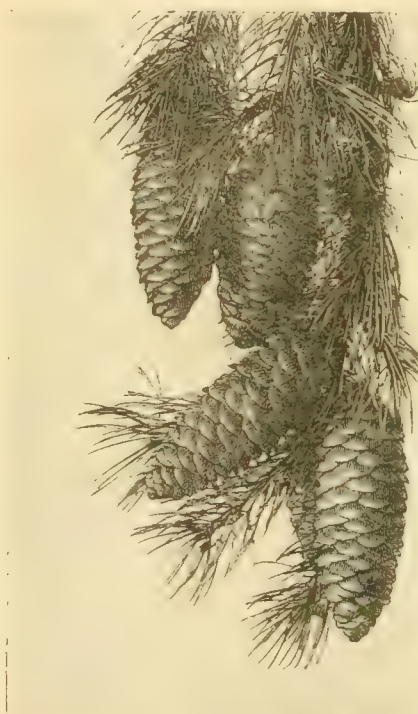
TREES AND SHRUBS.

BERRY-BEARING PLANTS.

WHAT would autumn be without its many-coloured leaves and its bright shining berries? Certainly one of the dreariest times of the whole year. But as it is October decks our hedges with gorgeous hues, such as even the gayest of wild flowers cannot produce, and the wild berries on many a trailing Rose bush, or on the tall Holly tree, add a beauty which no other time of the year can equal. It is an old saying that a profusion of berries in autumn is a sure sign of a hard winter. It does not always prove true, but this year the proverb has been verified, for our old-fashioned winter, as people generally call it, was ushered in by an autumn which was most unusually productive of all sorts of berries. Holly trees were this year covered with their bright glossy berries, and consequently have been cut to a great extent for the decoration of our churches. I saw in some paper a condemnation of this practice on the ground of robbing the birds of their proper food. But surely we must not deprive the House of God of its beautiful decoration with Christmas berried Holly simply because some birds may thus be deprived of expected food. It is easy to supply the place of the Holly berries for them by giving crumbs or seeds, which will be much more than the wild berries to our poor little feathered friends, which certainly deserve our pity in hard weather. Yew trees as well as Hollies were more than usually productive this year, and when the frost first began some weeks ago it was a pleasant sight to see the crowds of starlings, thrushes, missel-thrushes, and other birds which would noisily throng the Yew trees in their search for food. Evidently the berries are nourishing, and pleasant to the taste of our song birds. But, alas! they are soon gone, and then the dark

green boughs are quiet and still once more, and the noisy chatter of the hungry birds over their winter food is heard no more.

Birds seem to be especially devoted to the berries of *Aucuba japonica*. As soon as they ripen with me they disappear, as birds find them out so quickly. I have seen bushes beautifully covered with fruit in some gardens where birds are not so plentiful as they are here. It is one objection to the berries of this shrub that they ripen when flowers are plentiful, and not at a season when the beautiful things of summer are fading away. It is extraordinary what a distance bees will carry the pollen of *Aucuba* flowers. When first the male plant was introduced into this neighbourhood, it was surprising to see how rapidly all the shrubs of *Aucuba* began to show berries in the country round. I called the attention of a tradesman in the town to the berries on a shrub of *Aucuba* that grew in his garden, but it was very hard to persuade



Coning branch of *Abies Smithiana*.

him that it was a novelty to see them. "If they are there this year why not always?" was his very natural question. The answer was simply that some distance off in a neighbouring garden a stamiferous plant had been introduced, and bees in their flight had brought the pollen to the tradesman's garden also. I do not think that bees absolutely keep to the same kind of flower when out on a pollen-gathering expedition, but, so far as I have watched their habits, they prefer to keep to the same species if there is sufficient of the plant to enable them to fill their bags. Small plants of *Aucuba* well berried are exceedingly pretty, but, as I have said, they come at a wrong period of the year.

If the *Arbutus* can only be persuaded to bear its beautiful Strawberry-like fruits, it forms one of the loveliest objects in the shrub garden. But with me, while it produces annually a quantity of flower, I look in vain for fruit afterwards. This may be owing to want of sun, for I know of trees in this parish which every year have a fine show of fruit. Birds are very greedy

after this fruit also, and it is impossible to keep them away. Some people like them, but the mealy, half-sweet flavour of the *Arbutus* Strawberry is not generally thought pleasing. Killarney is their home. The common *Berberis* makes a lovely shrub in autumn, when its branches are gracefully bent down with loads of berries. They are not only pretty, but useful, for those who like an acid or sharp-flavoured preserve know that conserve of *Berberis* is not by any means to be despised. They are usually ripe about the time of our harvest festivals. The berries of another shrub of the same genus (*Mahonia*) are also very pretty. They are like diminutive bunches of Grapes, and contrast well in their rich purple with the beautiful glossy green of the long leaves. Privet berries, which are like still smaller bunches of Grapes, are pretty in themselves, but the plant is seldom ornamental, and is often allowed to take too much room on the edges of waste corners, &c. Its leaves are ugly, and so is its general habit. Beautiful as the large single flowers of the Austrian Brier Roses are, the large fine hips which come after they have passed away are even still more beautiful, and have the great advantage of lasting a long time, which, unfortunately, the flowers do not. Rose hips are always beautiful, and this year especially made the hedges look bright, sometimes standing up stiff and rigid, sometimes trailing about among other wild plants in the hedge, but always drawing attention on account of the extreme brilliancy of their colouring. In nooks and dells amongst our noble Cotswold Hills, Blackberries were this year produced in great profusion. Great hanks of fruit hung temptingly over the sloping sides of old quarries or deep lanes. So great was the quantity, that last year for the first time they were gathered for the jam factories of Bristol, and tons of fruit were sent to that city. Blackberry jam is somewhat gritty, but it is exceedingly wholesome. The Scotch call it Bramble jam, and it is sometimes ordered by doctors for invalids. The best way to preserve them is to turn them into jelly, when the gritty seeds are no longer in the way.

In some parts of Devonshire the berries of the little low-growing shrub, *Vaccinium Myrtillus*, the Whortleberry or Bilberry, are very abundant. They are brought in cartloads to Tiverton market, and are also sold in the market of Ilfracombe. They are delicious when eaten with plenty of Devonshire cream, which can, of course, be bought in the same markets. It has something of the wild flavour, which gives a zest to the partridges and game which feed upon these berries, found both in woods and open moors.

In the woods near the ruined abbey of Rievaulx, and probably in other woods of Yorkshire, may be found bunches of the wild Currant berries, resembling almost exactly the fruit of our gardens. The wild Currant is not nice, and it has the reputation among the natives of being poisonous, but it is interesting and not a common wild berry. In some woods the Mountain Ash adds greatly to the glory of the autumn tints. The bright colour of the berries and the profusion with which they are usually produced make the Mountain Ash a great addition to any wild woodland scenery. Elders are usually found somewhere, either on a bank or growing in a stony corner in almost every garden. In the west the flowers are held in great reputation as a cure for toothache and other pains. They hang up Elder-bluth, as they call it, upside down by its stems along the ceiling of the living room until it becomes dried, and then it is stored away. Great, too, are the

supposed virtues of Elderberry wine. The huge whorls of dark purple berries are rescued if possible from the devouring birds and made into this precious wine.

Ivy is always pretty hanging over our old decaying walls or clothing some tall tree, which in itself would be nothing without its parasite. But it is most beautiful either when the sweet green flowers attract the last butterflies of autumn, the admirals and peacocks, or when later on the flower umbels have turned into purple fruit, which stands out stiff and quaint from the dark green leaves. The almost transparent lucid berries of the wild Guelder Rose (*Viburnum Opulus*) are wonderfully pretty, but they are too fragile for the purpose of decoration. When first gathered everyone admires them, but their beauty is soon gone.

By the side of the field path which leads from Dursley to Uley, in this county, a mass of the Snowberry shrub forms a striking feature in the tangled hedge which overhangs a rapid brook. It suggests the way in which our hedges might be made more beautiful than they now are by the introduction of hardy rough-growing shrubs of this kind, which by their peculiarity add a new beauty to the roadside hedge.

A GLOUCESTERSHIRE PARSON.

WEeping TREES.

Of these there are two well-defined types—those of graceful easy outline, and such as are stiff, formal, and avowedly artificial. A weeping Holly, for such there is, seems almost a misnomer; it is a stiff, ungraceful subject, and far more fitted for being consigned to oblivion than to be extolled and praised as it is by some. Generally speaking, however, weeping trees are possessed of all the characteristics that are most valued in the adornment of our parks and gardens, and though a few persons are decidedly averse to such trees, the numbers now generally planted out on almost every estate throughout the country but too plainly show that the demand for the best kinds is largely on the increase. Weeping trees are difficult to place to advantage, for if not suitably planted, the good effect they are so capable of producing is destroyed. For imparting character and expression to the surroundings, no type of tree is more suitable than that of an easy drooping habit of growth. Weeping trees do not associate well with tall-growing specimens in clumps or masses—isolated examples, whether on the jutting promontory or at the angles where roads meet, the latter only under peculiar circumstances, being most in keeping with almost any type of surroundings. Those to be most recommended for ornamental planting will now be dealt with.

THE WEEPING BEECH (*Fagus sylvatica pendula*) is at once, perhaps, not the most refined, but the most effective and useful of weeping trees. It is, moreover, one that, from its large size and easy outline, can be used in situations where others of a more prim and refined character would be quite out of place. Standing alone on the greensward, it looks the picture of beauty. The fine specimen of the Weeping Beech that I saw two years ago in the Woking nursery has perhaps no rival in this country, the great spread of branches and picturesque habit rendering it at once one of the most charming and desirable of the larger growing weeping-habited trees. In the Weeping Beech not only do the branches assume an irregularly horizontal position, but even the young branchlets and spray hang down gracefully. Like most other weeping trees, the Beech in question has a peculiar charm when associated with water; while again it shows off to advantage on a rocky mound, and where its falling spray associates with the jagged

peaks, as one frequently sees in some of the border counties, and at one or two places in the region of the Welsh mountains.

THE WEEPING ASH (*Fraxinus excelsior pendula*).—In this we have one of the best known of drooping trees, though at the same time the habit, speaking widely, is somewhat too stiff to meet with general approval. Nowhere does this tree look better than when standing alone on a well-kept lawn, though a fair-sized specimen at the end of one of the Holwood lakes suggests its suitability for such a situation. There are many fine old trees of the Weeping Ash throughout the country; indeed, wherever one likes to travel goodly proportioned specimens are almost sure to be met with. For arbour making it is in request, and to be well



The Weeping Willow (*Salix babylonica*).

shown off the Weeping Ash needs neat surroundings and a considerable amount of attention.

SOPHORA JAPONICA PENDULA has a somewhat stiff look about it when deprived of the leaves, but it is certainly one of the most persistent of weeping trees. It is not so common as the Weeping Ash or Beech, this largely owing to its scarcity in the trade. Taking up but little room, it is one of the best trees of its kind for planting contiguous to buildings or where space is limited. It must have a warm sunny spot and light free soil, otherwise it wears a by no means pleasing appearance. There is a form of this *Sophora* which has been brought about by grafting close to the ground, and which resembles some of the creeping Willows in habit, the branches running along almost parallel with the ground surface and presenting a most curious and unusual appearance. For rockwork or covering an unsightly object it is useful, the

branches being thickly produced and twiggy. Around London the Weeping *Sophora* is fairly plentiful.

THE CAMPERDOWN ELM (*Ulmus Camperdowni pendula*) is now much sought after for ornamental planting, being not too rampant in growth, while it is yet decidedly graceful of bearing, and suitable for planting in almost any situation. There are a great many kinds of Weeping Elms, but in my own opinion the present form is the most desirable and useful. Of the Scotch or Mountain Elm (*U. montana*) there is a neat and distinct drooping form, but it is not equal to the Camperdown, generally speaking, and this may with equal force be said of the somewhat ungainly, rough-leaved variety (*rugosa pendula*) that is occasionally to be met with about old-fashioned places. One thing in favour of the Elms is that they are of easy growth, few soils or sites, be they ever so breezy, coming amiss to their hardy constitution. Then they bear pruning well, so that where ungainly side or leading branches put in an appearance a little timely attention will always set matters right without interfering with the health of the tree.

THE WEEPING WILLOWS.—Amongst these are some of the finest and most graceful weeping trees. This is mainly owing to their slender branches and twiggy growth, whereby all harshness and stiffness of outline are avoided. The Kilmarnock Weeping Willow is a favourite with most persons; so, too, is the Babylonian Willow, illustrated on this page, both good examples of weeping trees. Two other good kinds are the American Fountain Willow and the Ringlet-leaved, both excellent, small-growing, and decidedly valuable trees. Shrubby Willows were dealt with in *THE GARDEN* (p. 14), and to this I might refer those who are interested in such. They are particularly valuable trees or big shrubs in that they grow freely almost anywhere, may be propagated with the utmost readiness, and are not subject to disease or harm through storms.

THE SILVERY-LEAVED WEEPING LIME (*Tilia argentea pendula*) has an easy grace about it that recommends it for use in the park or garden. When in full leaf it is a beautiful and choice subject, and one that is, unfortunately, far too seldom seen. Brightly-tinted and of ample proportions, with not too much of the stiffness of some of the weeping trees, this Linden can be recommended as a good all-round tree, and one that is sure to be suitably placed wherever it is used.

Of weeping forms of the Poplar the most distinct are the weeping white Poplar and *P. tremula pendula*, both good trees for ornamental effect, though of somewhat artificial and stiff growth.

THE WEEPING ACACIA (*A. pseudacacia pendula*) I can highly recommend—at least the best forms—for planting in the most conspicuous positions, it combining beauty of flowers with grace of growth to a high degree. Then the neatly-divided foliage and bright pea-green tint all combine to render the tree one of unusual beauty and interest. In choosing Weeping Acacias a word of warning may be necessary as to the proper union of stock and scion.

THE WEEPING LARCH.—This is a graceful tree of great beauty. It is of free growth, and never fails to impart a pleasing appearance to the position in which it is planted. An illustration of this is given on p. 84.

THE WEEPING OAK.—A pendulous form of our common Oak is of rare occurrence in English parks, though from its large size and easy gait it cannot otherwise be classed than as one of the best of large-growing weeping trees. It stands out boldly in the landscape, and contrasts well with our ordinary run of forest trees.

THE WEEPING HEMLOCK SPRUCE (illustrated on p. 81) is another choice, but rare subject, and it is to be regretted that we do not possess a greater number of specimens. In the common form we have an elegant tree of a semi-drooping habit of growth, but the variety alluded to is far superior, so far, at least, as grace of outline is concerned.

THE WEEPING TURKEY OAK (*Q. cerris pendula*).—This is remarkable alike for its weeping habit and

beauty of foliage. The branches sweep the ground, and so long and lithe do they become, that in some cases they not only descend to the soil, but creep along it for a considerable length. As seen at one or two places in the south of England it is a desirable adjunct to our weeping trees.

THE WEEPING PURPLE BEECH.—This is rare, but none the less pleasing and valuable. For associating with the ordinary green-leaved trees it is a choice and valuable subject.

ABIES SMITHIANA.—This, a coning branch of which is here figured, is distributed through the Himalayas at high elevations. It grows from 100 feet to 150 feet high, and bears at a distance, when in masses, the appearance of a forest of Norway Spruce, but lighter in appearance. On closer inspection, the beautiful pendulous branches and the light open character of the tree become apparent.

In addition to the above there are many other so-called weeping trees, but in not a few cases the character is not firmly established, and part reversion to the original is of common occurrence. The Weeping Walnut (*Juglans regia pendula*) has an interest of its own which may also be said of the Weeping Planera (*P. Richardi pendula*). Another interesting tree is the Weeping Mountain Ash, but it is not always procurable of good form, and many of the specimens sold under this name are the reverse of ornamental. We have also a Weeping Box, but it is of no value.

A. D. WEBSTER.

Ilex crenata.—As far as can be seen at present the recent severe weather does not seem to have affected this pretty little Japanese Holly, which is one of the best of all evergreen shrubs, and should become far more popular than it is at present. Its usual character is that of a dwarf, dense, twiggy, evergreen bush, clothed with deep green narrow leaves, each about an inch long. Its general appearance certainly suggests a greater affinity to the Box than to the Holly, but though dense it is not stiff as the common Box when small. For small gardens it is valuable, being always bright and cheerful, and will not soon outgrow the space allotted to it. Its slow growth is probably the reason it is not more often met with, as many nurserymen prefer a subject that will attain a saleable size in less time. The roots are dense and fibrous, so that it will transplant with little risk, while I have known it keep in health for years in pots and boxes on a balcony. There are a few distinct varieties of this Holly, a very pretty one being the variegated kind. In this the little dark green leaves are irregularly mottled with bright golden yellow. On a clear winter's day this is especially noticeable, as so many of its surroundings have lost their freshness. In the variety *latifolia*, known also by the names of *Fortunei* and *major*, the leaves are much broader, being in fact a good deal like those of the Box, but of a darker tint. Unlike most of the Hollies, this little Japanese species will strike root readily from cuttings put in a cold frame at any season; though perhaps the best time is early in the autumn, when, if formed of the current season's shoots, they will all root by the spring. It is a shrub by no means particular as to soil, though a good sandy loam suits it best.—T.

Tree growing in towns (Manchester).—Your correspondent "Looker-on," at p. 18, under the above heading, states that horticulturists in Manchester were asked to give advice and assistance before any steps were taken or expense incurred, but they declined. This statement is not quite in accordance with facts. Towards the end of last February I received a circular from Mr. C. J. Oglesby, secretary, town gardening section of the Manchester Field Naturalists and Archaeologists Society, in which it was stated that the opinions of experienced practical men were desired as to which were the most suitable kinds of trees and shrubs for planting in Manchester; also what was the best kind of soil, &c., to grow them in, and any other information that might be considered useful. To that circular I replied, giving not only my own ex-

perience of trees which succeed best in or near large towns, but also that of some of my gardening friends with whom I communicated on the subject. Other members of the Manchester Horticultural Improvement Society also sent in reports. This, I think, is sufficient evidence to disprove "Looker-on's" assertion that advice was declined. It would be interesting to know how many reports were received, and whether any notice was taken of the advice contained therein. I cannot agree with "Looker-on" when he states that there is no reason at present to suppose that the shrubs will not succeed. My own opinion, and that of everyone with whom I have discussed the matter, is that they are a complete failure. The plants are miserable-looking objects, especially those at the Princess Street end of Albert Square, on which there are but very few leaves, and instead of their having a beautifying or enlivening effect, they serve to make the square more dismal by their wretched appearance. I think it was a mistake to bring the trees from the pure atmosphere of the north [of Scotland, and to place them in the vitiated air of Manchester. Trees grown in the neighbourhood and that had become acclimatised would have been much more likely to succeed. The town gardening section deserve credit for their endeavours to beautify the city, and I fully sympathise with them in the present failure, and hope that their efforts in future may be attended with more success.—W. NEILD, Wythenshawe, Northenden.

SHRUBS AFTER THE FROST.

AFTER an early and prolonged frost, which commenced on November 26 and continued up to the 10th inst. (with 6 inches of snow and two partial thaws intervening), accompanied almost the whole of the time with intensely cold and cutting east winds, which swept down often in hurricanes from the not far distant mountains with unrelenting force—all this immediately following an almost unprecedented spell of wet weather, and coming on us while the lowlands were submerged and the higher grounds soddened—it is gratifying to find that comparatively tender shrubs have not altogether succumbed to such a combination of baneful elements, but, on the contrary, appear to have weathered the storm remarkably well. A plant of *Cordylina australis* 9 feet high is, I fear, killed at the top, but strong suckers at its base seem but slightly injured. Two varieties of Palms are as green and as fresh as in midsummer, a great contrast to some plants growing near them of *Ceanothus rigidus*, *Veitchii*, and *divaricatus*, these and the Orange Ball tree (*Buddleia globosa*) being about the hardest hit of anything on the place. With one exception, the Bamboos have stood it splendidly, their stately graceful wands clothed in exquisite greenery, and quite tropical in contrast to the wintry scene around. The exception is *Arundinaria falcata*, the foliage of which is quite shrivelled, a pitiable spectacle just now; but in spring, when again furnished with numberless tiny leaves thrown out from each node and a crop of shoots from the crown, it will again be restored to its usual beauty, which will amply make up for its now miserable appearance. *Aralia Sieboldi* is also green and fresh, its bold, shiny foliage being bright and conspicuous on the lawns. Of the *Veronicas*, *V. devoniensis* is much the hardiest, being untouched, while the other varieties are all injured in a greater or less degree. *Berberis nepalensis* is still brave in all its luxuriance, the most exposed tips of its handsome leaves being but slightly browned. It is, unfortunately, partly split by the weight of snow. The flower-buds, I believe, are safe. *B. Fortunei* is as hardy as *B. Darwini*, both of which have not a leaf discoloured. Myrtles, even on sheltered snug walls, are singularly affected in patches only, chiefly about the centre of the plants. *Escallonias* in some positions are injured, while others have escaped. *Camellias*, *Bays*, *Loquats*, *Elæagnus*, *Euonymus*, *Arbutus* (many with ripe berries), *Azara microphylla* (excepting the points of a few strong shoots), *Olearia Haasti*, &c., are unharmed, whilst *Aloysia citriodora* is terribly cut. A fine plant of *Phormium Veitchii*, or *Colensoi* (I

do not know which it is), is at present apparently safe; so is *Benthamia fragifera*, protected from the cutting blast by a contiguous friendly rock. All the varieties of *Hydrangeas* carry a withered look. They are generally in full leaf and some flower at this date in ordinary seasons. The *Rhododendron* blooms that were open were, of course, destroyed by the first keen frost. Young plants of *Eucalyptus globulus* have a decidedly unhappy appearance, but veterans of loftier dimensions, 50 feet high and upwards, fully exposed, have escaped. The tender points of the leaders are no doubt killed, and the foliage on the east side is partly bleached and slightly withered, and in due time will drop, but I apprehend, at present at least, no fear of the trees being permanently injured. I shall report on them later on. Judging by the appearance of plants here in general, I am of opinion that the hurricanes of the remorseless east winds with 12° of frost have worked infinitely more destruction on vegetation than a severer by several degrees of still frost. With the exceptions noted, the plants enumerated are fully exposed; none have any artificial protection whatever given them, and it is very encouraging to find they have come through the severe ordeal so well. I doubt if we are yet out of the wood, for as I write the sky is clearing and the wind veering to the dreaded point—north-east.

JOHN ROBERTS.

The Gardens, Tan-y-bwlch, Jan. 13.

WORK IN PLEASURE GROUND.

ONE would have, I fancy, to go back a number of years to find a season in which the ordinary work of the pleasure ground has been so long at a standstill as in 1890-91. The general clearing up, which, as a rule, is finished by the end of the year, was stopped by the early December snow, and is only being just continued. The tenacity with which the snow clung to all evergreen shrubs coupled with the severe and continued frost has also prevented pruning operations, and we have consequently fallen back on other work. A sloping glade in the pleasure ground some 80 yards by 60 yards, of which perhaps two-thirds is Grass, has a belt of Evergreens running along the upper side of it, consisting of common Laurel and *Rhododendron ponticum*. My first idea in the way of brightening this, so that it should present a more pleasing appearance from the bottom of the glade, was to remove all the Laurels, and then after the flowering season was over, to cut and lay the *Rhododendrons*, planting afterwards in autumn the spaces vacated by the Laurels. So strong is the growth of *R. ponticum* here, that I doubt very much if things of weaker growth would ever be at home in such an arrangement unless we were continually cutting the *Rhododendrons*. I have therefore decided to remove all the old Evergreens except a fringe of *R. ponticum* at the extreme top of the slope, and devote the greater portion of the space thus cleared to a few of the choicer shrubs, and (chiefly) to a collection of the boldest and strongest of our herbaceous plants, whilst a fairly large piece of lawn immediately in front of the new border will be utilised for the naturalisation of some of the *Daffodils*. It may appear on the surface rather a pity to root up a lot of old-established stuff, but in all large pleasure grounds there is a superabundance of such greenery, and whilst it may perhaps be with advantage left undisturbed where firmly established under trees to form a dense undergrowth, I think in open quarters where other things will do well the change ought to be made as time and circumstances permit. The planting of such sites must naturally be bold and decided. It would be utterly out of character to insert subjects of dwarf or weakly growth, which necessitate a close inspection to admire their beauty, or to drop in a plant here and there in different varieties. The object rather should be to plant large clumps of the different things, keeping the varieties together, so that they present individually from a distance a considerable surface of bloom. The *Starworts* will claim an important place in such an arrangement, and will be planted in masses, *A. dumosus*, *A. fragilis*, *A. carneus*, and *A. ptarmicoides* in front, to be succeeded

by such sorts as *A. Amellus*, *A. bessarabicus*, and *A. ericoides*, these again backed by *A. formosissimus*, *Novæ-Angliæ* and *pilosus*. Other plants to be introduced in connection with the Starworts will be bold clumps of *Funkias*, of the Day Lilies, especially *disticha*, *fulva*, *Kwanso*, and *K. variegata*, of the Globe Thistle, and some of the *Eryngiums*, also some of the boldest of the *Irises* and the *Pæonies*. The background can be made up with such things as *Chrysanthemum maximum* and *C. uliginosum*, *Helianthus*, *Rudbeckias* and *Spiræas* in variety, together with, as I have said, a few of the choicer shrubs. There is, fortunately, no difficulty in selecting a collection for such a purpose; indeed, if need be, such a border might be completely filled by almost any one of the different families of plants above named, such, for instance, as the Starworts, the *Pæonies*, or the *Spiræas*. The arrangement will be completed by the planting of small collections of *Daffodils* on the sloping lawn immediately in front of the border, a stretch the entire length and some 20 feet in width being selected for the purpose. The situation (south-west by south) and the soil, a very sandy loam, may be rather hot and dry for many members of the popular *Daffodil* family, but I fancy these disadvantages will be partly, if not wholly neutralised by planting rather more deeply than usual, so that the bulbs rest on a moist rather clinging sand, which comes to within a few inches of the surface of the ground. I thought of trying some of the early flowering yellow trumpet section, as *obvallaris* and *Golden Plover*, also by way of experiment *Daniel Dewar* and the varieties of *Johnstoni*, also *princeps*, and I think the white pallidus *præcox* might do well. Those favourites for cutting, *poeticus* in variety and *incomparabilis plenus*, will also be tried. The situation should be favourable to *juncifolius*, *triandrus* and the varieties of *Corbularia*. Perhaps one of the many readers of THE GARDEN like myself, an ardent *Daffodil* lover, may give a few hints on other varieties suitable for naturalisation in such a spot.

E. BURELL.

Claremont.

STOVE AND GREENHOUSE.

CYCLAMENS.

It was very unfortunate that the council of the Royal Horticultural Society should have published through the daily press information to the effect that an exhibition of *Cyclamens* would take place at the James Street Drill Hall on the 13th inst., because the announcement was made without reason, not a single *Cyclamen* being staged. This lack of plants was due chiefly to the weather, which has seriously affected both bloom and growth; to the want of prizes or some encouraging feature to growers to take plants to the Drill Hall; and further, to the belief held by growers, who are nearly all market men, that they have much to lose and nothing to gain by sending quantities of *Cyclamens* to the Drill Hall. Perhaps the council have not in this matter fully realised the fact that because Tuesdays are market days, *Cyclamens* or other market plants would have to be taken home again, as there is no demand for them till the following Thursday. It was further pleaded that the best of the *Cyclamen* season was over. That, however, is not the case. We should see as good plants now as in November, and almost as good as in March. Practically, where there is a large collection grown, as is the case in the market nurseries, the blooming time extends from early in November till the end of April, a period of six months, when the bloom is of the most valuable description. But even the best of growers cannot produce good blooms when the air is full of fog and the sun is absent for weeks together. We have had one of the worst *Cyclamen* seasons known for years in what may be called the metropolitan area, but further out, where fogs have not been so constant or dense and less smoky, very good

plants are to be seen. Very many of the late Mr. James's old friends wondered that for the culture of his choice florists' flowers for seed (*Cyclamens* included) he should have gone so far afield as Farnham Royal, where the situation is high and airy; but such weather as we have just passed through has amply justified his forethought, because the *Cyclamens* at Woodside are in fine form and blooming profusely, whilst in the London area growers are complaining of the difficulty found in getting presentable plants. One large grower remarked the other day that because of the density of the fogs and the need for strong firing, arising from the intensity of the frost, his seedlings were drawn up already beyond all precedent. If we are to have winters of fog and darkness, such as have marked the present one, our *Cyclamen* growers will find it needful to remove their establishments into loftier regions, and where the smoke of the metropolis does not extend. What renders the outlook all the darker is the fact that London is extending so enormously, and with it the production of smoke and soot to an alarming degree. The soot not only blackens the fog, making the darkness all the more intense, but it covers the glass and even permeates the houses and spoils the foliage. The present winter has shown only too forcibly that plant culture within certain areas is, by the increase of towns and cities, becoming more and more difficult. This is all the more disappointing with regard to the *Cyclamen*, because it has hitherto been regarded as one of the very best of our winter market plants. Certainly everybody cannot do *Cyclamens* as they do Chinese *Primroses*, which, easily raised from seed and rapidly grown, will certainly turn out very good blooming plants. Under ordinary conditions of culture, *Cyclamens* come readily from seed also, and are raised in immense numbers, but their season of growth is a long one. Ordinarily, seed is sown in August or early in September, and from the appearance of the seedlings through the soil to their eventually becoming well-bloomed market plants, some fourteen to sixteen months later, they have to be kept always on the move. Stagnation of growth in seedling *Cyclamens* is fatal to their future usefulness. No doubt one reason why private growers and gardeners who attempt to grow a few *Cyclamens* from seed yearly so often fail arises from the fact that at certain busy periods of the year the plants do not receive that needful attention which in any market establishment is never lacking, and a check follows, from which the plants do not fully recover. Hence the indifferent specimens, imperfect flowers, and sparsity, as compared with what is seen in good *Cyclamen* growers' collections. Plants that take over a year to run from seedlings to the blooming stage demand very considerable attention, especially during the heat of summer. Just then, when the bulk of the stock of seedlings is in 3-inch pots, check from drought and from aphids might result in the demoralisation of the whole lot. It is found that cold north houses and frames suit the plants best for some two or three of the summer months, as in such aspects there is, if the season be warm, ample heat, whilst the danger from drought and aphids is greatly lessened. Later, as the blooming period approaches, houses of diverse temperatures are useful for checking or facilitating bloom as desired. In that way, from the same batch of seedlings, the blooming time may be extended for some months. The best strain is that known as the *giganteum compactum*, which is very robust, blooms freely, the flowers large and good.

A. D.

Euphorbia jacquiniæflora.—It is not generally known that this useful winter-flowering plant

may be raised from seed. If the seed is sown early in the year, good plants may be had for flowering the following winter. I believe that seedlings would be less liable to die off and would keep their foliage better than plants propagated from cuttings. I find that this *Euphorbia* does much better when planted out than in pots. If a good space can be made up over a little bottom-heat in the stove, using good rough porous compost and plenty of drainage, the plants will grow vigorously, produce long racemes of bloom, and keep their foliage well.—F. H.

VARIETIES OF THE AFRICAN ASPARAGUS.

THEIR USES.

THE value of these varieties of the *Asparagus* family is not so fully appreciated as it should be. Not only are they ornamental in the natural style of growth, which is the best way to display their light and elegant sprays to the best advantage, but they can be grown and trained upon trellises, in which manner they look well when the shoots are not allowed to entwine amongst each other. As climbers to embellish a conservatory, they are peculiarly well adapted by their lightness and grace. In such positions each shoot should be looked after as it grows, and kept separate from its neighbour. In doing this it does not follow that any formal plan of training be adopted; it is better otherwise, in my opinion. As long as each shoot has freedom of growth it does not matter how irregular it is. I saw a capital instance of this some time back in a conservatory at Mr. E. M. Nelson's, Hanger Hill, Ealing, where Mr. Chadwick, the gardener, had allowed a plant to grow thus in a natural manner. For covering an unsightly piece of wall or woodwork, one of these varieties of climbing *Asparagus* is particularly well suited. Although I have never seen the following use made of them, I see no reason whatever why it could not be done. Blinds which are often wanted for the sides of conservatories are frequently a source of trouble. Why not try by training the shoots of the *Asparagus* thinly at a fair distance from the glass? Their extreme lightness of growth would admit a good quantity of light, but be sufficient to prevent injury to plants susceptible of scorching. The growth would be paler in colour, but this would not matter when serving a double purpose. I have seen an excellent mode of training the *Asparagus* adopted at Grimston Park, Tadcaster, by Mr. Clayton, who has there a fine plant trained on a flat circular trellis, the intention being to use it in house decoration for a screen or any other similar purpose. I thought this a good idea, the bright fresh green foliage being all that one could wish. It would not take very long to work up suitable plants for such purposes, and there is no question about the durability of the *Asparagus* when so employed.

CULTIVATION.

In growing chiefly for supplying cut foliage, I prefer to have the plants in an open border, rather than in pots; in fact, I consider this the better plan whenever it can be adopted. As regards soil, I have found them to be most accommodating. I have grown them well in peat and loam of about equal proportions, also with peat predominating. Young plants do best in rather light soil. I have them now planted out in loam, and this, too, somewhat heavy, being in the same borders as the stronger growing Tea-scented *Roses*. I find they prefer a liberal supply of water, especially if confined at the roots. When allowed to get dry, the foliage will eventually turn yellow before its time, with also a weakening of the growths. They thrive well in varied temperatures. Some years ago, when growing on a plant of *A. plumosus nanus* as quickly as I could, I adopted stove treatment, and the plant grew rapidly. Later on the same plant, when of large size, was kept in a temperature during the winter months of 40° to 45° at night, the minimum being frequently touched in severe weather. Of course, at such times the plant was kept rather drier at the root. In the same house and temperature I have plants now thriving well planted out; these annually make first rate growths some 10 feet and 12 feet long when not cut ere they reach that height. Even when cut, fresh growth pushes

forth below if not cut too hard back. Cutting the growths to a moderate extent tends, I think, to increase the vigour of the plants.

FOR CUTTING

they are most valuable and may be used in a variety of ways. In a temperature which is trying to the fronds of the Maiden-hair and other Ferns, the *Asparagus* will stand with impunity for a week or ten days, or even longer in more favourable situations. I used some large sprays on one occasion for a dinner-table decoration. Thinking I should have a repetition, I removed them to a cool cellar, and there they kept fresh and green for weeks afterwards. I have seen them lately used very tastefully in a bouquet of *Chrysanthemums*, whilst extra long shoots are splendid as climbers for the stems of tall glass vases or for suspending from the top of tall epergnes. Small pieces can be arranged with good taste in sprays and coat flowers. For sending a long distance in a cut state by either post or rail this is preferable to Maiden-hair Fern.

PROPAGATION.

This is effected in various ways. *A. plumosus nanus* and probably the type also are best raised from seed. If this is the object chiefly in view, then grow the plants in a warm house, training the shoots near to the glass, and whilst in flower keep a drier temperature, or else keep the plants at the dry end of the house; fertilisation will thus be more effectual. A large plant grown in this way would supply a good number of seeds. I have raised *A. p. nanus* in this way without any trouble. *A. tenuissimus* can be struck freely enough by cuttings of the lateral growths with a base; for this mode sand should be used freely. Increase by division is another way applicable to all varieties when strong enough and with several crowns. Why *A. p. nanus* refuses to strike as cuttings I cannot explain. I never yet heard of any being so raised. In the cases of either seedlings or cuttings, potting off singly should be resorted to as early as possible before any great amount of root action takes place; thus treated the young roots will not be so easily injured.

VARIETIES.

There are not many varieties in cultivation. *A. plumosus* and *A. p. nanus* are more extensively grown than any other sorts, as far as I have seen. These, in the formation of their branches, are quite distinct from other kinds. The dwarf form when grown strongly is disposed to take after the type in making long growths instead of keeping compact. For using in a cut state, these forms are very useful as a fringe or base to an arrangement. *A. tenuissimus* partakes more of a branching habit and irregular growth. This variety grows very freely, throwing up a quantity of fresh shoots in the course of the year. It is well suited in long sprays for entwining around the stems of vases or over the handle of ornamental baskets. *A. virgatus* I have grown, but do not consider it to have any particular beauty over and above the common *Asparagus* of the garden. The greatest addition that I have seen to those already recommended is *A. deflexus*, and this, I think, when better known, will be highly appreciated. In growth and habit it is the most graceful of all. It is particularly well adapted for growing in baskets, in this way showing off its true character to the best advantage. Its growths are more slender than those of other kinds; hence they hang most naturally over the sides of a basket. Its slender shoots will prove of great service for light arrangements. I can recommend this variety with every confidence to those who have not already obtained it.

INSECTS.

With the exception of slugs being partial to the young and tender shoots, I have not found any of our well-known garden enemies to give trouble. Brown scale might possibly be troublesome, but I have not found it so. If anything overgrows the plants that may be subject to green-fly, the deposit will settle upon and make the shoots unsightly if not stopped in time.

J. H.

Passiflora edulis.—My experience of this differs from that of "E. H." (p. 62) as to giving

preference to cuttings above seedlings. Having tried both, I much prefer the seedlings, as giving much finer fruit, and as for productiveness, they, if allowed, would carry a sufficiently heavy crop to kill the plants in one season. I may say that our plants are grown in confined spaces (Fig-like) in poor light soil over ample drainage, and after full crops are set the plants are fed and watered liberally. I also find here that too strong heat and exposure to bright sunshine considerably injure the reproductive organs, shrivelling them up before fructification takes place. Herewith I send you a fruit gathered to-day. It is not so large as that produced in summer, and you will observe that it is slightly deformed. This Passion Flower is deserving of extended cultivation. Several gentlemen in the Southern States of America are commencing experiments in cultivating it in the open there as an article of commerce.—J. R.

Bouvardia Humboldtii corymbiflora.—In Mr. Hudson's interesting article on *Bouvardias* he does not include the above in his list of useful varieties. There are many growers who succeed well with other sorts, yet fail to flower this variety successfully. It is quite as easily managed as any of them, and will produce quite as much bloom, though, perhaps, it cannot be relied upon for flowering at mid-winter. We grow a large quantity for cutting from. The plants begin to flower in June and keep up a succession of bloom until the end of October; in fact, this autumn, owing to the bright sunny weather, they were in bloom even later. The plants are grown in pots, and will do service for several years, the older ones producing much more bloom than those propagated the same season. As soon as the flowering season is over the plants should be dried off. After they are thoroughly dry in the pots they may be pruned back to within one or two eyes of the old wood, after which they may be kept in any cool position. It is better to expose them well to the light, and give them sufficient water to keep the wood plump and fresh. Later on, when they show signs of starting into growth, they may be shaken out and repotted into smaller pots and placed in warmth. After they are well started into growth they may be stopped once or so; but frequent stopping is undesirable, as a few good strong growths will produce more bloom than a lot of spindly ones. The plants should be potted on as they require it, giving them larger pots than the other varieties. They must always have a light open position, but do not require much artificial heat; in fact, they will grow and flower well in the open ground during the summer, but it is desirable to keep the plants under glass for the sake of keeping the bloom clean, as it is easily damaged by wind or rain. Later on in the autumn they will require a little warmth to keep them going. The main points towards success with this *Bouvardia* are to grow the plants on vigorously, keep them well exposed to the sun, and free from insect pests.—F. H.

Seasonable floral decorations.—*Camellias* will, as a rule, now be commencing to bloom fairly well. These will make a pleasing and distinct change to the flowers hitherto in use for months past. When arranging them in groups, flat bowls or dishes are decidedly to be preferred to anything elevated more than a few inches above the table. *Camellia* blooms have a better effect when looked down upon than when elevated. Failing anything better, I would not object to using a soup plate in which about half a dozen blossoms could be effectively arranged. Some sand in the plate with a free use of water also, and some green Moss upon the surface would be a very good preparation, the object in having the sand being chiefly to keep the stems steady. This plate thus made ready would last through several arrangements with fresh water added as might be needful. I always prefer to cut the blooms with a fair length of stem and two or three leaves. If the plants are in a healthy condition no harm need be apprehended from cutting the flowers with long stems; it will rather have a tendency to force back breaks with eventually a more bushy growth. The flowers should be cut before they are quite fully expanded, as when taken with a rather full centre they look better and

last longer than if the inner petals are unfolded. Besides their own appropriate foliage nothing else is really needful. A Fern frond or two here and there might in some cases help to hide the Moss; a few sprays of *Asparagus plumosus* would, however, last in better condition. Having a plant of *Camellia imbricata*, which has a sportive tendency with golden variegated leaves, I have used these with good effect, they not only looking well, but also being quite novel. The leaves taken first will last out two or three lots of flowers if needed, and in this way it is possible to use blossoms without any stems of their own, where other buds would be sacrificed in the cutting. Taken thus, the flowers should have two wires passed through the base of each. Then, before these are brought together, a small quantity of wadding should be well moistened and placed next the stem of the flower. This will help to keep them fresher, the wires keeping them from lying too flat. When *Camellias* are used singly in small vases or specimen glasses, I always prefer to use a little florist's gum upon the underside of the flowers to prevent the outer petals dropping. The best foliage is still that of the *Camellia*, but in arranging the flowers singly, the leaves do not always sit right. When this is the case, one at least may be broken off and arranged beside the flower with the assistance of a little wire. *Camellias* for coat flowers should be cut when small and the blossoms slightly assisted to open. It is safer to wire these, adding the small leaves or those of the common Myrtle as a backing.—J. H.

GARDEN FLORA.

PLATE 789.

CLEMATIS STANLEYI.*

THE gold fields of South Africa have yielded a considerable number of interesting garden plants during the last five years, the most striking of them being *Gerbera Jamesoni*, *Anoiganthus brevifolius*, *Streptocarpus Durni*, *Cyrtanthus Galpini*, *Anemone Fannini*, and the *Clematis* represented in the accompanying plate. Besides these, there are at Kew seedlings of various plants which, judged by dried specimens, are likely to prove of some value in horticulture. Hitherto the attractions of the gold mines have been too great to admit of much plant collecting, the few things gathered and forwarded to England being mere oddments, picked up, as it were, by the wayside. But the vegetable riches of the Transvaal and neighbourhood are now attracting the notice of the collector and amateur with leisure, and we are therefore in a fair way to get many more of such plants as those above named.

Clematis Stanleyi is by far the handsomest of the eight species of this genus which are natives of Africa. It was discovered about fifty years ago by Burke, a collector employed by Lord Derby, after whom it was named by Sir William Hooker, who published a figure of it in the "Icones Plantarum," t. 589. At that time it was declared to be "the handsomest species of an extensive and handsome genus," and although it cannot be placed first amongst those known to-day, yet it is decidedly an ornamental plant, with very considerable capabilities. It was introduced into cultivation through Kew, by means of seeds forwarded by Mr. E. Galpin, of Barberton, in April, 1889. Mr. Galpin wrote: "The best

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, Sept. 19, 1890. Lithographed and printed by Guillaume Severeys.



CLEMATIS STANLEYI.

of all in the present sending is the Clematis. It is a shrub, not scandent, about 3 feet high, with deeply-cut, silky leaves, something like one of our wild Pelargoniums, with large pale purple flowers, the stamens bright yellow. The fruit when ripe is a beautiful object, as elegant as a bunch of ostrich feathers, and silvery white. At first I thought it was an Anemone. It is a very ornamental plant, and may, by crossing it with the garden Clematises, produce a new race." Mr. Galpin also stated that, from the high altitude at which he had found this species, he thought it might prove to be hardy in England. In the winter of 1889-90, a batch of plants left outside at Kew to test their hardiness all perished. At the present time there are about fifty of them in a border, where they are protected by a covering of leaves and Spruce branches. Before they were covered they had experienced about 8° of frost, and whilst most of them had their foliage nipped a few were uninjured. The best plants are in a cool greenhouse, where planted out in a raised border they grew to a height of from 2 feet to 3 feet, and flowered freely last summer. These plants have ripened plenty of seeds. Considerable variation was apparent in the plants at Kew both in leaf and flower. All the leaves were bipinnate, but whilst the ultimate divisions in some were as fine as in Milfoil, in others they were large. Again, some were covered with silky white hairs, which give them the silvery appearance of the Silver Tree (*Leucodendron*), whilst in others the leaves, although hairy, were green. The flowers varied in size from 1½ inches in diameter to twice that size; they were at first cupped, and finally became almost flat by the spreading of the sepals. The colour varied from a rich puce to rose and almost pure white. Each flower remained fresh on the plant about a fortnight. The roots are fleshy, as in the common Clematis, and last year the whole of the plants died down to the base, springing up again vigorously in the spring. The flowers are axillary, and I have seen six good flowers all open together upon the same branch. Each shoot is terminated by a flower, but a succession of shoots springs up from the base. The fruit is as elegant as that of the common Traveller's Joy.

C. Stanleyi appears to be common in the higher altitudes of Eastern Africa, and a species very similar to it is found in Madagascar. Its nearest allies are *C. Kirki* and *C. chrysocarpa*, both African plants, and both with large fleshy flowers. W. W.

Paris Daisies.—It is astonishing the large amount of bloom that may be had from large plants of the above during the winter months when properly prepared. Those who have only seen them growing as small plants can hardly realise the effect a specimen gives during the winter months when placed in a show house or conservatory. I have here two large plants, each from 5 feet to 6 feet high and 3 feet to 4 feet across. These have been a mass of bloom since the early part of November up to now (middle of January), and they are still very gay. I cut back the plants in February and place them in the open air during the summer. When in full growth they are well supplied

with manure water. The flowers are very useful for cutting and are much sought after by ladies.—J. C. F.

THE WEEK'S WORK.

ORCHIDS.

THOSE of us who can recall the time when there were no cool Orchid houses in the country remember the discussions on the most convenient form of house, and also the most suitable aspect for the house. Orchid fanciers were perplexed as to the best way of keeping the temperature low enough in summer, and concluded that it would be best to build the house against the back wall of a vinery or Peach house, which is usually a northern aspect. This answered admirably when the summers were dry and the heat excessive, but for the last few years we have not had any long-continued hot weather in summer, and in some cases the cool Orchids in lean-to houses facing north have not done nearly so well as they have in span-roofed houses in a more exposed position. Our own plants—some 700 or 800 in a good-sized house, 60 feet long—seemed to lose their freshness a little, but they have considerably improved since the collection has been arranged in a span-roofed house for the winter, placing them in their old quarters again for the summer. We are still repotting and surface-dressing the Orchids in the cool house, care being taken that the plants are quite clean and free from insect pests before attending to them. This is a point of some importance, as it is not advisable to interfere with the plants until they are established again after repotting. Some *Odontoglossums* continue to produce flowers all the year round; others bloom at a particular season and at no other. Of the first-named type *O. crispum* is a good example, and it naturally follows that a species so erratic as to produce flowers from different plants in every month of the year requires to be repotted at almost every period. If I had my choice I would repot when the bulbs had plumped up again after producing their flower-spikes, as they are at that time ready to start into vigorous growth. As an example of an *Odontoglossum* flowering with considerable punctuality, we have *O. Edwardi*, a very distinct species which throws up long spikes in autumn and winter, the flowers, of a violet-purple colour, being produced in the spring. I succeed well with this species, being careful to repot the plants as advised above when they are starting to make a new growth. A reader of THE GARDEN, an amateur, lately consulted me about his Orchids. He cannot afford to have a house for every section of them, and no room for anything else. Like many others, he wants to grow cool Orchids in an ordinary greenhouse. Now I do not approve of this, but I advise growing greenhouse plants in a cool Orchid house. This can be done with many beautiful things, especially the spring-flowering bulbs, including *Narcissi*, now so popular, *Lily of the Valley*, *Lily of the Nile*, or *Callas*, *Spireas*, pink and white *Deutzias*, and all the flowering shrubs, such as *Azaleas* and *Rhododendrons* grown for forcing, *Dielytra spectabilis*, &c.

The cool house Orchids require a closer and rather more moist atmosphere than a greenhouse, but the temperature need not be much higher. The cool Orchids also require to be more closely shaded from the sun, and, of course, many of what are termed greenhouse plants thrive with this treatment. The same remark holds good with the warmer house Orchids. For many years I exhibited Orchids in London and obtained first prizes with them from a house 28 feet long by 18 feet wide in which Ferns, foliage and flowering hothouse things were also grown. It was kept warmer than a Cattleya house and not so warm as the East India house. I obtained splendid specimens of *Odontoglossum Roezli* from the side stages, and *Cattleya superba* fastened to short lengths of Tree Ferns and suspended near the glass roof. Here also *Dendrobium formosum*, well established in teak baskets and kept close to the glass, flowered year after year. Other favourites were *Oncidium ampliatum* and the much finer variety *majus*. I had no trouble with these, as they grew from small plants into large

specimens and produced vigorous flower-spikes annually. I fancy some Orchids succeed better in a mixed collection of plants than they do in a house with no other plants except Orchids. *Vanda coerulea*, for instance, seems to do well when its roots, or at least some of them, can run into a thick mass of Fern fronds; the teak cylinders should stand amongst plants of this kind near the glass end of the house. The plants do not like to be disturbed further than to have the decayed Sphagnum removed and replaced by new material. A new growth of the roots and leaves is now taking place, and the work ought to be seen to at once. Any Orchids that may be unhealthy owing to the material being entirely decayed require radical treatment by washing it all away from the roots. Replace with clean live Sphagnum and plenty of clean potsherds and charcoal. There need not be any moss at the bottom of the cylinder. The evergreen section of *Calanthes* requires looking to now, as the flower-spikes are rising amongst the green plaited leaves. Surface-dress the soil in the pots with a good compost of fibrous loam, decayed manure, and some sand to keep it open. The active rootlets, like the end of a goose-quill, will soon be seen pushing vigorously into this fresh material, a sure sign of its use in stimulating growth. A yellowish-green fly sometimes gets in amongst the flower-buds and does much damage to them unless it can be destroyed. If the plant is shaken the insects hurry down into the base of it and go up again when the alarm is past. By taking any plants that are attacked by this pest out of the house and fumigating them frequently I have got rid of it entirely. I used to repot these *Calanthes* in winter, but now do so in summer instead. In all the houses see that a moderately dry atmosphere is maintained. I have seen a gardener pouring water on the hot pipes until the house was full of steam to get up the temperature—a grave error surely. When the houses are below the minimum temperature in the morning, I do not use any water until it has risen to the required height, and if it is somewhat high, the paths and perhaps the stages are sprinkled, but no water is put on the pipes or in the evaporating troughs. J. DOUGLAS.

PLANT HOUSES.

GENERAL CLEANING.—Reference was made and advice given last week respecting the keeping of the glass clean. It is, however, quite as needful to look after the paint and other parts of the inside of the houses. At no time of the year can this be done more thoroughly than at present, when other work is not so pressing nor injury likely to be caused to plant growth. In order to do this work effectually, the plants under a few lights should be removed, so that nothing impedes the cleansing, the plants also thus escaping being made dirty by the washing given to the paint, &c. For cleansing of paint in an ordinary way, I prefer a solution of soft soap and soda, not too strong. This should be used fairly warm, especially where mealy bug has prevailed. The walls will take the same mixture as hot as it is possible to apply it. In bad cases of insect attacks, I would add in both instances a wineglassful of paraffin oil, which should be kept well stirred during application. The walls afterwards should be dressed with limewash made from freshly slaked lime and applied whilst still hot. The colour can be toned down by adding a little umber. Where the inner putty is at all faulty, I recommend the old to be raked out and fresh material used in its place. This will check drip as well as preserve the wood, being easily seen to at such a time when the rafters are dry. The pipes should also be overhauled and cleansed. Around the pipes there is generally an accumulation of rubbish from time to time. Sometimes they may be partially covered, with a loss of heating power. They would also in such a case be coated with rust, which is not at all desirable. Where pipes are used to obtain bottom heat, the joints should be now looked to closely. Later on, when the plants are all re-arranged, it causes extra trouble. A coat of black japan varnish acts as a fine preservative to the pipes and makes them

look much better, but I do not advise its application unless all the plants can be moved out of the house whilst it is being used and until quite dry of afterwards. When this varnish is being used the pipes should be made extra warm; it will then dry of a more glossy colour, and the fumes quickly escape with ventilation. Repairs to stages and brickwork cannot be seen to at a more convenient time than the present. It is a great mistake to neglect such work, more expense being incurred in the long run, to say nothing about the general appearance. Painting of plant houses I do not recommend at this time of the year, preferring the months of July and August, when the paint will dry more satisfactorily.

STOVE.—CLEANING THE PLANTS.—Plant-cleaning can now be seen to most effectually, and every effort should be made at such a favourable time to eradicate, if possible, all insect pests. Where mealy bug and scale abound at the time active growth recommences, irreparable injury is afterwards done to the plants, not only in cleaning, but likewise in the disfigurement through deformed growth. Hot water is a good insecticide where it can be used without fear of injury; mealy bug cannot resist it when it reaches them as hot as one can bear the hands upon the syringe. This cannot, however, be used in all cases, but with such a good selection of insecticides as we now have, there is no reason why this pest should still hold such a mastery amongst plants. In using any specific, my advice is to proceed with caution, never exceeding the printed directions or quite approaching that standard if any doubt exist either as to its strength or to the comparative tenderness of the plants to be operated upon. Repeated attention and persevering efforts will do quite as much, and go hand-in-hand with the remedy applied. For wholesale cleaning by means of syringing, I at all times recommend a shallow trough to be obtained, over which the plants can be laid and the liquid saved for repeated use. Such a trough made of zinc will last many years, and during the first season or so will quite repay the cost. In all possible cases I advise sponging afterwards. This can be done with a weaker solution unless where white scale exists; this insect I have found takes a lot of killing. This scale, although it does not make the plants dirty, does much harm, being very weakening to plant life where neglected.

PRUNING.—Plants which stand in need of pruning should have this attention paid to them before the cleaning operations are proceeded with, and where the case is a bad one as regards insects, severe pruning is preferable. The knife is not used nearly so much as it might be amongst woody stove plants. *Ixoras*, for instance, are oftentimes allowed to grow until they are miserable-looking objects; whereas by a judicious use of the knife a bushy plant might have been preserved. Those *Ixoras* which bloomed late last autumn and are still intended for the same time this year should now be pruned fairly hard, and in such a way as to obtain a shapely plant. Those, however, which flowered in the early summer will have made growth afterwards, and in such cases pruning should be postponed until the flowering period is passed, or another early bloom will have to be sacrificed. *Allamandas* should also be pruned now. These stand rather hard cutting back very well. This is advantageous when the plants are grown upon trellises. When trained as climbers upon the roof the growth may be left longer, but it is not desirable to leave either a great amount of wood or any of excessive length. There will be sure to be abundance of shoots later on if the plants are well treated and healthy. *A. grandiflora* bears pruning even harder than other kinds, the chief point to aim at being to obtain the young shoots as strong as possible. When a lot break forth at one time this is not so easily accomplished. Look sharply after white scale upon this variety, and act accordingly. The *Hibiscus* will also require hard pruning. The plants may be spur-pruned, similar to Vines, with manifest advantage. *Vincas* should be cut hard back, so that dwarf plants may be made. *Stephanotis* for late flowering should be thinned out, leaving the stronger wood. For early blooming only the weak points

of the shoots should be taken off. The plant in the first-named case should be kept dry and the other steadily moving. *Crotons* where growing leggy should also be pruned, saving the tops when well coloured for propagation, which can be seen to at any time of the year where there is bottom-heat. Unless intended for a specimen, it is better in the case of *Crotons* to start with cuttings, throwing the old stools away if the variety is plentiful. *Dipladenias* will now be starting into fresh growth, being one of the first genera to show signs of renewed activity. With such I advise a careful thinning out rather than a hard pruning, proceeding by cutting back to where there are signs of a good break issuing forth.

Bougainvillea glabra should be pruned hard like *Allamandas*, a few shoots that break strongly being preferable to a quantity of weaker ones. *B. speciosa* must not be pruned now, as even the smallest terminal may produce flowers if allowed to remain; whereas, if pruned, all hope of blooming this season may be abandoned. Hence this variety has no doubt often been considered shy flowering, when it was the treatment which was really at fault. *Rondeletia speciosa major* is more often than not treated as a semi-climber. This is altogether a mistake. It should be grown as a bush plant, being now pruned rather hard, thinning out the weakly spray and aiming at a strong back break. The type requires the same treatment, but does not make such a free growth. *Passifloras* will bear a lot of thinning out; otherwise too much growth will be made, to the detriment of other things. *P. kermesina* is an exception, being of weaker growth. The *Aristolochias* may be cut back hard, as in the case of the *Passion Flowers*. *Cissus discolor* requires more thinning than severe pruning, but it is not desirable even then to leave many shoots. *Clerodendrons* need various modes of treatment. *C. Balfourianum* usually makes strong growths after flowering. These will flower at most of the joints; preserve, therefore, the strong shoots and cut away the weaker ones. *C. splendens*, a handsome autumn-flowering species, needs to be spur-pruned to obtain a good growth, which will produce flowers later in the same season. *C. fallax*, *C. Kämpferi*, and *C. fragrans flore-pleno* require hard pruning like the spurs of a Vine, otherwise a leggy plant is the result; hence considered to be of bad habit. *Aphelandra cristata* and *A. aurantiaca* both require pruning like the last mentioned *Clerodendrons*. The winter-flowering *Jasmines* will be all the better for pruning as soon as the flowering season has passed, leaving the strong wood of a fair length and cutting out the weakly. The *Justicias* and *Pentas carnea*, with its darker form, should both be cut hard back. Plenty of after growth will be sure to be made before they are required in flower. *Thunbergias* always grow freely enough; therefore prune in like manner. The *Ipomæas* require to have the weakly growth cut away and the rest pruned to a promising break. Exceptions to pruning at this season must be made in the cases of the *Medinilla*, the *Francisceas*, the early *Gardenias*, and *Tabernæmontana coronaria*, all of which when in need of pruning should be seen to as soon as they are out of flower. *Plumbago rosea*, unless the stock is limited, had better be left as it is at present, being kept quiet like the *Euphorbia jacquiniæflora* and the *Poinsettias*.

POTTING.—An early batch of *Gloxinias* may now be selected, shaken out, if not done previously, and repotted into good soil. If the bulbs are found to be somewhat soft, as if too dry, they should be put into warm water for a little while to freshen them rather than give too much water after the potting has just been completed. I like to start those first which were the earliest the previous year, but prefer at the commencement a moderate heat only. A temperate house or one devoted to forcing Peaches will at first suit them admirably. Good mellow loam with leaf soil will do well, and, failing the latter, peat may be used instead. I prefer a free use being made of sand with an extra dash under the bulb. If the bulbs are disposed to break they are better if covered with about half an inch of soil; the young shoots will soon commence to root into this covering on their own account. A

few *Caladiums* should now be started, being treated like the *Gloxinias*, with one important exception, viz., that they must be placed in the warmest end of the stove. *C. argyrites* should stand over for the present.

JAMES HUDSON.

THE KITCHEN GARDEN.

CAULIFLOWERS.—The severe weather may have destroyed or greatly crippled the plants raised from the autumn sowing where these have not been protected. Plants from a sowing made now of either Veitch's Early Forcing, Snowball, Early Defiance, Dwarf Erfurt, or any other carefully selected stock will be little, if any, later in turning in than those from the autumn sowing. Some people even do not go to the trouble of raising plants in the previous September, but prefer to sow early under glass, and grow on quickly. The seed must be sown thinly in a box of light and fairly rich soil, and be placed in a gentle heat, and as soon as it germinates the seedlings should be kept near the glass to prevent them from becoming drawn. The plants must be grown on without receiving a check, either from the want of water or sufficient root-room to prevent premature buttoning. To prevent this, either pot off the plants when large enough into 3-inch or 4-inch pots, using fairly rich soil, and grow them on near the glass in frames, or dibble them out into frames. When dibbled out into frames, see that the soil is of a sufficiently holding nature to prevent it falling away from the plants when ready to be eventually planted out. To prevent this, place a layer of rotten manure to the depth of 2 inches over a hard surface, and over this the same depth of good soil, which must be made fairly firm. Into this dibble the plants 4 inches apart, which will allow of sufficient room for each to be taken up with a good ball of soil. For the earliest cutting plant out under handlights or cloches. To succeed these I prefer deep drills being drawn and the plants planted in the drills. By this plan either water or liquid manure may be easily applied. Early Cauliflowers being such an important crop, it is advisable to take every precaution to guard against failures.

EARLY PEAS.—On warm borders and soils in sheltered positions a sowing of early Peas may be made when the ground is in working condition. William I. is still hard to beat as an early round-seeded variety, and among the dwarf forms American Wonder, Chelsea Gem, or William Hurst will be found useful. In cold localities and on cold soils it is the wisest course to defer sowing a little longer. A sowing, however, could be made in either pots or on turves, and if the Peas are grown on sturdily in cold frames, they could be planted out when the ground is in fit condition for receiving them.

COS LETTUCE.—A sowing of a good Cos Lettuce should now be made either in a box of fairly light and rich soil, which should be placed in a gentle heat, such as a vinery just starting or on a mild hotbed. Whichever way is adopted guard against sowing thickly, this tending very much against their hearting well. As soon as the seeds have germinated, grow the plants on sturdily near the glass in a cool house or frame, eventually pricking them out into a low frame, and when ready transferring to a warm border. Cos varieties are generally preferred to the Cabbage when they can be had.

RADISHES.—Those sown at this time are generally the most appreciated, being milder and more tender than those raised earlier. The seed is sometimes sown broadcast when a frame of early Potatoes is planted, but I prefer sowing it thinly in drills 6 inches apart. A hotbed of warm leaves forms the best heating medium. The soil must be rich and kept moist when growth has fairly taken place, or the roots will be strong in flavour and tough.

EARLY HORN CARROT.—A mild hotbed of leaves similar to that recommended for Radishes should now be made up where young and tender Carrots are appreciated.

HORSERADISH.—This is an important crop, but

generally relegated to some obscure corner, and when a piece is wanted, the whole patch is often dug amongst, so as to find or select a suitable root. Where the above state of things exists, commence at one end of the patch and take out a trench 2 feet or more in depth, and carefully fork out all the roots. Those of a usable size should be laid in by themselves, so as to be easily got at when a stick may be wanted. The other roots should be sorted over, selecting those perfectly straight and of a convenient size for planting. Too short pieces should not be planted. I prefer lengths of from 9 inches to 12 inches with a crown. The site should be deeply dug, and a deep hole, say to the depth of 15 inches, should be made with a dibber, and the roots inserted their whole length. I prefer marking out a bed 4 feet in width, in which a slanting trench should be taken out from each side. In these trenches the roots must be laid, the crowns pointing outwards. The soil must now be levelled in. When planted in this manner, the roots are brought more up to the influence of the sun; consequently the size is increased more rapidly than when planted deeply in the ground. A. Y. A.

HARDY FRUIT GARDEN.

PLANTING FRUIT TREES.—It is generally admitted that the month of November is the best time for planting nearly all kinds of fruit trees, but if the latter are carefully lifted, and do not become unduly dry at the roots before they are replanted, the work may be done safely and well in February and March. A few young trees ought always to be coming on to take the place, may be, of worn-out older ones, and even if the latter are far from being exhausted, there are yet but few gardens where room cannot well be found for a few new trees. At present the trees and bushes give but few signs of injury from severe frosts. Nor shall we be in a position to speak positively on this matter for another four months. There is, however, no doubt about the destruction caused by rabbits. Where these are numerous and have not been fed, all unprotected fruit trees have suffered badly. The bark has been completely stripped from the stems and lower limbs of young Pear, Plum, and Apple trees, and they are ruined. More trees ought, therefore, to be ordered, and on the first favourable opportunity planted in the place of, or near to, those apparently destroyed.

Orchard Apple trees are best grown as standards and on the Crab stock. Half standards of both dessert and cooking varieties succeed well under garden culture, and are much more easily grown than pyramids. Bushes are even preferable to pyramids. If dwarf, quickly-productive trees are wanted, order those worked on the broad-leaved Paradise stock, but if large specimens are aimed at, then the Crab stock is the best.

Pears on the Quince stock are the first to be productive, and such should be planted in all cases where dwarf trees are preferred. By far the finest pyramids and horizontally trained trees are, however, to be had when the varieties selected are on the Pear stock. Double-grafted trees answer well, or for a time at any rate. Single cordons trained obliquely cover walls the most quickly, and two and three-branched cordons similarly trained also quickly cover their allotted space, extra fine fruit being produced by these. Four or six-branched trees, trained horizontally at first and then uprightly, are to be preferred to the ordinary horizontally trained trees, the former seldom, if ever, failing to cover all the wall space, such trees also proving very productive. Trees of this class on the Quince are very suitable for planting midway between horizontally trained examples on the Pear stock. Horizontally trained trees are the best for espaliers, and in front of these may be planted low horizontally trained single cordons.

Apricots must have a warm exposure, a south or south-west wall being the proper position for the trees. A serviceable selection would consist of Early Moorpark, Large Early, Royal, Moorpark, Hemskirk, and Shipley's. Good trees can be grown from maidens, but those who prefer to have the

start much simplified should order and plant trained trees, and which ought to be the first to produce good crops. The sunniest walls must also be accorded Peaches and Nectarines, the same class of trees as advised in the case of Apricots also being planted.

Where wall space is somewhat limited it scarcely pays to grow Cherries other than Morellos, the latter succeeding well where other choice fruits frequently fail, viz., against walls with a northern aspect.

Plums succeed well under much the same conditions as suit Pears, and may be grown fan-shaped or as cordons against walls, as pyramids and bushes in the garden, and as standards in either the garden or orchard. For wall culture some of the best are July Green Gage, De Montfort Green Gage, Oullin's Golden, Kirke's, Jefferson's, Transparent Gage, and Coe's Golden Drop, all being fit for either dessert or cooking. Cooking varieties that pay well for wall culture are Early Rivers, Morocco, Victoria, Early Orleans, and Washington. For open garden and orchard culture the following are recommended: Early Rivers, Victoria, Early Orleans, The Czar, Dymond, Mitchelson's, Prince Englebert, white Magnum Bonum, The Sultan, Green Gage, Gisborne's, Prince of Wales, Goliath, Washington, Jefferson's, and Oullin's Golden. Nor ought the value of a few Damson trees to be overlooked. Crittenden Prolific or Cluster is by far the most prolific, the Shropshire Damson being less prolific, but superior in point of quality.

VARIOUS FRUITS.—The most reliable Figs for sunny walls are Brown Turkey, White Marseilles, Brown Ischia, and Brunswick, the two first named being the most generally grown. One or two Medlar trees ought to be in every garden. The Dutch produces the largest fruit, but the Nottingham is far more prolific and the best flavoured. Cob Nuts and Filberts pay well for good culture.

FRUIT GROWER.

FRUIT HOUSES.

PINES.—The weather during the past month has been most unfavourable for the collection of leaves or other heating material, this being especially the case where much snow has fallen. At the same time a brisk bottom-heat is indispensable, that generated by Oak leaves and stable manure in mixture being preferable to anything else. If stable manure only is available, then must this be well prepared by frequent turnings, a mass of it in a Pine stove being very liable to become excessively hot. Tanners' bark, where it can be procured, answers well as a plunging material, but of late years its heating qualities have been much impaired by newer processes at the tanneries. Fermentation in this case can be greatly quickened by the addition of newly slaked lime at the rate of one bushel or rather more to every cartload of tan. In each and every case the bed of plunging material should be supplemented by several rows of hot-water pipes with regulating valves attached. Turn on the heat when necessary to hasten fermentation in the bed, and stop it for a time if the latter threatens to become violently hot. Being somewhat late in starting, it will scarcely be possible to have ripe fruit before June, Smooth Cayenne, Charlotte Rothschild, and Black Jamaica being still longer in ripening. The batch of these arrived at a fruiting size may well be retarded a month longer, the earliest and successional crops being best obtained with the aid of Queens. Select the stoutest and most fully developed of the latter, tie them up, and if somewhat tall place one or two stakes to each. Also pull away small yellow leaves, then carefully bare the surface-roots to a depth of about 3 inches, water freely if at all dry, and top-dress with turfy loam and horse droppings in about equal proportions, a sprinkling of bone-meal being added. Intersperse any surface roots there may be among this compost, and make the latter rather firm. At first the plants ought to be very lightly plunged, as the bed may become dangerously hot, but when the heat declines to about 85°, plunge deeply and firmly. The temperature will most probably increase from 5° to 10° after the plunging,

but if it does not advance much beyond 90°, no harm will result, and there will be no necessity to loosen the pots or to make holes to let off superfluous heat. This brisk bottom-heat, coupled with a top-heat ranging from 65° to 70° by night to 70° and 75° by day, with a further increase of 10° on sunny days, will excite the plants sufficiently to cause the greater part to show fruit quickly. Keep up plenty of atmospheric moisture and never allow the plants to become very dry at the roots.

FRUITING PINES.—Where there are a considerable number of Pines grown, a few will always be showing or swelling off fruit, and not unfrequently when the cultivator would rather they did not. Any just approaching the flowering period or more advanced ought now to be taken good care of, and what promise badly at the outset may frequently be grown to a very serviceable size. English grown Pines are always superior in point of quality to those imported, and are much appreciated during the London season. All showing or swelling off fruit ought, then, to be plunged at one end of the bed prepared for starting an early batch of plants, a strong bottom heat and plenty of liquid manure swelling the fruit rapidly. Guano is perhaps the best manure that can be recommended, a handful of this being dissolved in a 3-gallon can of soft water heated to about 90°. The pots being well filled with active roots, there is less danger of too much water being given, but pointed stakes with a barbed end thrust well down into the soil will bring up sufficient of it to convey a good idea whether it be dry or not.

SUCCESSIONAL PINES.—These as well as those rooted last summer must not be greatly excited in any way, or premature fruiting will result in many cases. Those fully grown and being retarded will continue to be inactive if the day temperature seldom exceeds 70°, the heat during the night falling to 60° or thereabouts. No potting of any kind should be attempted for at least another month, but in the meantime it is advisable to prepare composts, pots, and plunging material. The best fibrous loam procurable suits Pines, little else being needed, and if thin turves can be cut from deer runs or old, well-drained park land or meadows, and stacked for a few months, nothing will surpass them. If the plants cannot be induced, owing to the unsuitability or undue fineness of the soil used, to well fill the pots with roots, it is scarcely possible to grow large, well-proportioned fruit.

EARLIEST FIGS.—Early and good crops of fruit can be obtained with the greatest certainty from plants in pots. The best varieties for this method of culture are Osborn's Forcing, Black Bourjasotte, Negro Largo, Black Ischia, Figue d'Or, and Brown Turkey, a trial also being given to some of the varieties of more recent introduction. If the pots are not large, turn the plants out, loosen the roots somewhat, and then give a liberal shift, using a compost consisting of two parts fibrous loam, roughly broken, to one of old Mushroom-bed manure, adding a sprinkling of mortar rubbish, potting firmly, and allowing space for a top-dressing later on. Any in large pots and to which a shift cannot well be given may have their balls freely reduced and be then returned to the same sized pots or tubs they were previously in. They succeed best when plunged in a moderately brisk hotbed, the plants being raised well up to the glass. At the outset the top-heat may range from 55° by night to 65° and 70° in the daytime, the walls and paths being frequently damped down and overhead syringings given in the morning and again at midday. From the first the roots must be kept well supplied with warm water, liquid manure being given when the fruiting stage is reached. The first crop will be produced from near the points of short-jointed growths of the previous season, a second crop being obtained from the earliest growths formed this year. In order to be certain of the latter, these newly-formed shoots must be stopped when about 8 inches long, the fruit being produced from the axils of the leaves, while a second break will give good growths for fruiting next spring. If the roots are allowed to spread out from the surface of the pots and drainage holes into the

plunging material, good rather than harm will result.

FIGS PLANTED UNDERGLASS.—Those in unheated houses or which are not forced in any way will, as a rule, produce one good crop only, but any started into active growth now should produce two crops of fine fruit. Figs must have plenty of sunshine and light, or otherwise the growth will be soft and unfruitful. They succeed fairly well when treated somewhat similarly to Peaches, that is to say, when the front rows in a lean-to-house are trained over a semi-circular trellis, the back wall also being clothed with trees. On the whole, by far the best crops are produced by trees trained over the roofs of either span-roofed or lean-to houses, near proximity to the glass ensuring a sturdy, fruitful growth. If Figs fail to fruit abundantly when trained near the glass, it is most probably due to a too sappy growth consequent upon the roots having the run of a rich border. New borders should be composed principally of loam and either old mortar-rubbish or chalk, one part of the latter to four parts of the former. Limit the size of the border, make the soil very firm, and there will be no likelihood of top-growth being too succulent to be fruitful. Once the borders are well filled with roots, rich top-dressings and frequent supplies of liquid manure may be given with advantage during the growing season, while extreme dryness is most injurious, this being the cause of the loss of large numbers of half-grown fruit.

PRUNING FIGS.—It is very unwise to crowd the branches of bush trees especially, while those trained up the roof or over trellises ought also to be annually thinned out. On examination several long and nearly naked branches will most probably be found in each well-established tree, and if these are cleanly sawn off to within about 6 inches of their starting point, those reserved will have more space, while this cutting back usually leads to the formation of several strong shoots on the old stumps. By this means the base and the centre will be kept well furnished with young fruiting branches of various lengths. Other outside branches may be shortened back to well-placed inner ones, and the fruiting shoots should also be thinned out where at all crowded. It must be remembered that the fruit is principally borne near the points of the young growths formed last season, and to shorten these in any way would be disastrous. Those trees against walls ought to be taken down or tied back from the wires and a dressing of lime-wash applied to the walls. Should the trees be infested by either mealy bug or scale, scrub them with hot water, and then dress them with a mixture composed of gas tar and thick clayey water in about equal parts. Gishurst compound may, if preferred, be substituted for the tar, but on no account should petroleum or paraffin be used as a dressing for Fig trees. PRACTICAL.

ORCHARD AND FRUIT GARDEN.

REGULATING PEACH TREES.

IN some gardens much more than others Peach and Nectarine trees cannot be depended upon to last many years. They do well for a time, it may be nine or ten years, sometimes even less, while occasionally they attain a great size and a fairly good age before signs of a breakdown become evident. From some not very well explained cause, branches, after they are in full leaf and have set a crop of fruit, cease to make any further progress and eventually die outright. On tracing this down to a larger limb, it is found that the bark and wood on a portion of this are dead or dying, and in the course of two or three years the decay spreads all round it, and there is a great blank in the tree. This is what I have to contend with, and the trees behave very similarly in other gardens in this and other localities. It is not my present intention to try to account for this much-to-be-regretted behaviour of the trees, though I would

add that it is not to be attributed to excessive pruning, as I have tried what could be done on the extension system, the start being made with maiden trees; but the loss of a number of large limbs in a tree of Peach Grosse Mignonne, that had sole possession of the front of a house 30 feet in length, left so much blank space at one time, that I now prefer to grow smaller trees in greater numbers.

Nor are trees lost only in the manner just indicated, the disease knows as the yellows, and which may either be caused by a too deep root action or else be the result of using unsuitable or unhealthy stocks, being answerable for the loss of a considerable number of trees. Mildew, black-fly, and red spider all also contribute towards the ruin of a good many trees every year, and a few are rooted out owing to the variety being of either a worthless character or unsuited to the house in which it is located. Sometimes the blanks caused by these removals or losses are made good without disturbing the other occupants of the house, while in other instances regulating the latter better meets the case. When good-sized young trees can be introduced from the outside walls, and a few such ought always to be growing on where the older specimens are liable to fail suddenly, this much simplifies matters, though the forcing house is not the proper place for these. In all cases where there are successional houses it is advisable to make good any blanks that may occur in the earliest compartment with other trees that have been already grown under glass, and, if available, gently forced, these naturally succeeding much better than any introduced from the open. The latter are rarely perfectly ripened, or sufficiently so for moderately hard forcing, but they will succeed well in either a successional or late house.

Thus far I believe I am in strict agreement with most authorities, but when it comes to be discussed as to when the tree moving should be done, a difference of opinion may arise. It has become so much the fashion for trees to be transplanted early in the autumn or while yet the foliage is green and intact, that the advice is rarely given for it to be done at any other time of year. That trees of Peaches and Nectarines can be moved satisfactorily thus early and in time for a partial recovery to take place before the fall of the leaf I readily admit, and in fact scarcely a season passes without two or three trees under my charge being shifted in the autumn when in full leaf. In reality Peach and Nectarine trees are amenable to very rough treatment, always supposing, however, they are not extra large or the young growth is only partially ripened. Moving large trees from one house to another is in most cases attended by the loss of or much injury to both branches and roots, dragging them through the doorways being principally responsible for this, while if any are transplanted before the young wood is firm and the buds fairly plump there is every likelihood of shrivelling taking place. Instead, therefore, of running any risks in the matter of moving trees from the outside walls, say, too early, it is far better to defer the operation till nearer the spring, or even till the buds are commencing to move. Those, therefore, who have not as yet attempted anything in the way of regulating their Peach and Nectarine trees may yet do so with every prospect of success. By success I mean without either the loss of a crop on the trees moved or any serious check to their growth. Rather than wait till next autumn before making good any defects in the arrangements of the trees, I would even go to the length of transplanting any not more than ten years old or very large after shoots have

partially formed and the fruit has set on them. I have known trees moved at this late date do surprisingly well, some of the fruit gathered from them having been exhibited early in August. It might be thought that trees transplanted so late or rather so early in the growing season must have had large masses of soil moved with the roots, but such was not the case, nor is it possible at any time to keep much soil together when carrying Peach and Nectarine trees through narrow doorways. Nor is there much wisdom in trying to save much soil intact or any great necessity for it, the moving being very safely accomplished with only a comparatively small ball of soil. What is of great importance is the preservation of as many roots as possible. These, if duly pruned and spread out flatly in fresh loamy compost, quickly form fresh fibres, the recovery being quicker and subsequent progress better sustained than would perhaps be the case if much exhausted old soil was moved with the roots.

Although I have given an extreme instance of a successful regulation of trees, it is not to be supposed I would advocate a general adoption of the plan of moving them after the fruit has set. Trees moved when thus far advanced in growth would require very careful subsequent attention in the way of shading lightly from bright sunshine, sheltering from easterly winds, the houses being kept somewhat close when these prevail, overhead syringing, and copious supplies of water at the roots. A better time to move the trees is just when they are on the point of breaking or before the flower-buds are far advanced. If the work is done well, a moderately good-sized ball, or such as can be moved without being liable to break off in large lumps, carrying numerous roots with them, being preserved, little or no check need be given. On the contrary, the change from cold, inert soil to a fresh loamy compost, with which the contents of a garden smother have been freely mixed, has a very stimulating effect upon root action. This latter commencing at once, the supply of sap proves equal to the demand. A change of soil is always beneficial to Peach trees, and this, coupled with bringing the roots nearer the surface, will usually cure them of the yellows, provided, however, they are not already too far gone to recover. It may not always be necessary to alter the position of the tree, and in this case the undermining and removal of old soil need not be carried out in such a drastic manner as happens when transplanting takes place.

Ultimate success in each case to a certain extent depends upon subsequent treatment. The moving or root-lifting may have been done well, but the trees will yet require rather more than ordinary attention. On no account ought they to become at all dry at the roots, particular care being taken to keep the old ball of soil uniformly moist. Well established trees, having a few or many deep running roots, do not so quickly suffer from dryness, but the case is very different with those newly moved. No cold currents of air should reach them when in leaf, and should they flag badly, shading ought to be applied during the hottest part of the day, overhead syringing, too, being frequent. Disbudding and stopping should be deferred to rather later than usual, while over-cropping should be particularly guarded against.

W. IGGULDEN.

Raising Cucumber and Melon plants.

For early work new seeds are best. Old seeds are more tardy in starting into growth, and when the seeds lie in the soil more than a week or ten days, the plants, if they come at all, are always weakly.

The soil should be light. Sow in single pots and plunge in a brisk bottom-heat. If the plants have to be raised in a large house, use a small propagating frame to keep a close atmosphere around the seedlings till they gain strength. At all times keep near the glass. It is important for the plants to be sturdy and strong. Sow seeds enough to have plenty to select from. If I want 50 plants, I sow at least 100 seeds, so that when planting a house they may all come away together. The growth of old seeds may be made more certain by soaking them twenty-four hours in warm water. I have kept them in warm water in a dish on the hot-water pipes till the seeds were sprouted, and then planted them carefully in soil of the same temperature, and the plants were up in three days. Probably some of the seeds would not have germinated if they

which last year was closed on December 17, the first flowers opening on January 17 following. This season the same house was shut up on December 1, but so far there has not been any apparent gain over that of last season; rather the reverse of the two. The case is somewhat similar with pot Vines. A relative advance in time of starting has not given any corresponding gain over the previous season. I am pleased to say that they are with me looking very well, having gained considerably in strength during the last week. It is not possible, however, to push the growth in either case with such severe weather; I would rather trust to making up for lost time later on when the days are longer. Those who have not got their early pot Strawberries under cover of frames will find it rather an awkward matter now to extricate them from the protecting material by which they are surrounded.



The Weeping Hemlock Spruce (*Abies canadensis pendula*). See p. 73.

had been planted in the ordinary way without soaking. It is not necessary to do this with new seeds, as the vital principle is more active. The soil, pots, and drainage must be placed on the pipes to get warm before being used, as the least check in that stage would be fatal, and the pots must be plunged in a brisk hotbed immediately. For house planting the plants should not be stopped till they have advanced some distance up the trellis. This freedom of growth adds immensely to their vigour.—E. H.

Early forcing and the prolonged frost.—Unless a change for the better is soon experienced I am under the impression that we shall, on the whole, be somewhat out of our reckoning as to the periods at which ripe fruit is calculated upon. As an instance, I would note that of a Peach house,

This, I think, clearly shows us that for the first few batches it is far preferable to place them in frames or cold pits; this, I consider, should be done in the case of the very earliest by the end of October, so that from thence onwards they do not become so sodden at the roots. Early Figs in pots, I see, are showing well; these, I think, should be more grown in this manner for the very early picking.—J. H.

Covering outside Vine borders.—During a winter like the present there should not be any doubt as to the advisability of covering with well-worked fermenting material the outside borders of vineries which are to be started now or up to the middle of next month. Borders which were covered towards the end of October with wooden shutters, or sheets of corrugated zinc, or whatever is applied for the purpose, will be in a much better

condition when the time arrives for forcing than those uncovered. I took the precaution previous to the present severe weather to cover all our outside borders with dry leaves to the depth of 12 inches. Some gardeners never think of applying a covering until the Vines are started. This is certainly bad practice, and will show ill effects later on, with possibly a bad attack of shanking. Vineries, the borders of which have been well protected and are now about to be started, should have a thicker covering of warm leaves, or even well-worked stable litter and leaves in equal portions. Failing any leaves, the stable litter should be well worked, as if this is not done, violent heating takes place for a short time. The warm covering will gently stimulate the roots. I have no great faith in outside borders for early forcing, as I think for this purpose the roots should be wholly inside, as they are thus more under control. For midseason Vines which are started from the middle of February, I think outside borders are an advantage. These also, in our case, are covered with shutters and dry leaves, and will remain so until genial weather arrives, when both will be removed, so that the borders may receive the beneficial influence of the sun. After this winter covering is removed, I apply a mulch to the depth of 2 inches of well-burned garden refuse and good leaves in equal parts, this keeping the surface moist without depriving the border of natural warmth. The covering of burned refuse attracts the heat to a much greater extent than if the surface soil were uncovered or even mulched with littery manure. In our case after such a covering was applied, the temperature of the border was raised considerably. Where the natural soil and surroundings are cold, anything which may be done to raise the temperature of the border is a gain. Light soils, or those with a gravelly subsoil are generally warm enough without any such agency. RURAL.

BOTTLING GRAPES.

THE latest and longest keeping kinds of Grapes should now be cut and bottled. Lady Downe's is still the best kind, this keeping fresh and plump up to well into May. The quality of this kind and also of Gros Colman is improved by hanging on the Vines till the first week of the new year; moreover the skins become less tough, and apparently reduced in thickness, without impairing their keeping properties. Alicante, Alnwick Seedling, Mrs. Pearson, Muscat, Trebbiano, Mrs. Pince, West's St. Peter's, and others ought to be cut at the end of the year. The oval-berried Black Morocco, or Kempsey Alicante of some, is a splendid keeper and a great favourite here. There can be no doubt that those Grapes that are ripe early in October keep plump and fresh longest, whilst to preserve the colour it is necessary to place them in a darkened room, as direct light is known to diminish the colour of black Grapes. The Grape room need not be an elaborate or expensive structure, but a few simple features are absolutely essential to success. If a new room had to be built preference would be given to hollow walls and a thatched roof, in order to secure a non-fluctuating temperature of 40° to 45°. Provision would also be made against having the doors of the Grape room communicating directly with the outer atmosphere. Oftentimes some existing room has to be converted into a purpose of this sort, or a portion of a seed room may be partitioned off, cupboard-like, to prevent the settlement of dust, &c., upon the berries. There should also be a flow and return pipe with tight-shutting valves, but in all cases fire-heat should be looked upon as a necessary evil, and if much used will certainly cause the Grapes to shrivel. It is a good plan to place a layer of some non-conducting material, such as felt, silicate of cotton, cocoa-nut fibre refuse or sawdust, between slates and ceiling so as to keep the inner temperature steadier and to dispense with fire-heat. It is during sudden changes of outer atmosphere that the pipes are most required and need judicious manipulation. The temperature of the Grape room should not be raised from without by natural atmospheric pressure, but rather by the pipes from within, for if allowed to do this during

sudden rises of outer temperature, a dangerous condensation of moisture would accumulate on the berries and early decay set in. If two tablespoonfuls of syrup (dissolved sugar) be added to each bottle of one and a half pint size, the flavour of the Grapes is said to be preserved without any deterioration. Be this as it may, a good deal of water is taken up by the wood, especially for the first few weeks after bottling, hence the greater necessity to be careful that the water in the bottles is not extracted below the base of the wood. Never shorten a shoot beyond the bunch, and suspend the bunches clear of each other. Examine frequently, as one faulty berry soon spreads mischief to many others. Plug the necks of the bottles with cotton wool to prevent evaporation. Changing the water becomes unnecessary and ventilation is immaterial, except on some very favourable occasions, when the inner atmosphere may be changed. Beware of letting in damp air or air of a different temperature. From many years' experience I have proved that Grapes thus treated can be kept better with stalks green than on the best-managed rods; moreover, the opportunity to cleanse the Vines and secure them perfect rest is secured.

W. CRUMP.

Madresfield Court.

GRAPE MRS. PINCE.

IN "Notes on Grapes" (p. 34), Mr. C. Warden states that the variety Mrs. Pince is not now so often met with as its merits entitle it to, also that when he grew this kind in the Hamburgh house it never failed to colour. Mr. Warden does not state when the Hamburghs were ripe, but probably not later than June, as on two occasions in successive years Mrs. Pince came under my notice perfectly coloured and quite ripe the first week in July, having been grown with early Hamburghs, but I have never heard of nor seen Mrs. Pince black when grown with other late-keeping varieties, and if they ever were in existence, they would sometimes be exhibited at our autumn fruit shows. Now, however, good in quality as this Grape is—and it certainly is the richest flavoured keeping variety—growers will not cultivate it largely if it has to be ripened at midsummer to have it in perfect condition, and then keep it till Christmas or after before using it. This want of colour is much to be regretted. I have taken much trouble to succeed in growing it, planted and re-planted, grafted and re-grafted it on several varieties, and have had such beautiful bunches at different times—from 5 lbs. to 7 lbs. in weight and perfect in form—that if I could have given them that finish and colour that connoisseurs love, I should like to have exhibited them to a select circle of enthusiasts. Used as a stock to graft an early variety upon it is excellent, being a very vigorous and free-rooting Vine. I saw at Blickling the most magnificent berries of the Duke of Buccleuch, and good bunches too, growing upon a Vine grafted upon it that I have ever seen. The berries were like Transparent Gage Plums in size. Cultivators who have Mrs. Pince in a mid-season house not finishing its bunches satisfactorily should try the variety Duke of Buccleuch as a scion. Put a thin shading over the bunches of the latter kind just before the berries begin to change colour, and keep it there for a fortnight or three weeks; that is, if they would have this, the finest summer white Grape, free from spot and blemish. I may add here this grafting of early kinds of Grapes on to late sorts is always, as far as I have noticed, followed by good results; on the other hand, I am under the impression that it is a mistake to graft late kinds on to early varieties. These ideas have been slowly matured by repeated experiments, attended both by successes and failures.—

WM. ALLAN, *Ganton Park*

— I note that Mr. C. Warden at p. 34 has a word of praise for this justly-esteemed Grape, although often spoken disparagingly of on account of its want of colour and non-setting properties. In my opinion it is the best-flavoured mid-winter black Grape in cultivation with the true Muscat flavour. I have not the least difficulty in getting the fruit to set properly, each berry also having its full complement of seeds, without the assistance of any

artificial agency other than drawing the hand gently over the bunches at mid-day whilst in bloom. The bunches are invariably of a large size, the Vine being pruned on the close spur system. The colour is all that can be desired. I have seen it mentioned that a slight shade is beneficial to ensure good colour, but in my experience the reverse is the case. The densest colour is on the side of the bunch most exposed to the sun and light. The Vine growing here is planted at the west end of theinery; consequently the sun and light strike the bunches in an oblique line during the afternoon. A longer season of growth than is generally accorded is also necessary. Over-cropping must be especially guarded against.—A. YOUNG, *Abberley Hall, Stourport.*

PROPAGATING GRAPE VINES.

FOR indoor work Vines are now generally propagated from eyes or buds, and this is the best and simplest way. Select the best ripened young wood when the Vines are pruned and lay the cuttings in moist soil in a cool house if there is a nice genial warmth in the propagating bed. When I fruited Vines largely in pots I liked to start the eyes early in January, and as only the early forcing kinds, such as Black Hamburgh, Foster's Seedling, and Buckland Sweetwater, with a Vine or two of the Madresfield Court, were grown, the eyes were always taken from the earliest forced house of permanent Vines, and I generally found that these responded more readily to the warmth of the propagating bed than eyes from Vines grown in cooler houses for late work. If the young Vines are to be fruited in pots as yearlings, the sooner the eyes are put in the better after January comes in. They should always be started in bottom heat, as it is important to give them a good start. Afterwards, when the roots are growing freely, bottom heat is not required; the Vines will in fact make stouter, shorter-jointed wood without it. In cutting out the buds leave a small piece of wood on each side of the bud; half an inch or so will be sufficient. But it will not be advisable to cut away too much of the wood round the eyes, as it helps to nourish and support the buds until roots are formed. Paring the wood away from the buds does not in any way hasten the production of roots. All Vine growers, of course, are aware that roots do not form before the eyes break into foliage, and very often the wound has not begun to callus or heal over till the leaves are unfolding. Afterwards in a genial bottom-heat the progress is rapid. When pots are used I prefer planting in the centre of 3-inch pots, draining them well and placing a couple of inches of rough turfy soil over the crocks. Then fill the pots nearly full of light rich soil; press the eyes in so that the bud is just covered. Give enough chilled water to settle the soil, and then plunge the pots in the bottom-heat bed, and cover with an inch or so of old tan or cocoa fibre. If the bottom-heat is genial, very little water, if any, will be required till the eyes start. If the soil is made sour by watering too much at the beginning, there will not be so good a chance of having strong rods for propagating the next season. As soon as the young Vines are making roots freely, which may be easily ascertained by turning one or two out carefully, and if the roots are working round the sides of the pots—and they grow very rapidly when fairly started—lift the pots on to the surface of the bed, and as soon as the plants have recovered from the check and are moving on again, shift into 6-inch pots, first warming these and the soil to the temperature of the house. Potting young Vines in cold soil is sure to give them a serious check. Each plant now will require a stake to keep it in an erect position. In all stages of their growth the plants must have a light position in a house where the night temperature does not fall below 60°; and when the plants have filled the 6-inch pots with roots, shift into 11-inch pots, and stand them on a shelf near the upright glass, when the canes can be trained to the wires within 16 inches or so of the glass. Stop when 6 feet long, and keep all laterals pinched to one leaf. Give weak liquid manure when the roots have worked through the soil and

are forming in coils round the sides of the pots; but as the roots will have to remain in the soil till the Vines are fruited, it will be better not to run the risk of making it sour by overfeeding in the preliminary stages. The simplest and best way of raising young Vines is to plant the eyes in square pieces of turf. It will be an advantage if the sods have been cut a month or two before required for use. They might be packed in layers with some long stable manure placed between and over them. The sods may be from 4 inches to 6 inches square and about 2½ inches thick. A little soil is scooped out of the centre, the Vine eye pressed in, and some light sandy compost filled in over. They are then set on the hotbed close together. I have rooted Vine eyes in sods very quickly set closely together in shallow wooden trays, the latter being placed on the top of the hot-water pipes in a forcing house.

As soon as the roots are working through the sods, they can be transferred to suitable-sized pots and grown on in the ordinary way if the young Vines are intended for planting in a border to fill a house. If the border is in a suitable condition, when the plants are hardened off a little they might be planted out, guarding against a check being received by keeping the temperature right with fire heat, and watering the roots when necessary with water at 85°, but avoid making the soil too wet.

E. H.

DESSERT PEARS.

FROM what I have seen, and also from what I have been able to learn from others, late-keeping Pears have this season ripened sooner than ordinary. This is just what might have been expected from the character of the weather last summer, as it invariably happens that after a wet sunless season the late-keeping varieties come in before their usual time. After a hot dry summer I have had Louise Bonne of Jersey keep up to the beginning of December, Marie Louise past the middle of the month, Winter Nelis until the beginning of March, Beurré Rance to the end of April, and Ne Plus Meuris until June. Those who have had experience in the keeping of late Pears in different kinds of fruit-rooms know the influence which the room has in bringing on or retarding them. The kinds I have named ripening at the dates given were kept in an underground cellar, free from damp, but with no drying influences to cause shrivelling in the way that usually occurs with fruit kept in a fruit-room with a boarded floor and above another apartment.

Mr. Crump is right in pointing to the opening that exists for more late-keeping varieties of Pears. During the three last months of the year, especially in October and November, there are many more of what may be termed good kinds than there is any need for; whereas, after the advent of the new year there are not nearly enough to keep up an unbroken succession, except in the limited number of localities suited to the growth of almost all sorts. The existence of so comparatively few good late-keeping sorts would point to raisers of new kinds having hitherto worked on mistaken lines, by depending too much on the fine autumn Pears from which to raise seedlings, in place of using the late varieties. I am aware there is no certainty in what may result in the shape of keeping or non-keeping varieties of any of our cultivated fruits from certain parentage. But, so far as I have had an opportunity of judging, a large percentage of the seedlings raised from early kinds inherits more or less of the early character.

Were I to embark in Pear raising I should use Winter Nelis, Josephine de Malines, Beurré Rance, and Ne Plus Meuris to breed from. Regarding Beurré Rance, my experience with it is quite different from that of Mr. Crump, as with me it never failed to ripen perfectly in the widely different localities where I have grown it. All the difference with this variety was that it did better 200 miles north than I have had or seen it do in Middlesex. I agree with Mr. Crump that twelve varieties of Pears are not sufficient to meet the requirements of all parts of the country, that is, if the selection is in all

cases to be confined to the same kinds, as it is only in few places that the whole of any twelve that might be selected will succeed. I am glad to see that Mr. Crump touches upon the difference in the quality of that fine Pear Doyenné du Comice when grown on the Pear stock as against the Quince. A like difference in favour of the Pear stock exists in many of the best sorts. The Quince stock is no favourite of mine, except in soils that do not suit the Pear stock. The trees will bear better on the Quince stock during the first few years after planting, but if the time is extended, say, to eight or ten years, the weight produced by trees on the Pear stock that have been judiciously managed by root-pruning will be in excess of the former, to say nothing about the comparative freedom from grit. No variety that is at all inclined to be gritty should ever be grown on the Quince, as it always aggravates the natural tendency in this direction. The soil also has a great influence on the texture of Pears, especially with the kinds that are subject to being gritty. That fine-looking and agreeably flavoured Pear Beurré Diel is so gritty in some soils as to be hardly worth growing, whilst in others this defect is much less marked. The flavour of Pears is likewise more influenced by the character of the soil than that of any other of our cultivated fruits. Soil that naturally contains enough sand to prevent its being heavy and adhesive will grow Pears finer in flavour and also sweeter than soil that is strong and heavy, such as the London clay.—T. B.

— In reply to Mr. Crump's excellent letter in your first issue of this year, I beg to give the names of a few late Pears which do well with us in this district. As regards Easter Beurré and Rance, trial should be made of these grand sorts on south-west or west walls. Many of the late—post Christmas—Pears may want a little aid to ripen them, and I have seen somewhere lately a revival of the practice of forwarding them in boxes placed on the warm pipes of greenhouses, which is to be commended. No doubt in winter Pears are often too cold for the dessert, and their flavour and taste upon the palate would be improved by serving them "with the chill off."

POST CHRISTMAS PEARS.

(Not named by Mr. Crump.)

BEURRE DE JONGHE.—Of delicious flavour, melting, and equal to November sorts: tree a slow grower, best from wall or cordons.

ZEPHIRIN GREGOIRE.—Small, but very rich in flavour; good from pyramids or walls.

DUCHESS DE BORDEAUX.—Of medium size, very fine. Certificated by the Royal Horticultural Society in February. Does best on Pear stock, and then succeeds in any form.

NOUVELLE FULVIE.—A large and very finely flavoured fruit; good in any form.

OLIVIER DES SERRES.—Of rich flavour, hardy, and succeeding on open trees; shaped like a Bergamot; rich russet colour, A 1.

PASSE CRASSANE.—A fine large Pear for wall culture; succeeds best upon Pear stock or double-grafted.

KNIGHT'S MONARCH (the king of all winter Pears).—This commences to ripen in November and continues till March.

BEURRE DUBITSON.—A finger-like Pear of remarkably good Colmar flavour; a slow grower. Mr. Ingram, of Belvoir, rescued this from obscurity.

DOYENNE D'ALENCON.—A first-class late sort of sweet and pleasant flavour; it succeeds in the open and is a good cropper; larger and better from a wall or cordon.

HUYSH'S BERGAMOT.—An egg-shaped dark russetty Pear of great excellence; succeeds in any form, but is improved on a wall.

If to these are added those named by Mr. Crump, viz., Josephine de Malines, Ne Plus Meuris (requires severely thinning to bring out good examples), Marie Benoist, Glou Morceau, Bergamotte d'Esperen, Beurré Rance, Easter Beurré, L'Inconnue (a sweet-meat, but too small), we have the complete list of known late sorts. Those who prefer Quince stocks can have the kinds named above "on Pear," double-grafted. Winter Nelis will rarely stay till February with us. Prince Napoleon, Dr. Alphand, Le Lectier, Mme. Lye Baltet are sometimes fine, but

are yet on trial. It would be interesting to know how these late Pears succeed, say, at Sherborne Castle, Cliveden, Holme Lacey, and Heckfield Place.—GEORGE BUNYARD, *Maidstone.*

THE MUSCAT OF ALEXANDRIA GRAPE.

It is a cause for wonder, and certainly for regret, that this noble Grape is not grown in greater abundance in private gardens than it is. Let this variety be judged by any standard you may please, it is by far the best Grape in cultivation. It can be had in good condition for as many months in the year as any other variety we possess, viz., from early in June to late in April, a period of ten months, and I venture to say that this variety will carry heavier crops for more years in succession if successfully cultivated than any other known sort, and as to the quality and value of the fruit, there is no comparison between it and any other. This is so manifest from the position good examples of it occupy at our fruit exhibitions, that no other evidence is needed to justify this statement; yet another very eloquent testimony to its superior quality may be given. Let any gardener send an equal weight of this Grape with any other variety to the dinner-table, and we know in certainly ten cases out of twelve which dish is cleared of its contents first, giving conclusive proof of the favour in which it is held. The Muscat of Alexandria possesses as strong a constitution as the majority of Vines, and if grown on the extension system, as I think it should be, one Vine will fill a house with bearing wood in as short a time as any variety I know. The conditions necessary to the successful cultivation of this Vine are slightly different to those under which the majority of other Vines will succeed, but these conditions are so well understood generally, that this ought not to be a bar to its extended cultivation. They consist chiefly in a more abundant supply of heat at certain stages of the Vine's growth, namely, during the flowering and fertilisation period, and again at colouring time, when it is so important to have the atmosphere warm and buoyant for the perfect finish of this beautiful Grape. It is equally necessary to exercise vigilant and intelligent watchfulness over the ventilation to prevent the scorching of the foliage to which this variety is subject in consequence of the light and rather attenuated nature of its leaves.

The above estimate of this Grape will, I think, be generally admitted to be a just one. How is it, then, that it is not grown in greater quantities in private gardens than it is? Judging from my own experience and observations, I do not think I am far wrong in saying that there is very little more glass devoted to its growth now than used to be the case twenty-five or thirty years ago. It has often been said that superior, but less showy Grapes have been ousted from our gardens by inferior, but more showy varieties, such as Gros Maroc, Alnwick Seedling, Gros Colman, the Duke of Buccleuch, and others, but this will not hold good in the case of the Muscat, as it "still holds the field" not only for its superior quality, but also for its noble appearance.

Whether the cause of the neglect of its culture is attributable to the innate love of variety finding expression in the common practice of growing too many sorts, to indifference or to the force of custom, in so far that one gardener is often satisfied to grow the same number of varieties as his predecessor has been accustomed to do, or to some other cause I cannot determine. But I hope we may see its cultivation

much more extended in the near future. Here a few years ago we had but one vinery devoted to its growth; now we have three, other varieties having been reduced to make room for Muscats.

O. THOMAS.

Cheltenham.

COLOUR IN APPLES.

A FINE collection of both ordinary edible and cider Apples shown at the meeting of the Royal Horticultural Society on the 13th by Mr. J. Watkins, of Hereford, was remarkable for the unusually rich colouring found in many of the samples, Blenheim Pippin especially vieing with the best samples received from America in the richness of its hue. It would seem obvious that certain districts of England enjoy special favour in the production of colour on Apples, and although we know that colour of skin by no means signifies quality of flesh or flavour, yet colour is a very important marketable commodity, and may well be sought for if possible. The districts of England where the samples of highest colour are generally found seem to be Kent and Sussex and the western counties of Devonshire, Somerset, Gloucester, and Hereford. Perhaps some others could put in an equally good claim, and it may be that, so far as the western counties are concerned, colour is found so largely naturally in the numerous cider varieties grown, that we have got to attribute to the west, colour productiveness on ordinary edible Apples beyond its deserts. It is evident, however, that colour is a product of warmth allied to ample light and sunshine. So far, that is less obtainable near the metropolis or northward than south or west. That fact seems specially to indicate the south and west, therefore, as being the best or, at least, most probably successful districts for market Apple culture. Soil, too, seems to have very much to do with colour production, and both chalk and gravel share the honours, although it would seem as if chalk, cool as it may be to the roots, yet gives the best results. It is to be regretted that no notes were given as to the nature of the soil, or the type of trees from which the fruit was taken. Trade growers, as a rule, in setting up their show samples of Apples rarely give information as to the sort of trees producing them, or anything as to soil and general treatment. Specially, seeing the remarkable colour found in the sample of Blenheim Pippin shown, would it have been interesting to learn whether the product of small nursery trees or of permanent trees. If such samples as those commented upon could be produced in abundance here and at moderate cost, we need not fear American competition. Still, it would be difficult to induce the public to believe that such highly-coloured samples were of home growth. Many gardeners have antipathy to colour of a specially rich kind in Apples, because held to be the natural ally to indifferent quality. That seems to be taking an extreme view of the case. Where soil and climate will really produce brilliant colour as sometimes seen, for instance, on Cox's Orange Pippin, we have no right to conclude that such colour is obtained at the expense of quality. The prejudice is doubtless derived from the fact that many of the very deeply-coloured varieties are of indifferent flavour; hence the common condemnation of colour in Apples. But whilst it is evident that soil and climate are great colour factors, it is equally certain that many fairly good varieties colour pretty well generally, and with remarkable beauty. Specially there is the Duchess's Favourite, Worcester Pearmain, Mère de Ménage, Baumann's Red Reinette, and many others which colour so well generally. Mr. Watkins showed numerous richly coloured varieties in his local or cider-producing collection, some of which were really equal in edible quality to our early richly coloured named sorts, and it says much in their favour that they could be kept and shown in such capital form so late as the middle of January. In attempting to counteract American competition in Apples, it is very evident that we must not hope to succeed with many of our green, brown or pale coloured sorts. Colour is a market requirement, and one which we cannot afford to ignore. Not

only, therefore, should good natural colouring sorts be sought for, but also we should have our chief Apple-producing districts in those counties where warmth and soil greatly assist in colour production. For all the ordinary requirements of the market up to November, we have plenty of early kinds which can hardly be improved upon. Then outside competition begins about that month, and therefore we want in coloured sorts not only good eating varieties, but good keeping ones. We have need to address ourselves to these considerations before we can hope to attain a very high place as an Apple-producing nation. The subject opens to Apple growers a wide field for discussion. A. D.

THE HEATING OF GLASSHOUSES.

THE general principles which govern the efficient system of heating our greenhouses by hot water appear to be so far well understood. Nevertheless, there are some important, although minor details regarding the conserving and the economical conveyance of the heat generated by the hot-water apparatus, without loss to the various points of the system, which are generally overlooked, or at all events seldom applied. I allude principally to the extravagant waste of heat by the omission to cover over the

limiting the pipes in the warmest class of houses—always a fatal economy. Pipes laid horizontally side by side diffuse the heat better than those fixed one on the top of the other. The fire should act direct on to the boiler and plenty of flow space should be provided, whilst the fewer obstructions in the shape of acute angles or irregular gradients on the mains, the smoother will be the passage of water; consequently less friction and strain upon the boiler and pipes. If the gently-rising mains are wrapped in silicate of cotton or other non-conducting material, the water will be delivered to houses 50 yards or 100 yards distant at nearly the same temperature as when it left the boiler. I speak from experience.

The largest boilers here are "fired saddles," of the Allerton Priory and Witley Court types; the former has four oval flues through its upper part, and is very powerful, the latter being made with two flues, and although of the same size and working side by side, of less power. In these cases the fire traverses through the flues, all arranged in the interior of the boiler, thence to the chimney-stack flue. By this means the boiler is enabled to stand clear of the objectionable solid masonry which so long as the fire is being driven (said masonry) proves the means of extracting and storing up heat, after-

valves are screwed down when sediment is to be washed. After removing the fire, we then empty the boiler; next we open first one valve for a moment, then another till all have been used, and the sudden inrush of water clears every particle of rust and sediment out through the mud plugs situated at the lowest point. By these methods the life-time of a boiler is greatly extended, as burning is prevented. Where the water is very hard and contains much lime deposit and furs the interior, some other means must be adopted, but of this I have no experience. It is an important item in stoking that the flues running through the boiler should have the sooty deposit swept off the metal at least once a week, as such deposit is a non-conductor. The careful management of the damper is very important to prevent waste of heat up the chimney shaft. The late severe weather has tested the capabilities of stokers and boilers. From a fair trial with anthracite coal and coke, I find the former extremely powerful and durable, but as the fire bars are somewhat unsuitable, I prefer to use anthracite coal and coke in about equal proportions, as such can be depended upon to maintain a long steady heat.—W. CRUMP, *Madresfield Court*.

— Never before, perhaps, since the heating by hot water came into existence has the department for providing warmth for plants in horticultural structures been put to so severe a test as during the past few weeks, at once taxing to the utmost the heating power of the boilers, as well as testing in the most thorough manner the various kinds of fuel. In this very severe trial we must not overlook the stoker, for with him rests a very important duty, the neglect of which is far too serious for contemplation, while the due performance of it will certainly lighten a very serious burden for those at the head of affairs. Boilers which are estimated to heat so many feet of piping will have had an opportunity of displaying their efficiency or otherwise, and all those that have performed their allotted task and still remain intact can certainly be regarded as a "friend indeed." But whether a boiler is capable of performing its allotted task or not depends on a variety of circumstances. There is not the slightest doubt that if a boiler is not properly set, much heat is lost to the pipes, consequent upon sluggish draught, a most important factor in overcoming which is a chimney of good height. Formerly low chimneys were almost universal, but now it is no uncommon thing to see chimneys from 20 feet to 40 feet high in some of the larger nursery gardens. A very useful height, however, is 20 feet, narrowing to the top, and finished with a chimney-pot to further quicken the draught. Good high chimneys constitute a very important item in the economical use of fuel, for with the damper but slightly drawn a sharp maximum draught is obtainable, while only a minimum amount of heat is lost. Excessive draught, too, not only wastes heat, but conduces to the quick formation of clinkers. Of late there has been plenty of clinkers, because of an excess of draught in turn again brought about by insufficient boiler power. This last is one of the greatest errors in heating, and one more frequently made than any. It is in the first place false economy so far as the fuel is concerned, and at the same time it strains the boiler to the utmost, and which at any moment might end disastrously. Accidents, of course, will happen, even where the best of apparatus obtains. Undoubtedly, the best policy to pursue and in the long run the cheapest is abundance of boiler power, and an abundance of piping, too. I had almost said, a super-abundance of the latter, for this simple reason, that a maximum amount of piping at a moderate temperature will grow plants generally to far greater perfection and leave less evils behind than a minimum amount of piping at a high temperature, the latter, by its fierce, fiery heat, being utterly opposed to good plant culture, to say nothing of the ill effects arising from the rapid increase of most insects under such conditions. Boilers that are not in a covered shed I should always set with the face to the north or north-east. It is from these quarters we get our bitterest wind, and at such times we require a sharper draught, and boilers thus set will heat more quickly and



The Weeping Larch (*Larix europaea pendula*). See p. 73.

mains from the boiler with some permanent non-conducting material. For this purpose I find silicate of cotton, called slag wool by some, the most effectual. It can be supplied on strips of canvas (the most convenient for application) or loose, to be bound on with stout wrapping, or it may be had in paste form. I prefer the first for pipes, and although the first cost may seem heavy, the saving of heat soon more than recoups for the outlay, especially with fuel at famine prices, as at present in some localities. In most places having modern erections of any pretensions, it is usual to lay lengthy mains outside under ground in low non-waterproof chambers, having branches to the different houses. The extravagant waste of heat radiated through these mains can clearly be seen above ground, especially in frosty or snowy weather. Not a few heating arrangements are defective owing to the bad setting of the boilers, or to the bad arrangements of the pipes. The most effectively heated houses are those in which the required temperature is maintained the most easily, *i.e.*, by an apparatus that can do its work well without being driven. One of the commonest errors is unduly

wards giving it back again when the fires are stopped, producing hot pipes when least wanted, possibly during sunshine. To prevent waste of heat, I have covered the exterior of the boiler with a layer of silicate cotton, held in position with scantlings and hoop iron, and the heat lost is scarcely perceptible. There are four 4-inch flow pipes from each boiler covered with the same material, the whole being quite satisfactory, and for economy and ease of working can be strongly recommended. The whole apparatus is, moreover, easily inspected, and any leaky joints can be at once detected, as not unfrequently these leakages going on unnoticed in the solid masonry cause the early decay or canker by rust of the boiler from without. It is astonishing how soon any continued leakage, combined with the action of the lime of the masonry, eats through the side of a boiler, and nine-tenths of the breakdowns are either caused by the above or by the omission to clean out the sediment that is sure to accumulate in the bottom of the boiler, where proper mud plugs ought to be provided for periodical cleansings. Our boilers have valves on both flow and return pipes. These

effectually than those facing in the opposite direction. Boilers, too, must be well under their work so as to accelerate circulation. And now a word as to fuel, in which coke forms the greatest item, but I cannot say that it is either the cheapest or the most enduring, and certainly it is by no means the cleanest that could be found. At times the sulphurous fumes from it are almost overwhelming, while in severe weather it requires a great deal of attention, especially in the case of handicapped boilers. Of all fuel, that I have tried none can compete with anthracite coal either for efficient heating, for durability, or economy and cleanliness. But whether it be all this or not, depends not merely on the coal, but in a great measure upon the stoker; and the stoker who is constantly poking and stirring the fire is not the man to be in charge of anthracite coal, for this is exactly what it cannot endure. At a certain heat this coal if interfered with crumbles, but if left alone it will do great service. The chief points about it are these: First, it requires a good sharp draught; secondly, well fill the fire box, and then allow it to do its work undisturbed, and those who cannot do this last are far better without it, for they will speedily waste almost as much as they burn, and be short of heat into the bargain. Some use it mingled with coke, but I do not approve of the system, for then it leans to the side of extravagance, though it produces a fiercer heat while it lasts than the coal by itself, just as a fire of coal and dry logs on an open grate, the one assists the other in a rapid consumption. Anthracite coal may be relied upon as safe, effectual, and durable, and having burnt for eight or ten hours, even in severe weather, will still show a bright light in the ash pit, which is in itself abundant proof that little interference is necessary, and also the absence of clinkers. Those, therefore, who use it must impress these essentials on the mind of the stoker, particularly where the men have been used to coke previously. For large gardens or nurseries regular stokers are best, as they will invariably interest themselves in the work, and having the temperatures to be maintained plainly marked in each house by the side of the thermometer, there is little reason for going astray.—E. J.

—It would be interesting to learn of the failures which have occurred amongst boilers during the recent very severe weather. It is rare that the powers of these useful and important articles have been so hard tested as during the past few weeks, for we have had an average temperature of unusual lowness. That such has been the case has not been the sole difficulty, because light, too, has been at an unusually low ebb, and if it were possible to obtain a record of the degrees of daylight as we can record heat, it would very likely be found that the average has rarely been lower for so long a period at mid-winter. Where snow has been left to protect glasshouse roofs some strain has been taken from the boilers, but then it usually happens that inside warmth soon thaws the snow, and that on house roofs it quickly disappears. It seems not to be so many years since that the contests concerning boilers, both in the press and at exhibitions, were of an exciting kind. That discussions over the respective merits of boilers has died out is doubtless due to the fact that those having glasshouses and heating powers are satisfied with the boilers they possess. Somehow it seems to have become a settled axiom that all boilers are good. Were I or anyone else to specially vaunt the merits of this or that form in these pages, a perfect chorus of commendations for many others would at once be evoked, conclusive proof that one boiler is as good as another somewhere, whilst differences in favour are found chiefly in setting, or firing, or situation, or some other cause. Probably boilers owe any demerits they may be found to possess more to bad setting than to any other cause. On the other hand, the fact that now complaints concerning boilers are so few shows that setting is much better understood than was formerly the case, so that there has been general gain all round in practical knowledge. But what failures may have occurred during the past severe weather would doubtless be found in weak parts, through constant use or in bad stoking, or perhaps some defects in setting done in

earlier days. Still, to learn what had been the experience of other breakdowns, how met and remedied would be interesting reading. Some ten years ago boiler contests out in the open were common enough, but no one could say that the results ever were satisfactory. It was impossible to produce outdoors and in the summer months those conditions of temperature which have marked the present winter for instance, and thus given to boilers a severe testing. If such conditions could not be imposed, then it was evident at once that all assumed trials must be farces. Happily, we have got beyond the trade-contesting stage in boilers, and having had ample opportunities to test all the good ones as well as the old forms, have been enabled to draw our own conclusions irrespective of trade competitions and with better results. We owe very much to good boilers and their various excellent concomitants. Twenty years ago such a spell of hard weather as we have just passed through would have brought breakdowns wholesale. Now it may be safely averred that these mishaps have been few, and that they have come chiefly from old or badly set boilers.—A. D.

ORCHIDS.

THE RAINY MONTH FLOWER.

(DENDROBIUM MACARTHIE.)

THIS is now in bloom with Mr. Williams in his nurseries at Upper Holloway, and is a most charming species. It seems to be getting established, as for several years now I have observed it flowering, although I never remember to have seen it in bloom quite so early in the year. The plant is found in the neighbourhood of Ratnapoora and in the district of Point de Galle, in Ceylon. It is a slender-growing deciduous species, the stems green, speckled with red, and having a swollen base, the joints being thickened. Its flowers, produced on short racemes usually three or fewer together, are large, but on account of their only half expanding, they are seen to better advantage when the plant is grown in a basket and hung up near the roof glass. The sepals and petals are wholly pinkish rose or soft cherry colour, the front lobe of the lip margined with rosy pink, behind which is a broad zone of white, and at the base a blotch of very deep rose colour. The flowers last for a long time in full beauty. To grow this plant was at one time very difficult, but Mr. Williams appears to have succeeded with it. It is grown upon blocks of wood or in hanging baskets, well exposed to the sunshine. Very little shade is given, and this only in the middle of the day. It requires an abundant supply of water, and hence it gets frequent sprinkling from the syringe. It likes a hot and even temperature, the house being kept between 75° and 85°. When at rest this *Dendrobium* must not be dried, or its stems being so slender suffer quickly, this being a great drawback to it, and frequently the cause of the plant getting a check from which it never recovers. The plant must be thoroughly drained, and its roots not overburdened with soil, which should consist of good fibrous peat and chopped *Sphagnum* Moss with a dusting of sharp sand. The firm potting of Orchids, more especially in the case of the one now under consideration, is necessary. Under cultivation *D. Macarthie* appears to flower at any and various seasons. I have had it in bloom in the summer months. Last season a well-flowered example was shown at the Temple in May, its natural time, we are told, in Ceylon. I also saw it blooming in Sir Trevor Lawrence's

garden in November, and at Mr. Sander's, of St. Albans, early in the same month.

WM. HUGH GOWER.

The Widow Orchid (*Masdevallia cucullata*).—The flowers of this are triangular in shape, the sepals tailed and deep blackish purple. The first plants that came alive to this country were sent by Mr. Corder in 1883, but I believe it was first found by M. Linden, of Brussels, nearly thirty years ago in forests near Bogota. It still remains one of the rarest of its section.—H. G.

Catasetum barbatum proboscideum.—This variety was one amongst the last named by Reichenbach, I think, and a very curious flower it is; the sepals and petals are a little under an inch long, pale green, transversely marked with crimson; the lip at the end has a long curved hook which protrudes through the bristle-like hairs which cover it, and which like it are white. I have received this from Mr. White, who has charge of Sir Trevor Lawrence's collection at Burford Lodge.—W. H. G.

Flowers from Cheltenham.—Mr. Cypher sends a beautiful gathering of Orchids. Among them are fine forms of *Cypripedium insigne*, *Lycaste costata*, which is very pretty and also a free bloomer, fine varieties of the dark *Lælia anceps* and the white forms, *L. Sanderiana* and *L. Williamsi*. There are also some fine varieties of *Odontoglossum Alexandræ*, some being pure white and the others beautifully spotted. With these are many flowers of the brilliant *Sophranitis grandiflora* and *rosea*, which have a fine effect.

Lælia anceps Williamsi.—A flower of this beautiful variety comes to hand from Mr. Woodall, of Scarborough. It is quite pleasing to be able to chronicle the blooming of so many of these white forms, as it shows that our growers have hit upon the right plan of cultivating them. The flower now before me, the sender says, is from a recently imported plant, and that accounts for its size, but it is of good shape. The sepals and petals are pure white, also the three-lobed lip on the outside, the front lobe pure white, saving a central band of yellow, which is in the form of a fleshy ridge; the side lobes are streaked with rich crimson.—G.

Odontoglossum Wilckeanum (*T. J. B.*).—Your flower is a very good variety of *O. Wilckeanum*, supposed to be a natural hybrid between *O. crispum* and *O. luteo-purpureum*. The bloom before me measures about 3 inches across. It is creamy yellow spotted with reddish brown, and the lip, while retaining something of the shape of that of *crispum*, is of the same colour as the petals. The parentage of the plant is no doubt correct, as it has every appearance of being intermediate between the two. "T. J. B. inquires if it will do well along with *O. crispum*. Yes, that is exactly the position to suit it.

Lælia anceps Sanderiana.—A gentleman sends me a flower of this white variety of *L. anceps*, saying I did not say much about this in my notes of this plant a few weeks ago. This arose from the fact that I did not know much of it. The flower now before me measures between 4 inches and 5 inches across, the petals being of the purest white, the lip also white, the interior of the side lobes streaked with crimson lines, and the raised yellow plate or fleshy ridge, which extends from the base of the column on to the middle of the front lobe, also streaked with crimson. The front lobe is wholly rich rosy crimson. It is a lovely flower, much in the way of *Dawsoni*, yet distinct from that variety.—W. H. G.

Calanthes just now are in good form in the Holloway Nurseries of Messrs. Williams & Son, and I trust we shall be exempt from foggy weather, so that the spikes may continue in their beauty for a long time. The principal varieties now open are *C. Veitchi*, which is subject to great variation in the intensity of its colours; *C. Sandhurstiana*, with its rich crimson flowers; *C. bella*, with white sepals and blush petals, while the lip is also blush with a blotch of almost dazzling crimson at the base; *C. Sedeni*, distinguished by its bright colour and the deep purple blotch at the base of the lip, *C. ves-*

tita rubro-oculata, *C. vestita luteo-oculata*, and the evergreen terrestrial species, *C. masuca*, with tall spikes of lilac flowers. These plants are frequently spoiled by young growers resting them before the flowering season, but this should be done immediately afterwards.—W. G.

Dendrobium endocharis.—This beautiful Veitchian hybrid is now flowering well in Messrs. B. S. Williams and Son's nursery, Upper Holloway. The flowers are a decided improvement in size on those of its mother parent, *D. japonicum*, and white as in that species. Their lovely Violet fragrance is quite equal to that of its pollen parent, *D. heterocarpum*. It is of more robust habit than *D. japonicum*, and the flowers have a dark blotch of purplish crimson at the base.

Cypripedium Schlesingerianum.—This is a handsome hybrid, one of the last additions of Messrs. Seeger and Tropp, Lordship Lane, Dulwich. The flower sent is the third which has opened, and each one has been spoilt by the thick fogs which have visited the neighbourhood this winter. It is the result of a cross between *C. Boxalli* and *C. insigne*; the ground colour of the whole bloom is a decided bright buff, the dorsal sepal has a broad marginal border of pure white, the central part spotted and dotted heavily with very dark crimson, lower sepal plain buff. The petals have a central band of crimson, the upper half bronzed, and having the appearance of being newly varnished; pouch small, pale buff, the portion round the mouth rosy purple.—W. H. G.

SHORT NOTES.—ORCHIDS.

Lælia anceps Sanderiana (*F. Wheatley*).—This is the name of your variety; it is a very well shaped flower, but it lacks the colour on the front lobe of the lip. It may, however, improve. It is very pleasing to hear of so many recording their success in blooming these white varieties.

Cattleya Trianae.—J. Jenkins sends a flower of this species. It may be considered a very good form, but nothing exceptional. The first flowers of *C. Trianae* are always welcome, but as more blooms come and more varieties open one begins to understand the value of varieties.

Cypripedium callosum.—Mr. Woodall sends a flower of a very pretty Cypripede, asking if it is *C. callosum*. It is, and a very good variety too, the dorsal sepal being very large and brightly coloured, whilst the petals are gracefully deflexed. In addition to bearing a good flower, the plant is a good grower.

Cattleya Trianae alba.—At the present time I have a *Cattleya Trianae alba* in bloom. The flower is very pure. It was shown at the meeting of the Royal Horticultural Society last week, and was mentioned in *THE GARDEN* (p. 63). Since then it has opened, and proves a fine flower.—A. S. SMITH, *Silvermere, Cobham*.

Cattleya Walkeriana (*F. Wheatley*).—From this correspondent comes a spray of this species having three flowers. I never saw a spike with three blooms before, never more than one or two. He says there have been eleven blooms upon the plant for the past three weeks. Although my friend hails from Devonshire, I hear that 20° of frost have been registered in more than one locality. The flowers are of the usual size and of a bright rosy pink; the number upon the peduncle does not in any way appear to have affected their size.—W. H. G.

Minor miseries of cold.—Mr. Wm. G. Lobjoit, hon. treasurer of the Market Gardeners', Nurserymen and Farmers' Association, writing to a contemporary says:—

In your interesting and readable article upon the "Minor Miseries of Cold," you refer to the night journey to the metropolis of the market gardeners. If space can be spared in your valuable columns, the moment seems an opportune one for calling attention to a manner in which the hardships of this class (and indeed of all who have to travel by road in the very early morning) are unnecessarily increased, not to speak also of the cruelty inflicted upon the horses. I refer to the condition of the roads, especially where wood pavement is in use. This is constantly sanded during the daytime, but with one or two solitary exceptions, nothing is done to assist the night traffic. A hoarfrost renders the smooth surface of the wood pavement as slippery as glass, and

carts whose teams have brought their loads from ten or twelve miles out of the country over that the last two or three miles over the well-paved London roads, which ought to be the easiest, are worse than all the rest of the journey. Without witnessing it, it is impossible to imagine the strain upon the men and injury to the horses caused by scrambling along these glassy surfaces, which the application of a little sand might make easy travelling. The Market Gardeners', Nurserymen, and Farmers' Association have already addressed communications upon the subject to the London vestries and to the Society for the Prevention of Cruelty to Animals. If this last society can induce vestrydom to perform its duty in this matter, it will undoubtedly be serving the cause of the dumb animals more than by many prosecutions, and without the consequent infliction of suffering upon the bipeds, too, which is a condition not always thought of.

NOTES OF THE WEEK.

Seedling Freesias.—We have received flowers of some very charming seedlings of these from Lady Ardilaun at Cong. [They are from plants not yet a year old (sown in March, 1890). The blooms are large and fine.

Pelargoniums and the fog.—The Pelargoniums, usually the gayest flowers in the greenhouse in winter, have suffered severely from the fog. In one garden near London there is a houseful of plants which usually make a brilliant show in January, but the fog has denuded them of both leaves and bloom. It will take many weeks of good weather to atone for the mischief.

The weather at Scarborough.—I send you a flower or two of the big Christmas Rose, and some Myrtle from a south wall outside, which will show you that we have not suffered severely. Last Sunday we had our first severe frost, the thermometer touching 18°, i.e., 14° of frost—much the lowest reading we have had. To-day is mild, and *Crocus Imperati* shows colour, and will be the first flower of the new year.—E. H. WOODALL.

Cleft grafting.—In cross-cutting the stem of an old Apple tree this morning, we, on splitting one of the blocks, discovered in the centre of it the original stock headed in for grafting, with the wedge still fixed in the cleft.—W. J. FOSTER, *Dene Court, Somerset*.

* * A very interesting thing. The old cleft graft quite clear in the centre; the old stock 2 inches across, black and dead, but perfectly preserved, and the whole buried in the subsequent growth.—ED.

Apple King of Tomkins County.—Three years ago you may possibly recollect that I sent you one or two fine imported Apples King of Tomkins County. You inquired if they had been home-grown or not, as I had not stated. I now send you for your inspection an Apple of that variety grown near here on a young tree, one of the first two fruits it bore. I may mention that the specimen is getting rather over, as it has been exhibited for about two months in a window.—JAMES H. REEVE, *North Walsham*.

* * A noble fruit.—ED.

Single Camellias.—In going through our Camellia houses to-day we were struck with the effectiveness of two plants, from which we send you by this post a couple of blooms. Both are single flowers; the red one (labelled Clarke's Seedling) is very fine and distinct, as you will see, and the stamens so arranged in a symmetrical column are very effective. The white flower (labelled Bodlondeb) is also an attractive bloom. The flower is not quite so regular in form as the red one, but it is very decorative, and shows prettily in its place here.—DICKSONS (Limited), *Chesham*.

The weather in the north of Scotland.—I send per same post a handful of flowers gathered out of doors here on January 15, which will bear witness to the comparative mildness of the winter experienced on the east of Sutherland up to the present time. From the walls *Veronica Andersoni* and *Jasminum nudiflorum*, from the flower borders *East Lothian Stock* (red and white), *Marie Louise Violets*, *Primroses*, *Snowdrops*, *Wallflowers*, *Polyanthuses*, *Christmas Roses*, and pink Rose buds. Judging from the severity and long continuance of the frost, fog, and snow in the southern portion of the British Islands, I doubt if the same flowers could be gathered in the same condition in the neighbourhood of London in the open at the present time. The winter here has been comparatively mild and open; consequently outdoor operations

have been but little interfered with. From 9° to 10° of frost is the most we have had this winter, and that only on two or three nights. One inch of snow fell on October 27, which disappeared shortly after falling. One inch fell again on January 4, 1891, which lay till January 10, when it disappeared with the thaw. The latter part of December and early part of January were mostly remarkable for slight white frosts in the mornings and clear weather during the day. The thaw which set in on Sunday, January 11, appears likely to last.—D. MELVILLE, *Dunrobin Castle Gardens, Sutherland*.

* * When London is hideous and flowerless with an arctic winter, we are surprised to get such beautiful open-air flowers.—ED.

The planting season.—The severe and long-continued frost of the past seven or eight weeks has, of course, stopped all planting, and also the growth of trees, shrubs, and outdoor plants generally. But it must not be thought that the time for planting has gone by, as there is yet a margin of a good many weeks for the planting of trees, shrubs, and hardy things generally. There should naturally be no delay, and those who have orders to give should do so at once, so that operations can begin at the first opportunity.

Chrysanthemum Golden Gem.—I send you a spray of *Chrysanthemum Golden Gem* which has been cut from a plant which had twelve shoots equally as good as the one sent. The plant was grown in an 8-inch pot. This, with *grandiflorum*, *Mrs. Charles Carey*, I find the best late kinds. I shall finish cutting from them on the 18th inst.—J. CROOK, *Forde Abbey*.

* * The shoot sent bore five flowers of good size and rich yellow colour. *Chrysanthemums* grown and cut in this way show their value at this late season, more especially in a year like the present, when flowers have been so scarce. We should like to know when the cuttings were struck.—ED.

Dracæna Doucetti.—This is unquestionably one of the most important new decorative plants in cultivation. We have never seen finer specimens of it than in the nurseries of Mr. Iceton, Putney, where ornamental plants of many kinds find a good home. This *Dracæna* may be compared to the variegated variety of *D. australis*, having a similar style of growth and sharply pointed leaves, each edged with yellow, very distinct against the green centre. It was first shown by Messrs. J. Veitch and Sons at the Drill Hall on May 14, 1889, when it received a first-class certificate. The plant is exceedingly elegant when small, stately when of more advanced growth, and always retains its distinct variegation. Those who wish for a good dinner-table plant cannot do better than use this when small, and as it grows to a larger size it may be employed for bolder effects.

Dracæna Lindenii.—This is one of the finest decorative plants introduced within recent years, as it is as recent as 1879 that it was first brought from Brazil. But such a plant was not likely long to remain in the background, and has, by reason of its splendid leafage, broad, rich in colour—deep green in contrast with yellow—become the most common of its class. We have never seen a finer display of it than in the nurseries of Mr. Iceton at Putney, where in the autumn especially thousands of plants are to be seen in full vigour and of remarkable colour. A houseful of it is at the present time as bright as a house of flowers, the colour of the leaves being unusually deep and striking. In the conservatory are specimens several feet in height, robust, yet graceful, and just what is required for bold decorations. *D. Lindenii* is, fortunately, not difficult to grow, remaining unharmed in rooms for some time, whilst through the late spring and summer it will live in the conservatory. Many failures have resulted through keeping the plant too warm, as under such conditions the foliage turns a bad colour. Its presence in almost every stove is a sign of its popularity, but a better idea is obtained of its commercial value in such a place as Mr. Iceton's, where it is grown by the thousand.

Winter-flowering Carnation Whipper-in.—I fancy this splendid variety is not so well known

nor as extensively cultivated as its great merits entitle it to be. It is a robust grower very free-flowering, bearing in great profusion fine blooms of a bright crimson colour. A few days ago at Garth, near Barmouth, Sir Richard Wyatt's Welsh residence, I saw old plants of it trained on trellises quite 2½ feet high and as much through, which were furnished throughout and down to the edge of the pots with strong, vigorous, and healthy grass, and flowering freely. Younger plants of the same sort were quite as thriving and effective. This variety ought to be included in every collection. It makes a worthy companion to the better known and justly popular Miss Joliffe, which is also largely grown at the same place.—J. R.

Chou de Burghley.—I have grown this Cabbage, or what I considered a synonym, for the past twelve years, and have consistently spoken and written in its favour almost from the first, but it has never proved so serviceable as during the present winter. Savoy, Broccoli, and Brussels Sprouts have been cut up badly, but not so the Chou de Burghley. Being comparatively uninjured by frosts when the snow came, enough of the latter fell to just cover the plants and protect them from the most severe frosts. Fortunately, we had several hundred plants put out, and all that was necessary was the clearance of the snow from a breadth as the hearts were required. The quality, too, would appear to have been improved by the frosts, or at any rate it was never before so well appreciated. I find the first week in May the best time to sow the seed.—W. I.

Cyclamens at Redlees, Isleworth, the residence of Mrs. Watson, are well worth a note for the beauty of the strain. Mr. White, the gardener, has a good display, and one house is wholly given up to the flower, which is grown here as well as in almost any garden known to us. The plants are in vigorous health, crowded with bold, handsome flowers, and of dwarf sturdy habit. The colours are various, but the most beautiful is the pure white type, as pure as snow, without shade or spot of colour. Another very distinct variety has the base deep crimson, the other portion white. Very handsome is the cherry-coloured kind, with a very thin margin of white to the petals, and then we have rich crimson and shades of the same. The flower-stems are short and strong, unlike the thin wiry growth of earlier acquisitions, but in the newer types there is a tendency to destroy the graceful twist in the florets. This should not be encouraged, as flowers with straight petals, without curl or twist of any kind, savour too much of donkey's ears. The seed is sown in July, and fifteen months elapse before the plants flower and eighteen before they are in full bloom. One great secret of success is to keep them free from insect pests, which injure them severely if not kept away. Although fogs have been unusually dense in the suburbs of London this year, Cyclamens seem least affected of any flowers.

PUBLIC GARDENS.

An open space for St. Pancras.—On the recommendation of the Finance Committee of the London County Council, it was resolved that the application of the Vestry of St. Pancras for a loan of £1944 towards defraying the cost of laying out St. Martin's Burial Ground, Camden Street, and effecting an improvement in Greenland Place, Camden Town, be granted to the extent of £1600.

Waterlow Park.—At the St. Pancras Vestry, on Wednesday, Mr. T. Westacott explained that that Vestry jointly with the Islington Vestry had asked the County Council, in laying out Waterlow Park, to give the Vestries land enough to widen the roadway of Dartmouth Park Hill. The Council, however, first asked for a local contribution. It was decided by the Vestry to make no contribution, and to inform the Islington Vestry of this decision.

Peckham Rye.—The Parks and Open Spaces Committee of the London County Council reported that they had had before them a letter from the Vestry of Camberwell, suggesting that the Council should light a path, and also a road, crossing Peckham Rye. It had never been the practice of the

Council or its predecessor to light open spaces, or paths crossing them, at night time, and they deemed it the duty of the local authority who drew the lighting rates to provide lamps for any path across an open space which, for the convenience of the general traffic of the district, had to be used at night time, and they therefore recommended that the Vestry of Camberwell be informed, in reply to their letter, that the Council does not undertake the lighting of open spaces at night time.

Proposed metropolitan improvements.—The London County Council have deposited in the Private Bill Office of the House of Commons their General Powers Bill for the present session, under which Parliamentary sanction is sought to carry into effect a large number of metropolitan improvements. The Bill, for convenience of reference, is divided into six parts. By part 2 of the Bill the Council ask Parliament to sanction their retaining as an open space at Hammersmith part of the land purchased, but not required, for the new Hammersmith Bridge; to retain as a recreation ground certain land at Brook Street, Limehouse, which was purchased by the Metropolitan Board of Works in 1883 for the erection of artisans' dwellings; to enlarge Peckham Rye Common; to acquire Bostall Woods, adjoining Bostall Heath, subject to the Plumstead Board of Works contributing £8000; and to vest in them over 12 acres of land at Maryon Park, Charlton, presented to the Council for recreation purposes by Sir Spencer Maryon Wilson. This portion of the Bill also proposes to empower the Local Board of East Ham to contribute £500 towards the £19,000 required to purchase the North Woolwich Gardens, and asks Parliament to repeal the section of the Raleigh Park (Brixton) Act providing for the contribution of any money by the Council towards the purchase of that park, in consequence of its having contributed a large sum of money towards the purchase of Brockwell Park, in the same parish.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE annual meeting of this institution was held on Thursday week, January 15, at "Simpson's," Strand, when the chair was taken by Baron Schröder. The minutes of the last annual meeting having been read and confirmed, the report was then considered. It shows a prosperous condition of affairs. Thirteen pensioners had died during the year, four leaving widows, who had been placed on the pension list in succession to their husbands, in accordance with rule 7, and one pensioner had resigned his pension. Regret was expressed at the death of the late Mr. James McIntosh, one of the vice-presidents, and it was reported that Mr. J. F. Meston, one of the auditors, had resigned his office on account of failing health. The fifty-first anniversary festival in June last, under the presidency of Mr. H. J. Veitch (the treasurer), realised over £3000; and the amount of the yearly subscriptions has risen from £1328 to £1403. The committee was thus able not only to pay away in pensions £300 more than in any previous year, but they had increased the reserve fund to £25,000. At the same time the increase in the working expenses had been exceedingly trifling, and twelve pensioners could be added to the list, making a total of 156. The statement of accounts showed that the year was commenced with a balance in hand of £753 6s. 10d. The annual subscriptions, the donations from the annual dinner, and the sums obtained by means of collecting cards amounted to £4491 18s. 7d., which, with the dividends on stock and interest on deposits, brought up the total receipts to £5235 8s. 11d., making, with the balance in hand, £5988 15s. 9d. By pensions and gratuities £2648 13s. 4d. had been expended; the working expenses amounted to £750 1s. 4d., which, with the purchase of £2000 2½ per cent. consols, brought up the expenditure to £5296 13s. 8d., leaving a balance in the hands of the treasurer of £668 13s. 9d.

Mr. C. J. Brackenridge, The Grove, Bush Hill, was elected as vice-president through the death of Mr. McIntosh. Mr. H. J. Veitch was re-elected as treasurer, and Mr. Cutler as secretary.

Mr. James Webber moved a vote of thanks to

Mr. H. J. Veitch for his service as chairman at the anniversary festival on June 12, 1890, and further proposed that a resolution in the following form be illuminated on vellum, framed, glazed, and presented to Mr. Veitch at an early opportunity: "At the fifty-second annual general meeting of the subscribers to the Gardeners' Royal Benevolent Institution, held January 13, 1891, it was resolved unanimously that the best thanks of this meeting be presented to Mr. Harry J. Veitch for his great kindness in presiding at the anniversary festival held on June 12, 1890, for the able manner in which he advocated the cause of the institution, and the influence he brought to bear upon his friends for their liberality, and his own, on the occasion when the sum of over £3000 was realised." The resolution was seconded by Baron Schröder.

The dinner was held in the evening of the same day, when about 100 members and friends were present. The chairman was Mr. M. N. Sherwood, and in proposing the continued success of the Gardeners' Royal Benevolent Institution, he reviewed the progress made since its foundation in 1839. The pensioners now numbered 156. The oldest was upwards of 103 years of age. A presentation was then made to Mr. H. J. Veitch for his past interest in the institution in the form of a handsome address, suitably inscribed, as given above. A warm tribute was paid Mr. Veitch by the chairman, and also by all the members present. Mr. Veitch on rising to respond was loudly cheered. The next toast was that of the secretary, Mr. Cutler, and Mr. Sherwood mentioned that as Mr. Cutler had been elected secretary of the institution for the fiftieth time, it was a suitable time to recognise his great services. A testimonial had therefore been started for presentation to Mr. Cutler that evening, and would consist of a purse of money. The subscriptions amounted to £675 9s. 9d., and this sum the chairman presented to Mr. Cutler amid prolonged cheers. Mr. Cutler expressed his great thanks for the kindness shown him on this occasion and throughout his term of office.

RAINFALL DURING 1890.

Month.	Total depth.	Greatest fall in 24 hours.		Number of days on which '01 or more fell.
	Inches.	Depth.	Date.	
January ...	2.87	.40	21	21
February ...	0.54	.21	15	6
March ...	0.91	.32	24	10
April ...	1.10	.23	15	11
May ...	2.19	.78	19	11
June ...	2.09	.54	10	11
July ...	2.13	.39	27	19
August ...	2.06	.39	13	14
September ...	1.16	.41	17	9
October ...	1.22	.28	7	12
November ...	2.27	.50	6	17
December ...	1.00	.28	18	9
	19.54			150

The average for the past ten years has been 26.81 inches.—WM. CRUMP, *Madresfield Court Gardens, Worcester.*

OBITUARY.

Mr. J. E. Rendle.—We regret to hear of the death, at his residence at Fulham, of Mr. Rendle, son of the late Mr. W. Edgecombe Rendle, Victoria Chambers, Westminster.

Jean Sisley.—We learn with great regret that the death of this well-known horticulturist occurred at Lyons on January 15, at the ripe age of 87. M. Sisley about fifty years ago was in business in England, and then made many friends, not a few of whom have long since passed away. His knowledge of horticulture was considerable, as shown by his interesting communications from time to time to THE GARDEN. Roses, Tree Carnations, and other plants were handled by him with skill and success. Throughout his life he has evinced a strong love for flowers, and France is the loser by the death of one of its foremost horticulturists, who, in a sense, made Lyons a familiar spot for flower lovers.

WOODS AND FORESTS.

SEASONABLE WORK.

OWING to the hard frost and snow which we have experienced of late in many parts of the country, the planting of waste land in some localities has been considerably retarded, but now that a favourable change has set in the planter will be busy in order to make up leeway. As soon as the ground in the nursery becomes dry and fit for working the sowing of Holly, Mountain Ash, Irish and common Yew, Hawthorn, Ash, &c., should be proceeded with. The seeds may either be sown in drills or broadcast upon beds about 4 feet wide and covered with about half an inch of fine soil. Alleys about a foot broad should be left between the beds to afford facilities for weeding and keeping the beds clean. If not already done, finish the sowing of Acorn and Chestnut seeds. These may be planted in drills or sown on beds 4 feet wide. When the latter plan is adopted, press down the nuts with the back of the spade, and cover with about 1 inch of fine soil. Prepare a piece of light sandy soil for cuttings of deciduous trees and shrubs usually propagated by that method, such as Elders, Willows, Poplars, &c. The cuttings may be made about 14 inches long and inserted in the ground to the depth of 10 inches. Plant in rows about 10 inches apart and allow the cuttings a space of about 2 inches between each other, according to their size. When requisite, trench, drain, and fence in a piece of marshy ground for the formation of new Willow beds. Although Willows delight in a moist cool soil, yet excess of moisture and stagnant water check their healthy and profitable development. Particular attention should be paid to the fencing, otherwise hares and rabbits, if plentiful, are sure to peel the sets and render them useless. The sets may be planted in rows 10 inches deep and about 18 inches asunder, according to the soil and the kind of plants used. As the buds of Hawthorn expand in early spring no time should be lost in finishing the planting of hedges and making up blanks where necessary. In cases where the soil has become exhausted, a good dressing of thoroughly decomposed manure mixed with the staple as the work proceeds will be found beneficial. Remove seedling Thorns from the seed-bed, and have them planted into nursery lines about 10 inches asunder, having the plants about 3 inches apart in the rows. Plants that have stood for one or two years in nursery lines should be moved to afford them additional space, and to encourage the formation of bushy roots. Plant out ornamental Thorns of all kinds where wanted, and see that the sites have been well prepared by draining and breaking up the hard impervious subsoil where necessary. After the breaking up of a snowstorm particular attention should be paid to the cleaning out of all drains and open ditches.

J. B. WEBSTER.

A correspondent of *The North-western Lumberman* calls attention to the interesting fact that about seven-eighths of all the spools used in the world are produced in Maine and New Hampshire, or are made from lumber manufactured and shipped from those States. Millions of feet are sent every year to the great thread works of J. & P. Coats, at Paisley, Scotland, the greatest establishment of its kind in the world, alone. No material for a spool has yet been found so suitable as the wood of the Canoe Birch. Attempts have been made to make spools of glass and from wood pulp, but they have not proved successful. A few years ago Birch land was considered almost worthless in Northern New England; now it is held at as high prices, when situated near railroads, as Pine land. The exten-

sion of the Canadian Pacific Railroad into Northern Maine is said to have brought a large amount of Birch timber within easy access of the mills.

FUNGOID GROWTH ON TREES.

TREES are not only liable to suffer from the attacks of insects which prey upon the wood and foliage, but from fungi, Lichens, and Mosses, which in many cases are so sudden in their attacks that the tree trunk is either seriously injured or killed before the foliage has had time to decay or give the least indication of what was going on at the root. In marking trees to be felled in a mixed plantation some time ago, I came upon an old Scotch Fir which to all appearance was in perfect health, but on removing a piece of the bark with my marking knife, I was surprised to find that the stem of the tree was quite dead, and on removing the bark further down the stem, I found the latter completely enveloped by a fungus between the wood and bark for a distance of about 3 feet from the ground. This tree was growing near the margin of the plantation, and as there had been a wooden fence erected many years ago along the boundary line, and as a stump of one of the posts had been left in the ground, it was found that it had first to all appearance been affected by the spawn (mycelium) of the fungus, which in turn impregnated the roots of the tree. This shows the necessity of removing stumps and decayed timber when replanting, and as such work is now being carried out in many parts of the country, too much attention cannot be paid to this matter. As the subject is of importance, I shall give another illustration. About twelve years ago I lost a fine young tree of *Thuja borealis* in a similar manner to the foregoing. This tree was a fine thriving specimen about 18 feet high. The first indication of something being wrong was the drooping appearance of the terminal twigs of the shoots, although at the same time the foliage was quite green and had not lost its natural colour. On examining the stem and roots I found them quite dead and completely enveloped by the spawn of some kind of fungus, and on stubbing up the tree I made a careful examination, in order, if possible, to find the origin of the disease. On exposing the larger roots I found that some of them had come in contact with a piece of an old plank that had been buried and left under the surface by mistake at the time of levelling and laying out the grounds, and as this piece of plank was almost completely covered by fungi, there cannot be much doubt but that it was the source from which the roots had been affected. Other examples might be quoted, but the foregoing will be sufficient to impress upon planters the necessity of removing dead wood from the soil at the time of planting trees.

J.

The Lombardy Poplar.—It seems to me as I travel occasionally about the country that many of the Lombardy Poplars are disappearing from view, and especially those planted near to rivers and streams of water. At Hungerford, in Wiltshire, twenty years ago there was quite a long line of finely grown trees, perhaps fifty or sixty, by the side of the river Kennet, and they appear to have almost entirely ceased to exist. I think the severe winters of 1860-61, and later, severely tried them, and soon after a gradual decay set in, which resulted in death. When I travelled by the Kennet Valley Railway in November last, not one of these tall columnar-shaped trees which formed such a striking feature in the landscape seemed to exist, and it appears to me that similar disappearances can be noted elsewhere. Is this a general experience when growing near to streams of water? The Lombardy Poplar is one of the chief representatives of what may be termed oblong-headed trees. It is certainly a beautiful tree, elegant in shape, and gracefully curved in outline, and in certain situations produces a very elegant effect. It has been much too plentifully employed in some positions, and it has come to take in in some part that monotonous appearance seen on the Continent, where it forms unusually long avenues bordering intolerably straight roads. Its great use should be

directed to relieve or break into groups large masses of wood. This it can be made to do, imparting life and variety to round-headed trees, such as the Oak, Ash, &c., when its tall summit rises at intervals from among them, forming pyramidal centres to groups where there was only a swelling and flowing outline. It has been employed with great advantage, from its marked and striking contrast to other trees, to fix or direct the attention to some particular point in the landscape. It is certainly out of place when planted near to buildings, as its contiguity operates to dwarf them, overpowering them by contrast without imparting any of that grandeur of character conferred by an Oak or any other spreading tree. A few judiciously dotted about in valleys or a small group placed here and there, towering above lower growing and more spreading trees, have a fine effect seen from the high ground. The close growing character of the Lombardy Poplar admits of the trees being planted closely together.—R. D.

Grasses for pheasant covert.—In reply to "Wild Bird" (GARDEN, Jan. 17, p. 63), the following Grasses would prove very suitable: Cock's-foot Grass (*Dactylis glomerata*) is a hardy evergreen variety which will grow on all sorts of soils, provided they are not waterlogged or of a very light dry texture. It grows in strong tufts in shady places and elsewhere. When fully established it presents the appearance of a round-headed bush, and as its strong leaves are pendent they afford excellent covert for pheasants nesting under them. Rough-stalked Meadow Grass (*Poa trivialis*) is a strong hardy Grass, growing on a great variety of soils, doing fairly well in shaded places, and generally keeping green during winter. Fiorin Grass (*Agrostis stolonifera*) grows best on reclaimed peat bog and mossy or moory ground of a peaty texture. It can either be propagated from seed, or by cutting up the stolons and planting them where they are to remain for covert. Wood Meadow Grass (*Poa nemoralis*) is a strong species and well adapted for growing in shaded situations where many other species of Grasses would fail. Creeping Soft Grass (*Holcus mollis*) grows in large tufts, and thrives best on peaty or mossy ground. It has a deep creeping root and is very hardy. These are a few of the best.—J. B. WEBSTER.

The Fern-leaved Walnut.—From a purely ornamental standpoint the Fern-leaved Walnut (*Juglans regia* var. *laciniata*) is the handsomest and the most desirable of all the very numerous forms of the common Walnut tree. The best place for this very graceful tree is a conspicuous position on a lawn, or some similar spot where its distinct habit can be seen to the best advantage. Probably, as far as the size ultimately attained is concerned, this variety, with its beautifully cut leaves, cannot approach the ordinary plain-leaved type, but there can be no two opinions of its value as a very distinct and ornamental tree.

Forests of Europe.—The forests of Europe, according to a recent report of one of the State foresters of Prussia, cover the following areas: Germany, 34,596,000 acres; Russia, 494,228,600 acres; Austria-Hungary, 46,951,700 acres; Sweden, 42,000,000 acres; France, 22,240,000 acres; Spain, 19,769,000 acres; Italy, 9,884,570 acres; and England, 2,471,000 acres.

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No. 1002. SATURDAY, Jan. 31, 1891. Vol. XXXIX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHIDS.

LÆLIA ELEGANS TURNERI.

THIS plant is usually considered the finest of our dark-flowered varieties of *Lælia elegans*, but now in the last week in the month of January comes a flower of it from Mr. T. Rogers, Manchester, and I have not the slightest hesitation in saying it is the true *L. elegans Turneri*. The plant bloomed for the first time in this country in the late Mr. Turner's collection with Mr. Toll, the gardener, at Pendlebury, in 1859, and so distinct and beautiful was it considered that by special request it was named after its owner. It has upon rare occasions been imported from Brazil since that time, but it has always remained a high-priced Orchid. During the last few years, however, we have received many dark-coloured forms of *L. elegans* of great beauty, and they nearly all have proved to be late summer and autumn bloomers. One of these dark varieties I saw last week in flower in Mr. Measures' collection, The Woodlands, Streatham. None of them have the peculiar shaped lip as in the flower now before me, but all have the lip of a true *elegans*. In *Turneri* the sepals are narrower than the petals, the whole being of a rich, deep, purplish rose; the lip is three-lobed, the side lobes rolled over the column, and white at the base, passing to rose in the upper part, the recurved tips deep rich rosy purple. The middle lobe spatulate with an expanded front, and very slightly marginate, is wholly of a rich violet, or rosy violet, the marginal border being nearly deep violet. This plant is so thoroughly distinct from forms I have seen put up frequently for sale under the name of *Turneri*, that I cannot understand how anyone can be deceived. *L. elegans prasiata* and its varieties are usually the forms substituted. *L. Turneri* and all the dark-flowered forms like a full share of heat, and should never be given a lower temperature than about 60°, whilst they like to be potted very firmly in good peat fibre mixed with a little *Sphagnum Moss*. In potting, the soil should have some medium-sized nodules of charcoal pressed into it in order to keep it open, and the drainage must be kept perfectly free. I am under the impression that if the plant has its flowers cut off now and put into a tube of water, and the plant kept rather dry for a short time, that the growth would ripen up, and a little later on the eye or eyes would be again ready to start. The growth made this year will flower in the autumn, somewhere about the end of August. In resting the plant, do not shrivel the bulbs. I do not believe in shrivelling the bulbs of any plants. W. H. GOWER.

Dendrobium Seidelianum (*G. Roberts*).—This is a very deep-coloured variety, and is the plant which was for many years known in our Orchid houses as *D. pulchellum*, and as such it was figured; but there always appears to have been a doubt about its being the *pulchellum* described by Roxburgh. I should like to see the *pulchellum* of Roxb. It surely cannot be *D. Dalhousianum*, which I hear has been called *pulchellum*. This plant is very pretty and of neat habit, making growths only a few inches in height, and producing single flowers from the nodes; these are deep rosy-lilac in the variety before me, lip deep orange-yellow at the base

tipped with rose and beautifully fringed. It is called *D. Loddigesii* by Rolfe. The plant is said to come from China instead of India.—G.

NOTES ON CALANTHE VEITCHI.

JUDGING from my experience in the culture of this beautiful and most useful Orchid, I am very much inclined to think that the different modes of culture and the atmospheric conditions existing during the flowering season are in a greater measure accountable for the tones of colour in its flowers than those that accrue from any difference in the shape of the bulb. Some years ago I purchased a bulb, the nucleus of the stock of *C. Veitchi*, from a well-known nurseryman on the Continent. As far as I can remember it was bottle-shaped, having the curious depression around the upper part of it. From that source I have now over 100 bulbs, of which, odd to say, some are quite straight or regularly tapering in shape, whilst others, like the parent bulb, have the hollowed-out neck. There is, however, no appreciable difference in the colour of the flowers produced by these variously shaped bulbs. Though the plants are placed annually exactly under the same conditions when in bloom, as far as interior arrangement and temperature of the house they occupy are concerned, yet the difference in depth of colour of the flowers in some seasons is most marked, and more particularly has it been the case this year, the colour being that undesirable medium between white and pink; whereas twelve months ago the bright decided pink colour of the flowers was so striking as to elicit remark from everyone that saw them. The weather during the flowering season this year has been a succession of fogs and hoar-frost, to the almost total exclusion of sunshine. The inference to be adduced from these proofs is, that adverse exterior climatic conditions are responsible in no small degree for the occasional lack of depth of colour in the flowers of this useful Orchid.

I am further persuaded that the material in which the bulbs are grown, if it be too rich, has a weakening influence on the intensity of the colour of the flowers. I have repeatedly noticed plants grown in turf and cow manure produce undoubtedly fine bulbs and long spikes of flowers, but which were almost colourless. They are grown here in poor, but sweet and porous material composed of good fibrous peat, chopped *Sphagnum Moss*, potsherds, and a sprinkling of charcoal. When the new bulbs are about half grown they are top-dressed with fibry loam and a very little manure intermixed. This Orchid is very easily and quickly increased, a characteristic, by the way, not possessed by many of its congeners. Division is the means usually taken to increase it. At the end of March the clumps formed during the preceding year are pulled apart, and all the year-old bulbs, according to their size, are put together, four and five bulbs into a 7-in. pot. The two-year-old bulbs are planted thickly into propagating pans amongst *Sphagnum Moss* and potsherds, where they a second time send out young bulbs. These bulbs, as a rule, do not attain to blooming size, but they produce fine flowering bulbs the year following. They are grown during summer in a warm moist atmosphere on shelves as near the glass as possible, and slightly shaded from strong sunshine. JAS. GRAHAM.

Milne Garden, Coldstream, N.B.

Dendrobium superbium.—The flowers of this fine plant last for a considerable time, and it nearly always can be found in bloom with Mr. Williams in the Holloway Nursery. It is one of the species from the Torres Straits, much stouter in its growth than *D. bigibbum*; the spikes long and many-flowered; colour soft warm purple. It is a beautiful species which does not require to become of great size or age before it blooms. Mr. Williams showed me several plants from 6 inches in height, each bearing a spike of bloom. It requires plenty of heat and sunshine. It is grown at Holloway in an unshaded house.

Ansellia africana.—As noted on page 44, this is one of the best fog-resisting Orchids we possess, as the blossoms will retain their freshness for at

least a couple of months during the worst season of the year. Even where the London fogs are as dense as in any district, this *Ansellia* has been in bloom since November, while the flowers are still fairly fresh and will last some little time yet. What is also of equal importance is the fact that the unopened buds are not affected by the fog, as in this stage many Orchids suffer greatly, more so indeed than when the blooms are fully open. The fogs experienced this winter have caused not only the buds, but the foliage of many Orchids to suffer greatly.—H. P.

MANURE FOR ORCHIDS.

THE question whether the use of manure for Orchids is beneficial or not is now one of some years' standing. Although it has been for many years the practice to use manure both in the potting soil and in liquid form for the deciduous *Calanthes* and a few other similarly strong-rooting Orchids, its use for the family as a whole cannot be said to have greatly advanced—certainly not so much as some of the latest evidence appears to warrant. At the great Orchid conference held at South Kensington in 1885, several species were exhibited by Mr. Borwick, of Walthamstow. Amongst these was a fine specimen of *Cymbidium Lowianum*, whose luxuriant growth was attributed in a great measure to the use of Jensen's fish manure. Mr. Moore, of Glasnevin, has also frequently testified to the beneficial effects of the same stimulant. But perhaps the most striking evidence in support of its judicious use has been furnished by Mr. Spencer, of Goodrich Court, Herefordshire. About six years ago a small plant of *Cypripedium Spicerianum*, at that time having a single lead and growing in a 3-inch pot, came into Mr. Spencer's collection. Now it is in a 12-inch pot, and during the last season has produced a total of thirty-two flowers. The most remarkable point is, however, that these were borne on seventeen spikes. The scapes of *C. Spicerianum* are normally one-flowered, but it is no infrequent occurrence for twin-flowered scapes to appear on strong plants. On this plant there were only three with single flowers, thirteen being double and one three-flowered. This spike Mr. Spencer sent to Kew, where it is preserved. Is there any previous record of this *Cypripedium* bearing a three-flowered spike? I have never seen nor heard of one, nor have several Orchid growers of long standing that I have asked. It has been Mr. Spencer's practice to give this *Cypripedium* an occasional top-dressing of fish manure, and there can be no doubt that to its use, combined with general good cultivation, the above remarkable results are due. Mr. Spencer uses this manure as well as ordinary stable drainage for all his established *Cypripediums*, with the exception of those that belong to the *niveum* and *concolor* groups.

A few years ago I regularly fed during the growing season several plants of *Lycaste Skinneri* that were then under my care with fish manure. The pseudo-bulbs and leaves were considerably larger than on the plants that were not so treated, and in the matter of flowering, too, they were much superior, one pseudo-bulb developing no less than fifteen perfect flowers in one season. Amongst many other Orchids for which it may be safely used I may mention *Phaius grandifolius* (with its allied species), *Coelogyne cristata*, all the *Pleiones*, the stronger-growing *Lycastes*, *Thunias*, *Calanthe vestita* and *C. Veitchi*, and the majority of those that require a proportion of loam in the compost. It may be either sprinkled on the surface of the soil, or it may be dissolved in water and applied from the can. It can scarcely be said to dissolve

in the proper sense of the word, but by first making it into a paste it mixes well with water, and by occasionally stirring this as it is used the manure gets well distributed. Perhaps the latter plan is better than sprinkling on the soil, as this manure turns mouldy when moist and exposed to the air, and there is also less danger of a disagreeable smell. A dose may be given every three or four weeks, but only during the growing season; a 2½-inch potful is sufficient for three gallons of water, giving each plant an ordinary watering. For *Pleiones* and *Calanthes*, a little may be mixed with the soil when potting.

The feeding of the more strictly epiphytal Orchids like *Aerides*, *Dendrobiums*, *Cattleyas*, and *Odontoglossums* is a different matter, and I have not heard of any successful attempts in that direction, that is, so far as applies to feeding by means of watering, or by mixing manure with the material they root in. It appears probable that as they obtain their nutriment from the atmosphere in a state of nature, that is the only medium by which they can be fed under cultivation. In the damp, dense forests where many of them grow, especially in the more tropical regions, the enormous masses of decaying vegetable matter are continually giving off large quantities of ammonia, which under certain atmospheric conditions there can be no doubt the aerial roots of these plants absorb. Attempts at reproducing these conditions in Orchid houses are now frequently practised. After the houses are closed in the evening, the paths and floors are damped down with strong manure water, which gives off ammoniacal gases for several hours. The use of sulphate of ammonia has also been adopted for the same purpose. Mr. Spencer states that he waters down his *Cattleya* house during the growing season with liquid manure direct from the stable tank, and that it not only conduces to a healthy green in the plants, but that he also finds it a potent agent in keeping down red spider.

Altogether there is plenty of room for further experiment in this direction. It is an undoubted fact, although one that appears to be tacitly avoided, that a large proportion of Orchids, more especially of the epiphytal class, almost invariably show an enfeebled condition after a few years' cultivation and eventually entirely dwindle away. Of course, deficiency of light and the unavoidable defects of glasshouse treatment compared with their native conditions explain a good deal of this. But it seems possible that more may depend on the absence or presence of manurial agents in the atmosphere than is generally imagined, and it may be that a removal of this defect would result at least in the increased vigour and length of life of those kinds whose nourishment is entirely derived from the air surrounding them.

W. J. B.

SHORT NOTES.—ORCHIDS.

Lælia anceps Williamsiana.—This variety is now flowering well with Mr. Cypher, the Queen's Road Nursery, Cheltenham, one plant having six spikes of bloom all open together, thus making a fine display.

Lælia anceps Scottiana (J. B.).—Yours is a very highly-coloured flower, but it is not remarkable for size. I think it is most like the variety named *L. a. Scottiana*, which is figured in the "Orchid Album," t. 325.

Lælia albidula sulphurea (J. Munden).—The individual blooms of this variety are above the usual size and very fragrant; sepals and petals rich sulphur-yellow, but the lip is slightly paler. This is about the brightest and best form that has come under my notice.

Cypripediums.—Lady's Slippers maintain a good display of bloom throughout the dull season. Upwards of forty distinct kinds are now flowering with Messrs. Williams and Son in their nurseries at

Upper Holloway, a few of the best and most striking being *barbatum* Warnerianum, *callosum*, *Fitchianum*, *insigne* Maulei, *Measuresianum*, *nanthum* superbum, *Sallieri aureum*, *vexillarium* superbum, *Sedeni* and its varieties, *Io grande*, *Leeanum* superbum, *Lawrenceanum*, and many others.

Lycaste lanipes.—This is a bold-growing plant and an abundant bloomer. It is now flowering freely in Mr. Cypher's nursery at Cheltenham, seven and eight flowers coming with each bulb. This *Lycaste* likes the cool end of the *Cattleya* house at this season, or something between this heat and that of the *Odontoglossum* house.

White varieties of Lælia.—I have received from Mr. Cypher, gardener to Mrs. Studd, of Bath, beautiful flowers of *L. Stella* and *L. Williamsiana*. These two varieties are very similar. They are both pure white, except the inner part of the side lobes of the lip, where they are flushed with yellow and streaked with lines of deep rich crimson; the markings in *Stella* appear to be much deeper and broader. I am very pleased to find these white forms flowering so freely this winter.—W. H. G.

Sophranitis violacea.—Flowers of an excellent variety of this species have been sent me. It has been in cultivation about fifty years; but although the flowers are of a soft clear violet colour, which renders them very charming, one seldom sees it. It thrives best upon a block, and the sender says it does best with him in a house kept at a temperature between the coolest and that devoted to the *Cattleyas*. I have frequently seen *S. violacea* in English gardens, dying in the *Odontoglossum* house.—W. H. G.

Dendrobium luteolum.—Although not remarkable for colour, this is a very pretty species, and the flowers are useful for cutting for adornment. The soft, pale yellow blooms pass for white in artificial light, whilst on the plant by daylight they are always welcome. It is one of Mr. Parish's introductions from Burmah, from whence it was imported by the Messrs. Low nearly thirty years ago. It is easily grown, and should not be neglected. It is in fine condition now in Mr. Cypher's nursery at Cheltenham.

CHRYSANTHEMUMS.

SPOILING THE CHRYSANTHEMUM.

HAVING taken great interest in the discussion that has taken place in the columns of THE GARDEN both last year and the present, I was pleased to read the notes from Mr. Tallack in the number for January 10, also those of Mr. Shea in a former issue. In the main I agree with Mr. Tallack. After close observation of the Chrysanthemum, I believe it would be a great mistake to go on encouraging the production of big blooms. Undoubtedly, Chrysanthemums grown in every form have their use. It does not follow because big blooms are appreciated in one garden they should be in another. I know some few lovers of the flower who will not have any other than big ones. Again, I know others who will not have them grown on the tall big-bloom system. Undoubtedly the time has arrived when Chrysanthemum societies should begin to draw the line from a big-bloom point of view. It may not be out of place here for me to repeat some remarks I made recently when attending a committee meeting for establishing a Chrysanthemum society in a western town. I believe that a society of any kind to fulfil its proper mission should endeavour to foster a love for and increase the usefulness of the object it takes up. My contention was and is now that this cannot be done by giving the major part of the funds in prizes for big blooms. To extend the usefulness of the flower, prizes should be given for plants and blooms of all classes, and grown in the most varied way. Few subjects afford more pleasure to the lover of rural life than to see a good batch of Chrysanthemums in a cottage garden all aglow with bloom. This is no uncommon sight in these western village gardens. In country towns where Chrysanthemum shows are held it is no uncommon thing to hear people say when looking at these big flowers, "Oh! we cannot grow them like these." Encouragement should be given to plants and shoots with flowers growing the whole length of the stem.

Although I am a great lover of the Japanese class, yet I am sure it would be a great loss to allow

the incurved sorts to be given up. What can be more beautiful than when looking over a large collection to see some good blooms of the lovely yellow *Jardin des Plantes* or of the white *Empress of India*? Many of the *Anemone*-flowered kinds are most beautiful; in fact, all are most useful when used in their proper place. In a cut state no one would think of using a large *Clemence Audiguier* for a spray, but what could be more beautiful than a spray of the lovely *Florence Piercy* or *Tokio*?

During the past season I grew 150 plants for home decoration. These consisted of about sixty good kinds grown in the most varied way possible. I commenced propagating these in January, and continued till the middle of July. Some I grew as single stems, others as bushes. Some few of the plants grew 7 feet and 8 feet high. I had them from this down to 8 inches. About twenty-five of these were cut down in June. On these 150 plants I had flowers varying in size, from large blooms down to very small pompons. On January 18 the last flowers of *Golden Gem* were cut. This and *grandiflorum* were my latest kinds. The latter I grew on the single bloom system, six on a very strong plant. *Golden Gem* was allowed to give sprays with from four to eight blooms on a shoot. Tall thin plants are very useful in my case for making the back row to some large groups in the cloisters here, which are very high and long, thus doing away with the raising of the plants on pots. I find long sprays are most useful for tall vases. Large single flowers, as Mr. Tallack remarks, are very useful singly, or from three to seven blooms in a suitable vase, or to go on the dinner-table as single specimens. The small pompon kinds are charming to fill tall glasses to go on the centre of the dinner-table. According to my own observation, I cannot see any difference as to damping in large compared with small blooms. I agree that it is in the variety more than in the size of the bloom. To prove this, I may illustrate it by two plants growing side by side. The flowers of the two above-named, *grandiflorum* and *Golden Gem*, both opened at the same time; the blooms of the former had lost many of the petals, while those of the latter had not lost one, and are as fresh as ever they were. The same I observed this autumn with other kinds growing together.

Forde Abbey.

J. CROOK.

Hardy Chrysanthemums.—The particular variety named *Cottage Pink* alluded to by "J. C. B." is, I think, plentiful in this locality, as several good small-flowered hardy sorts are often seen in cottage gardens, a reddish pink one being amongst the number. Bob is also occasionally seen, and the best hardy crimson is *Julie Lagravère*. I should very much like to see a good collection of the older hardy small-flowered sorts got together, say at Chiswick or elsewhere, and doubtless were cottage gardens ransacked by a few earnest collectors all the best hardy kinds might be got together. It would be a capital plan were the National Chrysanthemum and local societies to provide in their schedules for November shows a class for six, nine, or twelve bunches of small-flowered hardy varieties cut from the open and not from walls or houses. Myriads of lovers of the Chrysanthemum can produce only outdoor blooms. They have no glass, nor pots, nor room for producing them in pots. They even hardly attempt to propagate the plants in any way except through the rough one of division, and that method, crude as it may be, is better than leaving the plants to their fate yearly. Still, as I have often noticed, old stools remain in the same spot almost unheeded for years and grow and bloom freely annually. No wonder if in such case the owners are satisfied. They have little knowledge of what would happen were the plants properly propagated, planted out afresh in good soil, whilst the old stocks were destroyed. It should not be difficult to get together a collection of some three dozen kinds of the old hardy sorts. Some newer ones may be hardy, too, if tested for that purpose, but the pompon types are the best. We ought to encourage the production of sorts specially fitted to make our gardens gay at least through the month of November.—A. D.

TREES AND SHRUBS.

THE LILACS.

THE Lilacs, whose flowers come to enliven the days of early summer, are amongst the commonest and most popular of hardy shrubs. Numerous varieties, single and double, of the common Lilac have been raised and are grown, some for the embellishment of gardens and pleasure-grounds, others for winter forcing, whereby their useful flowers are obtained from the end of autumn up to the time when the shrubs flower naturally. Besides these varieties, which are far better known than any

genera, viz. : 1, *Eu-syringa* ; 2, *Sarcocarpum* ; 3, *Ligustrina*. The sub-genus *Sarcocarpum* is represented by a single species, viz., *S. sempervirens* (Franchet), which was discovered in Yunnan by the Abbé Delavay, a French missionary. From its coriaceous leaves and its drupe-like seed vessels, this species seems to constitute the connecting link between the Lilacs and the Privets. As it has not yet been introduced into Europe, I shall say no more about it here. I shall likewise pass over the section *Ligustrina*, which has been long known to Europeans by the only representative of it which has been grown in Europe up to recent years—I mean *S. amurensis*, a species which rarely flowers in

our garden varieties have originated ; *S. oblata* (Lindl.), a Chinese species with pale pink flowers, and remarkable for its earliness in flowering (it comes into bloom a week earlier than *S. vulgaris*, and its flower-buds are often nipped by late frosts). It is also remarkable for the purple colouring which its leaves assume at the close of the autumn before they fall. There is a white-flowered variety of this species, and also a hybrid which has double flowers, and is the offspring of a cross between *S. oblata* and *S. vulgaris*. The name of this hybrid is *S. hybrida hyacinthiflora plena*. In autumn its leaves, like those of its parent *S. oblata*, assume a bronzy-purple hue, producing a highly ornamental effect in shrubberies. A specimen of this Lilac was exhibited in London, on September 9 of last year, at a meeting of the Royal Horticultural Society.

Next come the Persian Lilac (*S. persica*) and its two varieties, one with whitish flowers, and the other with lacinated leaves, both very fine and ornamental forms, the flowers exhalng a peculiar odour, which is not so pleasant as that of the flowers of *S. vulgaris*. In the same section is included the Lilac, which is known in France by the name of *Lilas Varin*, and which has the botanical names of *S. chinensis* (Willd.), *S. Varina* (Dum.), and *S. dubia* (Pers.). This Lilac, of which we have several varieties, forms tufts covered with flowers, and is very widely distributed in the gardens of Europe. It appears to me to have originated in a natural cross between the common and the Persian Lilacs, its characteristics being intermediate between those of these two species leading me to think so, and I also believe it to be absolutely sterile. However, I expect that in a few years we shall be able to fully prove by experiment the hybrid character of the *Lilas Varin*, when the plants which we have raised by artificially crossing *S. vulgaris* and *S. persica* shall have come into flower. We shall then be able to compare the flowers of our hybrids with those of the *Lilas Varin*, the origin of which is not yet established with any certainty.

We shall now pass on to examine the second group of the section *Eu-syringa*, in which we shall find shrubs with thick, coriaceous leaves which have strong and prominent nerves or veins on the under surface, and long tubed flowers, the odour of which is usually not very agreeable.

Syringa Bretschneideri (Hort.), of which the accompanying illustration represents a floral thyrsus or cluster of flowers, was so named in honour of Dr. Bretschneider, physician to the Russian Legation at Peking, who sent seeds of this Lilac to the principal botanic gardens of Europe and of the United States. We have received specimens of this species from the Museum of Natural History at Paris, where it was named *Lilas de Bretschneider*, or *Syringa Emodi rosea*. We have also received specimens of it from the Arnold Arboretum at Cambridge, Mass., U.S.A., and from American nurserymen under the name of *S. villosa* (Vahl), and we are convinced that these different names were applied to one and the same species of Lilac. In putting it into commerce for the first time in Europe last year, we did not retain either the name of *villosa*, which in some gardens is applied to another species, or that of *Emodi rosea*, because *S. Emodi* appears to us to be only a geographical form of the present species, and we thought it would simplify the matter if we named the Lilac after the botanist to whom we are indebted for its introduction. *Syringa Bretschneideri* is a vigorous-growing and very hardy shrub, which naturally branches



Syringa Bretschneideri. Engraved for THE GARDEN from a photograph sent by Victor Lemoine.

others, and of which I now speak merely to mention them, there are other species or varieties of different aspect and, perhaps, less striking beauty, but whose diversity in the time at which they flower renders them valuable from another point of view. As some of these last-mentioned kinds have been only lately introduced into Europe, I have thought that it might be found serviceable if I gave some particulars respecting them.

The genus *Syringa* comprises about a dozen species, all of which are natives of the continent of the Old World (including Japan), and which may be classified into three distinct sub-

our climate. Lately two other species have been introduced, viz., *S. pekinensis* and *S. japonica*, the latter of which is represented as forming a grand tree.

There remains to us the section of *Eu-syringa*, or the true Lilacs. These form two very natural groups, which, if they do not present any fundamental botanical differences, are not the less quite distinct from each other from a horticultural point of view. The first group, which is easily recognised by the sweet odour of its flowers, and the glistening, satiny appearance of its leaves, comprises the common Lilac (*S. vulgaris* of Central Europe), from which numer-

very much, and has stout stems, the bark of which is lenticulated and of a pale brown colour. The leaves are large, thick, and turgid, of a deep green colour on the upper side, and pale green and strongly reticulated underneath. At the end of May, when the commoner Lilacs have ceased to flower, a Lilac of this species puts forth from the extremities of its branches long panicles of lilac-rose or soft rose-coloured flowers, with long tubes and pointed lobes or segments which become reflexed shortly before they fade. Of *S. Bretschneideri* two pretty well-known varieties may be mentioned, viz., *S. Emodi* (see p. 106), a Himalayan form which is late and often shy in flowering, and *S. Josikæa*, which was discovered in a garden in Hungary, but of whose origin no one could give any information. This variety has narrower and darker-coloured leaves than *Syringa Bretschneideri*; its long-tubed flowers also are of a purplish colour, and the lobes or segments of the corolla are shorter.

S. pubescens (Turcz.) belongs to the same group as the preceding species, at least that is the name under which the species of which I am now writing is grown in the Arnold Arboretum at Cambridge, Mass., U.S.A., and in the nurseries of the United States. The same species is to be found in the Museum of Natural History at Paris under the name of *S. villosa* (syn., *S. pubescens*). Lastly, I have seen several specimens of it growing in the arboretum at Kew which were labelled *S. villosa*. As the name *pubescens* has not been applied to any other species, we decided upon retaining it when we put this species into commerce in 1890.

S. pubescens is more slender in all its parts than the preceding species. The leaves are oval in shape with a pubescent or downy midrib underneath. The thyrse or clusters of flowers are very large, resembling those of *S. persica* in their arrangement. This Lilac comes into bloom very early, before the commoner Lilacs. The individual flowers are not so large as those of *S. Bretschneideri*; they are of a soft rose colour, and exhale a sweet and very penetrating odour.

It may come to pass that a series of new and improved forms will be produced by hybridising the foregoing species; but even such as they are, they deserve to find a place in every garden.

E. LEMOINE.

Nancy.

Nepaul Laburnum (*Piptanthus nepalensis*).—This is the name by which the Nepalese shrub, illustrated in *THE GARDEN* of January 17, under the title of *Thermopsis nepalensis*, is most generally known. Its popular name of the Nepaul Laburnum conveys a good idea of the shrub in question, which is in some districts of England rather tender; therefore to see it at its best one must go to our southern or western coasts, though it has been noted in *THE GARDEN* as flowering and ripening its seed every year as far north as Annan, N.B. Under favourable conditions it forms a somewhat upright growing sub-evergreen shrub that reaches a height of 8 feet to 10 feet and even more, which is towards the end of May profusely laden with long dense clusters of golden blossoms, a good deal like those of the Laburnum, but much larger. The foliage, too, is very handsome, being trifoliate in shape, large, and of a very deep green colour. Thus without blossoms it is a handsome shrub, and the foliage is retained till late in the season; indeed in mild winters or in especially favoured localities it may be regarded as almost, if not quite evergreen, thus accounting for a second of its popular names, viz., the Evergreen Laburnum. This *Piptanthus* is in no ways particular as to soil, though it seems to succeed best in a fairly deep loam. It is often treated as a wall shrub, where it

will soon cover a considerable space. For low walls it is not suitable, as the continual cutting necessary to prevent it overtopping the supports detracts greatly from its beauty and prevents it from flowering. The peculiar silky character of the young expanding foliage is another conspicuous feature of this *Piptanthus*. It was introduced into this country in 1821.—H. P.

THE VARIEGATED SYCAMORE.

(*ACER PSEUDO-PLATANUS VARIEGATUM*.)

THIS is one of the most showy, not gaudy, variegated trees with which I am acquainted. In no way, neither in size, rapidity of growth, nor general contour, does it differ from the commonly cultivated tree, except in the beautifully marked leaves, which are particularly rich, the variegation being regularly diffused. Moreover, it is one of the oldest variegated trees with which we are familiar in this country, a fact that accounts for the numerous fine specimens that are to be met with in almost every county in Britain, the southern portion particularly. Hampshire is particularly rich in the variegated Sycamore, half-a-dozen fine old trees with huge boles and far-spreading heads occurring within about as many miles. At the Black Horse Inn, on the Norman Court estate, there is a huge tree of this kind, the stem of which is as large as that of any common Sycamore—unfortunately, I had not the chance of measuring it—the head far-reaching, and of the richest hues imaginable. In the grounds at Amport House, also in Hampshire, there are several specimens of the same tree, all in perfect health, and on these the foliage markings are peculiarly distinct and vivid. Around London one may frequently see the variegated Sycamore. It is an excellent town tree, and one that can well hold its own against the impurities of smoke and soot. Though not of great or remarkable size, there is a good example of the tree close to the University College of Wales, and which, with its background of forest land, is well shown off, although the specimen is standing much too close to the public road for its beauty to be fully revealed to the passer-by.

Large-leaved trees, when not blotchy in variegation, are of decided value in parks and woodland scenery, they helping to break up any monotony of green that might be at all objectionable where numbers or clumps of nearly allied species are freely used. Planting such too close to roads is objectionable, for to be seen to advantage they should stand well back and in front, if possible, of the typical coloured form. A recess in the outline of the woodland is a choice spot for any of the large-leaved variegated trees. The variegated-leaved Sycamore, on account of its huge proportions, is suitable for planting along the outskirts of woods where a decided contrast to the prevailing leaf-tint of our ordinary forest trees is desired.

In planting this variety little need be taken into consideration except general surroundings, as to look at its best it must be suitably situated. There is a remarkable Golden Sycamore about 500 yards from the road, and on the mountain-side, near where the Liverpool waterworks are situated, and many a pedestrian along that picturesque road halts to have a look and wonder to himself what the tree can be. Situated as it is above the level of the eye from the road and backed up by the mountain peaks, it looks quite imposing, while the rich golden yellow, heightened by the sunlight, attracts attention. There are several forms of variegated Sycamore as well as that referred to.

A. D. WEBSTER.

Varieties of the Evergreen Oak.—Individual differences may be readily observed where a quantity of Evergreen Oaks are grown together, but in addition there are a few well-marked varieties that are propagated by grafting, in order to maintain their distinctive character. One of the most distinct and at the same time the best variety is Foordi, the leaves of which are of a deep glossy green above and whitish beneath. It forms a much more compact specimen than the common Ever-

green Oak, growing naturally into a pyramidal-shaped tree, which from its habit is seldom broken by snow, as is the case sometimes with the typical form. There are several other varieties, such as the Laurel-leaved *laurifolia*, *integrifolia*, *crispa*, *latifolia*, *serratifolia*, and *salicifolia*. As ornamental specimens none of them are equal to Foordi, though several of them are both curious and interesting. Complaints are often heard of the difficulty of obtaining good plants of Evergreen Oaks from nurseries, the reason being that they require great care when young, so that many nurserymen have given up growing them and prefer other plants of a more robust character for which there is also a ready sale.—T.

KENTUCKY COFFEE TREE.

(*GYMNOCLADUS CANADENSIS*.)

THIS is a tree that may in vain be sought for in many tree and shrub nurseries, yet it is not only very handsome, but remarkably distinct. Its distinctive character is quite as pronounced in winter as during the summer months, for the entire specimen is destitute of small spray, and this is, of course, especially noticeable when the leaves are absent. It is one of the latest of all our trees to unfold its leaves, which are very remarkable, being twice pinnate, sometimes as much as a yard long and 2 feet across at the widest part. When of this size they impart to a specimen quite a subtropical appearance, but it is only on young vigorous plants that such foliage is seen, that on old trees being much smaller. The peculiar bluish-green tint of the leaves is another feature common to the *Gymnocladus*. Though the specific name of *canadensis* has been given to this tree, it is, according to a work on Canadian forests by H. B. Small, published at Montreal half a dozen years since, "so scarce in Canada, that it cannot be styled as a tree contributing to man's use." In a wild state it is, however, by no means limited to Canada, as it is found throughout a considerable district in the United States, and attains its greatest perfection in the fertile valleys of Kentucky and Tennessee. Its popular name of the Kentucky Coffee Tree would indicate its being a native of that State, while, according to Loudon, it is in Canada known as the Chicot or Stump Tree, from its lifeless appearance in the winter. The name of Coffee Tree is said to have been given when Kentucky was first settled by adventurous pioneers from the Atlantic States, who commenced their career almost without the necessities of life, except what was produced by the fertile soil, and who fancied they had discovered a substitute for coffee in the seeds of this tree. When a communication was established with the seaports they gladly relinquished their Kentucky beverage for the more grateful flavour of the true coffee, and no use is now made of it in this way. In America its curved pods with their bean-like seeds are very freely produced, and supply a ready means of obtaining a stock of it, which can also be done by means of cuttings of the roots. It is thoroughly hardy and not particular as to soil, provided it is not waterlogged. In light sandy and gravelly soils it will hold its own better than many trees, but, of course, the foliage is not equal to that on specimens more favourably situated. The reason of this *Gymnocladus*, in common with many other beautiful North American trees, being so seldom grown by nurserymen is that there is really little or no demand for them.

T.

The Myrobalan Plum (*Prunus Myrobalana*).

—This is commonly used as a stock on which to bud or graft many of the Plums, and when employed in this way for those kinds planted solely for ornament, the Myrobalan is frequently regarded as a nuisance, as it will push out suckers and shoots below the point of union, which, if not removed, would soon choke the scion. Plant the Myrobalan itself, however, under favourable conditions, and it will soon take a place among the most ornamental of early spring-flowering trees, indifferent both to soil and situation. In shallow gravelly soils it will do well, though, of course, not to the same extent

as under more favourable conditions. The Myrobalan Plum forms a low or medium-sized tree, with a much-branched spreading head, while its pure white flowers are borne in such profusion that the whole specimen is a mass of white. It flowers in April, and consequently the blossoms are sometimes injured by spring frosts. It is also known as the Cherry Plum, from its fruits, which are a good deal like Cherries. As a rule, they are rather sparingly produced, but when present they are not only ornamental, but pleasant to eat. This Plum is also known by the name of *Prunus cerasifera*. *Prunus pissardi* is really a purple-leaved variety of the Myrobalan Plum. The flowers are just like those of the type, but the foliage is of a rich bronzy-purple colour. This should be planted in a sunny spot, as the foliage is then much deeper than if at all shaded. When first expanded the leaves are not nearly so dark as they are after exposure to the summer's sun.—T.

The Umbrella Pine.—A fine young tree of the Umbrella Pine (*Sciadopitys verticillata*), mentioned at p. 24, is growing in a sheltered part of the beautiful gardens at Pentillic Castle, East Cornwall. It is strong and flourishing, and about 10 feet high.—J. L. STACKHOUSE.

THE WEEK'S WORK.

FRUIT HOUSES.

EARLY AND SUCCESSIONAL VINES.—Where there are several vineries it is a common practice to start one of these early in January or even in December, and this, whether there are any Vines grown in low forcing houses or not. Considerable progress will have already been made, especially when the Vines have been forced in previous years. The rods ought to be carefully fastened in their proper positions before the young shoots have made much progress. There is now no necessity for making fresh additions to the hotbeds formed inside the house or for turning the same; in fact this would now do more harm than good. Sufficient atmospheric moisture can be kept up by the aid of the syringe and watering-pot, the Vines being lightly syringed in the morning and again when the house is closed, the walls, stages, and floor on sunny days being also damped down at the same time. The removal of superfluous side shoots should be gradual, and not finally completed till the selected shoots are well set. Undue haste in tying the latter down to the wires must be avoided, or some of them may snap off short. If the distance from the glass admits of it, the tying down may well be deferred till either just before flowering time or until the bunches are set, otherwise it should be done gradually. High temperatures constantly ought to be avoided, though an occasional great increase from sunshine is beneficial rather than otherwise. Up to the flowering period the temperatures may range from 55° at night to 60° and 65° in the daytime, an additional rise of 10° from sun-heat being permitted. If air is given it should be from the top, and in small quantities only, closing early, or not later than 1 p.m. Should these figures be much exceeded all round, there is every probability of the top-growth being too far in advance of the root-action, and the bunches suffer accordingly. Outside borders would be all the better for a covering of heating material in sufficient quantity to warm them somewhat, and the least that can be done is to heavily cover with either dry leaves, strawy litter or Bracken.

MID-SEASON AND LATE GRAPES.—The first week in March is a good time to start the bulk of these, Muscats being the principal exception. To have Muscats ripe in August, they ought to be started at once. The old rods of the latter will usually break evenly enough if fastened straight up the roof, or, at any rate, all that is needed to ensure this regularity is to fasten them half way up the trellis and to allow the upper portion to drop downwards, the curve thus afforded checking the natural upward movement of the sap and causing stronger lower growths. Quite young rods seldom break evenly unless given a very sharp curve, the points

being brought back to near the front of the house and gradually straightened out as the lower buds burst into growth. A hotbed of leaves has a softening, growth-producing effect upon the Vines, or much more so than all the moisture that can be supplied with a syringe, coupled with fire-heat. A temperature ranging from 45° to 50° by night and 55° to 60° by day is quite high enough for starting Vines generally. If the inside borders are at all dry give a good soaking with tepid water, and in the case of old or partially exhausted borders liquid manure will do good. Give enough to thoroughly moisten the soil to a good depth, but avoid saturation.

LATEST VINERIES.—No bunches ought now to be hanging on any of the Vines in these, especially seeing that they keep quite as well when bottled and hung in a cool room. The pruning also having been completed, a thorough cleansing should next be given, the house as well as the Vines receiving this attention. On no account should the rods be closely denuded of their old bark, the skinning and scraping being most injurious and altogether uncalled for. The loosest of the bark may well be rubbed off, but no more, and this whether the Vines are infested with mealy bug and other insects or not. Nor are thick and comparatively strong mixtures of insecticides, with clay added to give it the consistency of thick paint, of much service, these seldom penetrating where most needed, and only closing over a portion of the crevices where the insects are located. A thorough scrubbing of quite hot soapy water is the most effective antidote for insect pests, and this may well be supplemented with the orthodox mixture of Gishurst compound, sulphur, soft soap, and clayey water, only not applied in a very thick state. If mildew was troublesome last season, there is special need to use sulphur freely in the dressings, and also in the limewash with which all the walls should be annually dressed. Either ordinary stale lime or whitening is of no service for the latter purpose, newly slaked lime being by far the most effective, applying this directly after the walls, roof, and glass have been thoroughly cleansed. Next loosen the surface of the inside borders and remove all loose soil and rubbish. Very often the borders in late vineries are kept very dry while the Grapes are hanging, and in this case a good soaking of water ought to be given now, and another before they are started. Following upon the first watering, a liberal top-dressing of fresh loam and flaky manure in equal parts, with charred rubbish, wood ashes, lime rubbish, and bone-meal freely added, should be given. Keep late vineries as cool as possible, in order to give the Vines the much required complete rest. A little frost would do them more good than harm, only if admitted there ought to be no water in the hot-water pipes.

UNHEATED FRUIT HOUSES.—While the outside work was at a standstill good progress ought to have been made in pruning, cleaning, and tying fruit trees generally under glass. In unheated houses, unfortunately, there are several risks to be run. Sometimes the wood of Peach, Nectarine, and Fig trees fails to ripen satisfactorily, and this is especially the case if the branches are crowded. In order to avoid this contingency, it may be necessary to freely thin out both the branches and young shoots at the present time, fewer shoots than usual being also laid in next summer. This thin training will most probably ensure the formation of harder and more fruitful growth, and will also lead to the production of finer fruit this season. Figs are perhaps the most liable to suffer from being laid in too thickly, but it is advisable to delay the pruning and thinning out of these till all danger from extra severe frost is past. Those who have their trees bundled together and matted over ought to keep them thus covered for a few weeks longer. Very severe spring frosts are liable to destroy the greater portion of Peach, Nectarine, and Plum bloom in unheated houses, and these must, therefore, be kept very cool and airy, in order to have the blossoms both late and sturdy. Not till all such risks are past and the crops advancing ought the houses to be kept somewhat close,

though early closing may be practised subsequently with advantage. If the houses are kept cool, the trees must not be kept dry at the roots, or it may be many buds will drop or else all will open weakly. PRACTICAL.

THE KITCHEN GARDEN.

THE ACTION OF THE FROST UPON THE GROUND will have loosened it considerably, with the result that the smaller-growing crops will be partially thrown out of the soil, their root action being thus considerably weakened. A firm root-hold being essential to free growth, means must be taken to counteract this evil, the crops affected being such as spring Cabbage, autumn-sown Onions, and Lettuce. The first opportunity of a dry day should be taken to tread the soil around the roots, afterwards hoeing the surface over. A dressing of soot should be applied previous to hoeing.

SPINACH.—The winter crops of Spinach appear to be cut up very badly in places, especially where they have not had sufficient protection from snow, this latter having saved many large breadths. Frequent hoeings, also an occasional dressing of guano or soot, will assist a free growth. To succeed the winter crop, seed may now be sown, or as soon as the ground is in fit condition. At this season the round-seeded or summer should be sown, the Victoria being also a superior variety. Rich and well pulverised soil is very essential to free growth, as on poor ground Spinach soon runs to seed. For the earliest sowing an open sunny spot should be selected. The greatest blank in Spinach is generally felt when the winter crop is finished, as unless the spring is an early one sowings at this date rarely bridge over the supply. To meet this want I sow a breadth in the latter part of September or even early in October, this giving just sufficient time for the seedlings to appear above ground, without making much further growth until the return of milder weather in the new year. With this sowing I can keep up the supply without a break.

LONGPOD BEANS.—The earliest opportunity should now be taken of sowing Longpod Beans. Although these succeed best on rather heavy soils, a drier position should be selected for the earliest sowing, especially if the ground be naturally cold or heavy and the crop required very early. The seed should be sown in double rows 4 inches apart and to the depth of 3 inches, the rows being 3 feet apart. When the season is not favourable for early sowing in the open, the crop may be forwarded by being sown under glass in pots or boxes. No attempt at forcing, however, must take place, or the results will be anything but satisfactory. A cold Peach house or even a cold frame in a sunny position is the best place for raising the seed, and as soon as growth appears through the soil give as much air as possible consistent with safety. When about 3 inches high the seedlings must be planted out.

PARSLEY.—The early part of last summer was not at all a favourable time for the free growth of Parsley, and where later sowings were not made, the supply will have run very short, especially where there is a daily demand. To keep up a supply of Parsley through the winter and spring months is not a difficult matter if due provision has been made to meet any possible exigencies. When only one early sowing is made, the plants make a too luxuriant growth to withstand the rigours of winter, and in due season this will be made a note of. To help on the supply, some roots could be carefully lifted and potted or planted firmly in boxes. From these, if placed in vineries or Peach houses, some useful pickings could be secured. Beds in the open may be forwarded by placing any spare lights or frames over them, or even ground vineries where these useful portable lights are in a garden. The continued covering of snow, where the growth was not too forward, will have preserved the Parsley in some measure. Now that the snow has gone, means must be taken to protect from frost or any future snowstorms we may yet have.

MUSHROOMS.—Beds made up at this season of the year are generally very productive, either under cover in sheds, the Mushroom house proper, or even

in the open air where this form of culture is adopted. Unless the beds, where formed outside, are protected with tarpaulin or sheets of corrugated zinc, the snow will have penetrated the covering to a considerable depth and they will be too cold to favour the growth of Mushrooms. The litter should be removed and replaced with a drier and warmer covering. Failures with Mushrooms are still very frequent, but with good spawn and a sufficient quantity of good sweetened droppings and short litter, there should not be any difficulty. The heat, as a rule, is allowed to drop too low before the spawn is inserted, 85° or 90° being a safer temperature than 70° or 75°. The working of the spawn is also considerably advanced by laying the bricks upon the surface of the bed when made up a few days before being inserted, this making quite a difference of a week in the bed coming into bearing. By adopting the above practice the danger or inconvenience of inserting bad spawn is considerably lessened. When the beds are made up in sheds or cellars, coverings of dry hay to keep up the requisite temperature are very necessary. In heated Mushroom houses where probably more failures occur than under any other system, coverings of hay or litter placed directly on the beds, or rather in close contact with the surface, cause more failures than many people imagine. A much safer system in heated Mushroom houses is to form a framework of strips of wood about 3 inches from the surface and closely cover with mats, this causing a most genial and equable temperature about the surface of the beds.

STORE ROOTS.—Already I have heard complaints of frost reaching Potatoes where pitted in the open air, and as these may not have been opened for a considerable time the whole lot should be turned over as soon as opportunity offers. Roots under cover such as Carrots, Beet, and Turnips, should also be overhauled, and if starting into growth the young shoots should be pulled off, or the quality of the roots will be greatly lessened. Parsnips are still in the ground, but with us they are rather cankered at the crown. Whatever the weather, these are best left in the ground until it is seen they are about starting to grow. Y.

ORCHIDS.

IN THE GARDEN, Jan. 17 (p. 50) reference was made to cool Orchids, and the repotting of a few that really needed it, but surface-dressing all of them. The drier atmosphere and less water required in winter cause the Sphagnum Moss to become brown, and in some cases die out altogether, the surface of the potting material also becoming covered with Moss. For *Odontoglossums*, *Masdevallias*, &c., good healthy green Sphagnum and the best fibrous brown peat are the most suitable. We have finished the renovation of the cool house, and with a few exceptions no further repotting will be required until the autumn.

SEEDLING ORCHIDS.—The warmest house now requires attention, and first in order come the few seedling Orchids we have. There are now many raisers of seedling Orchids amongst amateur growers as well as the trade. This is as it should be. The way has been made easy, and it is now known that Orchids are as readily hybridised as any other class of plants. The only drawback is the fact that the grower has to wait so long before the full results are attained. An amateur who makes a specialty of Orchids told me he would have gone into seedlings, but that he did not expect to live to see them flower, and he has not yet raised any. At the time the above remarks were made I sowed some seeds, and the Orchids are now flowering. It is easy to cross two distinct and beautiful *Cattleyas* or other Orchids. Tie a strip of matting round the stem of the flowers intended to produce the seed-pod. Place a label in the pot with the record of the cross and the date, and a careful man will also make a note of it in a book. It may be four or fourteen months before the pod ripens, and when the seed is ripe the pod will open to let it fall out, and it may be sown on the surface of the soil in which other Orchids of the same species are growing. It may be twelve months, more or less, before the tiny plants appear, and when they do, it requires careful management to

grow them on to the flowering stage. As soon as they are strong enough we place each one singly in a 2-inch pot, using the ordinary peat and Sphagnum compost. We have plants in various stages of growth, and nearly all of them require repotting. I have always repotted them early in the year, and they do very well, some of the small *Cypripediums* growing so freely that they have been repotted a second time in July. *Cattleyas* require rather more peat in the compost than *Cypripediums*, while *Calanthes*, *Zygopetalums*, *Cymbidiums*, &c., may have a portion of fibrous loam. In fact *Calanthes* and *Cymbidiums* do much better in loam than peat; but whatever the class of seedling Orchids may be, I always rather under than over-pot them. The plants always do the best when not too far from the roof glass, but in that position they require considerable attention as soon as the hot weather sets in. They must be shaded from too much sun, and not allowed to become over dry at the roots. To prevent the soil in the tiny pots becoming too dry, I plunge them closely together in live Sphagnum, but the base of the pots rests on clean drainage of some kind. A dozen seedlings or more may be placed in a teak basket, but of course if the houses are low-roofed and the stages near the glass they may stand on these.

Two *Oncidiums* I have successfully cultivated in the warm house, one being *O. Lanceanum*, and I may say that I saw it doing remarkably well in the collection of the Rev. F. D. Horner under very similar conditions. The one was on a block of teak and the other in a teak basket, in each case the tips of the leaves being almost in contact with the roof glass. I was always careful not to disturb the roots, and being a large specimen it had a large teak basket in proportion. I encouraged a few Maiden-hair Ferns to grow into the basket. The mass of roots they made seemed a suitable material for the roots of this handsome *Oncidium*, but I ought to add that the plant was taken down from the roof in winter during very cold weather. It had a light position on the stage. The roots used to run freely outside the basket, and they were watered daily in summer with a syringe. The other plant, *O. phymatophilum*, was also a favourite; its elegant sprays of flowers were useful for decoration, but they were none too freely produced, as the plant would not bloom annually. I have exhibited it in competition sometimes, as it flowered in June. It does well under pot culture, but the plants should be potted so that the new roots run over the sides of the pots in which they are growing. We have also surface-dressed vigorous growing examples of *Odontoglossum Roezli*. Orchids that are now showing flower require more water, these being *Cattleya Trianae* and *Coelogyne cristata* and its varieties. In the case of the last-named species, where the large pots or pans are packed full of roots weak liquid manure water will be useful. Water thoroughly, and see that the plants are not watered again until they need it. *Cattleyas*, such as *C. Warneri* and *C. Leopoldi*, which are now forming their pseudo-bulbs, do not at the same time make corresponding root-growth, and they require careful attention as to watering. Unless an Orchid is making roots freely, it seldom requires much moisture, especially at this season of the year. Such plants as *Coelogyne Massangeana*, which seem to be always growing or flowering, or both together, never need be very dry. We have a large specimen which I always repot at this time, as the work is better done now than in the summer. If the weather is mild the temperature may now be 5° higher than it would in quite the middle of winter with severe frost. J. DOUGLAS.

PLANT HOUSES.

STOVES, BOTTOM-HEAT IN.—For general purposes I am not an advocate of bottom-heat as a medium for accelerating root action. It helps to start plants into growth, and many will break away more freely when plunged in a hot-bed, but frequently the after results are not so satisfactory. This occurs probably through insufficient caution in respect to watering, the soil thus becoming sour before it is possible for the roots to have fully laid hold of it. Guard

against this evil and then there will not be so much to fear. Bottom-heat later on, when a good growth has been started, may be at least partially dispensed with. In my own experience I have found it most beneficial to *Ixoras*, but with these even it is not necessary that it should be continuous; they may certainly be allowed to remain in it when it is found to have considerably declined, not, however, if it is fully maintained. *Alocasias* when freshly potted are benefited by being plunged for the first two months or so; afterwards it is not needed. *Allamandas* also will start away more kindly, especially *A. grandiflora*. I would not think of plunging *Dipladenias*. They do not when thus treated dry up nearly fast enough at the root to please me. *Gardenias*, however, when intended for an early crop of flowers are no doubt greatly assisted to swell up their buds when plunged in a gentle hot-bed—*Eucharises* also when fresh potted, but more particularly when the stock has been entirely divided up. Any assistance in this way will greatly help them in making fresh roots speedily, thus saving nearly all the foliage, which I do not like to lose at any time before it is fully ripened off.

FERMENTING MATERIAL.—I have used both tan and leaves with stable manure, and consider both to be good. The former retains a steadier heat for a greater length of time; the latter is useful when the heat is only chiefly needed for the first few weeks. When using leaves and manure I like to surface off when the plunging is finished with a coating of cocoa fibre; this gives a clean and neat appearance. When tan is used it should be got, if possible, fresh from the tan pits; when the other means is employed the leaves and manure should be prepared by a few turnings together before being taken into the house, so that the rank steam passes off. In both cases the material should be well trodden down as it is being put into its place, but nothing should be plunged until the heat is quite steady; a violent heat does much harm. When only a gentle and more regular heat is wanted, such as for seedlings or newly struck plants, I prefer a bed of cocoa fibre with hot-water pipes underneath. I have found this most beneficial; the fibre will last the whole year in good condition. I have also used fibre when only a few plants for special purposes have been plunged, arranging to have it over some hot-water pipes, so that the heat might be communicated to the fibre and thence to the plants. Leaves only give a gentle heat when once settled down; in using these alone I would prefer either Oak or Beech leaves because of their lasting properties.

WATERING PLANTS.—For the present this should be done cautiously, unless it is in the case of any that are in full leaf and also pot-bound. Crotons when in this state need always a good supply, so also the Palms. In both instances more harm is done by keeping on the dry side than otherwise. The greatest caution is, however, required with the plants which in the remarks of last week were advised to be pruned. These need but little water for some time, and whilst still dry at the root it is a good plan to prune. There will not then be so much danger of loss of sap by bleeding. Any plants which are still resting, but situated near to hot-water pipes, should not be allowed to get unduly dry. I have seen the wood sometimes shrivelled up where this has been overlooked. Rather than give a great amount of water at the roots at this time of the year, I would make more frequent use of the syringe in all cases where the growth is not active. When this line is followed the growth made later on will be far more satisfactory. Be careful not to use cold water. I can overcome this matter very well myself, having a pipe running through the tank to keep the water warm.

TUBEROSES.—A batch of these useful bulbs should be potted up without delay, if it has not already been done. When received they should not on any account be exposed to a low temperature, even for a day. The dwarfier-growing forms, of which the Pearl may be taken as a type, are the best. In potting I prefer to keep the bulbs well down in the soil, only letting just the top appear above ground, as roots are sent forth on different

parts of the bulb, and not alone in a cluster at its base. Fibrous loam and good leaf-soil, with a free use of sand, will suit them well. After being potted I like to keep them in a gentle heat only until growth is fairly on the move. It does not pay to bring them along fast before there is a good stock of roots. Meanwhile the tops of the pots may be surfaced with cocoa fibre. This will dispense with watering for a greater length of time, which is always desirable where there are no roots. If the soil is quite on the dry side, one watering at first would be necessary. Those intended for later use should not be exposed to a dry temperature altogether. They might be laid in fibre in a box and kept where the temperature does not drop much below 45°.

LILIAM HARRISI.—This, the Bermuda Lily, should also be considered, and some bulbs potted up if not yet done, or brought on in gentle heat if potted some weeks back, as probably they will have been in some instances. These should have a rather lighter soil, a little peat assisting them, instead of a preponderance of loam. These also require a little breathing time for fresh root action, and should be covered as advised for the Tuberoses. It is possible some may be standing over from the past year. These might be brought on in heat more quickly than the fresh ones if still in good condition.

MAIDEN-HAIR FERNS.—A batch of *Adiantum cuneatum* should now be placed in more heat to induce an early growth for the supply of cut fronds to succeed those plants which have been doing service through the winter months. If fresh potting is needed, now is the best time for seeing to it before growth is advanced. Fibrous yellow loam with leaf soil and sand will suit them well when intended for cutting chiefly; this soil is productive of a hard growth with small pinnae, the same ends being still further obtained when grown fully exposed to the sun and light with a moderate amount of air also, and not too humid an atmosphere. If for some weeks past a suitable batch for this early work has been kept on the dry side, being almost dried off in fact, they will start into fresh growth with renewed vigour. Other Ferns may be left quiet for a few weeks yet, as there is no gain in starting early for other than cutting.

AMARYLLISES.—As it is not desirable that too many of these fine bulbous plants should be in bloom close upon each other, it is advisable to start some of the most promising at once. These will put up with a fair amount of warmth, and, failing a better place, the shelf in a stove near the glass will do very well, and prevent the leaves from becoming too slender. Water should be given rather sparingly till the spikes are pushing up. When these begin to grow freely and onwards till the flowers are unfolded is the time when the Amaryllises require the most water, but even then the soil should not be made too wet. Potting afresh will be necessary in many instances, but this even is not always desirable every spring, at least I have not found it to be needful. If I see a plant in a healthy condition at the roots, and these abundant, with the soil also in good condition, I should think twice before I disturbed it just for the sake of potting. I grow mine in nearly all loam, adding a little peat or leaf-mould and sand. I prefer to keep seedlings growing the whole year round until the end of the second season. Those raised a year ago are now in full leaf and still active. They will be potted on into a size larger pot and kept on the move. The seedlings raised last autumn are pricked off in a seed-pan; these will not be rested for at least a year and nine months to come.

PELARGONIUMS.—Those of the large-flowered section which are intended to flower early by forcing should now be potted into their blooming pots. Only a bare shift should be given these, or too much growth will be made at the expense of bloom. Do not give them very rich soil, that from an old Melon bed suiting them very well, but pot firmly. These early varieties must not be stopped any more, but later ones may have the strong shoots pinched; this will tend to equalise the growth. In all cases water should be given spar-

ingly for some weeks yet. When possible, I always like to get my Pelargoniums upon shelves near the glass; this not only prevents the shoots from being drawn, but the leaf-stalks are also shorter. The additional amount of air thus gained is in every way beneficial to Amaryllises, which cannot thrive fairly well even when kept confined or at a distance from the glass. A sharp watch must be kept against green fly at all times. This is their chief enemy. A moderate fumigation in good time is far better than a stronger one when this insect is more abundant.

PLANTS IN COLD PITS AND FRAMES.—The past two months have been most trying for all plants in such a position. Those which were uncovered for a few hours during a spell of milder weather did not, however, look nearly so bad as one might expect. I try to keep them as dry as possible during the dark days. Some intermediate Stocks, for

frames I prefer dry Fern to mats. It is a good plan to cut it when green, and to stack it so as to keep it dry. This winter I cannot obtain Fern, and I have used dry leaves to go on the top of mats for covering Violets, &c., with the best results.—DORSET.

FLOWER GARDEN.

THE MADONNA LILY.

(*LILIUM CANDIDUM*.)

THIS, one of the best known and loveliest of all the Lilies, is seen in almost every cottage garden. It is one of the kinds that dislikes codling or being meddled with, and thrives best when left undisturbed for years in good garden soil. Any attempt to deal with it in the same manner as with the more delicate ones generally results in failure. The best flowered plants are to be seen in old gardens, where the bulbs are allowed to run as they like with no attention whatever. Placed in bold masses, no plants can compare with the common white Lily when in bloom. It is so fair a flower, that there is scarcely a place which a good plant or well-grown group will not adorn. But it is the careful growth and proper placing of such lovely hardy plants as this that give the highest charm to the garden. A moist loam seems to suit it generally, though, like other Lilies, it will grow in a variety of soils. G.



The Madonna Lily (*Lilium candidum*).

instance, are looking well, although stiff with frost. These have not had any water at the root since early in October, soon after being potted up. It is somewhat surprising how long they will go on without in any way suffering in this respect. I do not suppose they will need any water yet for six weeks to come. Treated thus, they do not feel a sharp frost so keenly. I should add that although the cold frames were uncovered for a short time, no air was given, a gradual change being safer.

JAMES HUDSON.

Dry Fern as a protecting agent.—For the protection of plants, &c., I prefer dry Fern to straw, as it is clean and does not look untidy. Straw lies close on the ground with the first snow or rain and soon freezes through. For protecting garden pits and

FLOWER GARDEN NOTES.

It is advisable early in the year to make a general survey of this department, in order to carry out any new ideas that have been formed since autumn. See to the preparation of ground for early planting and make provision for any special subjects. Under this heading may come some of the best of the annuals, although there are very few that now find a place in the flower garden, for in the majority of cases their beauty is short-lived, and it is highly objectionable to have bare and unsightly gaps some time before the end of the season. Exception can, of course, be taken in the case of certain members of this family, as, for instance, the varieties of Marigold and Phlox Drummondii, but those grown to supply cut flowers, as the double Clarkia, the single and double Cornflowers, Godetias in variety, and an extra supply of Mignonette are grown in a piece of ground prepared annually for their reception in a slip garden. The ground for Sweet Peas should be well manured and deeply dug, and if birds are very troublesome it is well to sow thinly in pots, harden off, and transplant, for

the chaffinch has a special liking for Sweet Peas, and it is difficult to prevent his attack just as the shoots are appearing, except by coverings of evergreen boughs, which have a tendency to draw the young shoots and render them weakly. I find the decided colours, as the white and scarlet, most in favour for cutting. Beds or borders partially filled with herbaceous subjects will require additional filling through the summer months, and provision should be made for a supply of things suitable for this purpose. Thus clumps of the Sweet Tobacco will associate well with single and double Pyrethrums; a bed partially filled with the smaller Spiraeas, as filipendula and astilboides, may be carpeted with one of the purple tufted Pansies. Specimen Fuchsias may find a place in a border largely composed

of Pheasant-eyed Pinks; a very dwarf foliaged plant as the Stonecrop can be used as a carpet to the Clove Carnation, and so on. In all such arrangements great care should, however, be taken not to associate incongruous subjects, which neither at the time of planting nor indeed at any time during the summer present features in common with each other. It often happens that the happiest associations of hardy and half hardy subjects are suggested by accidental combinations on a small scale, which become very bright features in the flower garden when enlarged and perfected. A large border that was a combination of Spiræas and tufted Pansies was, for instance, suggested by a dwarf, free-flowering mauve Viola, that had been planted between an edging of Chamomile and a clump of Spiræa filipendula, finding its way about through the plants of the Spiræa. As soon as the ground is in a workable condition all operations that can be performed in the flower garden should be attended to. Where small Conifers are employed to partially fill large beds, they can be slightly pruned to keep them within bounds, and anything else planted that may suggest itself to complete or partially complete any of the beds. Thus a couple of beds may be formed, one with small clumps of Gaultonia candicans equi-distant between the Conifers with a carpet of one of the free purple or mauve tufted Pansies. Another may have the groundwork of white Violas with occasional plants of a bright pink Pyrethrum. In all cases where the arrangements are completed for the summer display, tufted Pansies can be planted where circumstances will permit, and so may any hardy things required as a carpet, as Chamomile, Stonecrop, Veronica incana, &c. The two first-named are capital plants for any spots where many other things would not flourish, as hot dry borders on sloping banks, spaces being left in the carpet to be hereafter filled by such things as double scarlet Tropæolums, the stronger of the Echeverias (allowing the latter to flower at will), and some tuberous Begonias. The latter do very well in such sites; not much growth is made, but abundance of bloom is produced, the carpet of Stonecrop keeping the soil from drying out to the level of the roots of the Begonia. I should like to suggest the setting apart of one or two beds for plants with scented foliage. A very pleasing combination can be made with these, and I find them invaluable for cutting through the summer months. The centre of such beds can be composed of Eucalyptus, Aloysia, and standard Heliotrope, to be followed by smaller Heliotropes and Lady Plymouth Geranium, with a small collection of such scented Pelargoniums as Pheasant's-foot, filicifolium, odoratum, Lady Scarborough, crispum, Shottesham Pet, and tomentosum. Little Gem and Duchess of Devonshire with an occasional plant of Mangels will do as an edging.

Claremont.

E. BURRELL.

A SELECTION OF ORNAMENTAL HARDY HERBACEOUS PLANTS.

We are frequently asked by readers for lists of hardy and other plants, and we therefore offer no excuse for printing the following list, which contains what we regard as the best of the true herbaceous plants. The particulars as to height and the situations and soil in which they thrive best will be found useful. No one can desire less than ourselves to limit the variety of plants of this sort, but a great deal depends upon whether a successful beginning is made in this way, and the following is a choice selection of plants upon which growers can depend, and which can be successfully cultivated in most districts. It should be borne in mind that, restricted as this selection is, there are whole classes of important hardy plants not included in it—for example, hardy bulbs, alpine and rock plants, and, lastly, biennial plants and plants which, like the Carnation and some of the double Rockets, require annual division or multiplication for successful culture.

NAME.	HEIGHT.	REMARKS.
<i>Acanthus spinosa</i>	1—3 ft.	borders and naturalised
<i>Achillea Ptarmica</i> fl.-pl.	3 ft.	borders, beds for cutting
<i>Eupatorium</i>	3—1 ft.	borders, groups of the finer species
<i>Millefolium rosea</i>	2—3 ft.	borders or fringes of shrubbery
<i>Aconitum Napellus</i>	4—6 ft.	never in vegetable gardens
bicolor	4—6 ft.	" " shrubberies and rough places
japonicum, autumnale	3—4 ft.	" " groups, borders, and naturalised
<i>Adonis vernalis</i>	1 ft.	borders, &c.
<i>Alstroemeria aurantiaca</i>	3 ft.	borders, shrubberies, and naturalised
<i>Anemone japonica</i>	3 ft.	borders and shrubberies
Honorine Jobert	3—4 ft.	borders, shrubberies, and naturalised
Pulsatilla	6—10 in.	borders, banks, and rocks
coronaria, many vars.	6—10 in.	borders and bulb beds
alpina		borders, groups, and rougher parts of the rockery
fulgens	6—9 in.	borders
Robinsoniana	6 in.	beds, borders, &c.
sylvestris	9—15 in.	borders, margins of shrubberies, &c, and rocks
<i>Anthericum Liliastrum</i>	1½—2 ft.	borders
<i>Aquilegia vulgaris</i> and vars.	2 ft.	borders and in long Grass
chrysantha	2—3 ft.	borders and beds, groups
<i>Armeria cephalotes</i>	1—1½ ft.	borders, edgings
grandiflora	1—1½ ft.	" "
<i>Aster Amellus</i>	2 ft.	borders and naturalised
levis	3—5 ft.	
acris	3—5 ft.	
turbineatus	3—5 ft.	
versicolor	4—6 ft.	
horizontalis		
Novi-Belgii		
<i>Bocconia cordata</i>	3—5 ft.	borders and copses
<i>Caltha palustris</i> and vars.	9—15 in.	borders, waterside, and bog garden
<i>Campanula Van Houttei</i>	1—1½ ft.	borders in good soil
nobilis and vars.	1—1½ ft.	borders and naturalised
celtidifolia	2—3 ft.	" "
glomerata speciosa	1—1½ ft.	" "
urticifolia fl.-pl. alba	1—2 ft.	" "
carpatia and vars.	9—12 in.	borders and rock garden
grandis	1½—2 ft.	borders and naturalised
persicifolia and vars.	1½—3 ft.	" "
sarmatica	2—3 ft.	" "
<i>Cardamine pratensis</i> fl.-pl.	9—12 in.	borders, open glades, and wild garden
<i>Centranthus ruber</i> and vars.	1½—2 ft.	walls, rocky places, borders; seaside plant
<i>Chrysanthemum latifolium</i>	2—3 ft.	
<i>Coreopsis lanceolata</i>	1½—2 ft.	borders, margins, shrubberies
auriculata	2—3 ft.	
<i>Coronilla iberica</i>	6—9 in.	rock gardens and margins of borders
varia	1 ft.	naturalised, banks, borders, and rocky places
<i>Corydalis nobilis</i>	9 in.—1 ft.	borders in light rich soil
<i>Delphiniums</i> in var.	2 ft.—10 ft.	borders, groups, beds, shrubberies, naturalised
<i>Dielytra formosa</i>	9 in.—1 ft.	borders, in light rich soil, and naturalised
spectabilis	1—1½ ft.	borders, in rich warm soil, and naturalised
<i>Dodecatheon Meadia</i> and vars.	9 in.—1 ft.	borders and rock garden
Jeffreyanum	12—15 in.	" "
<i>Doronicums</i> in var.	1—4 ft.	borders and naturalised
<i>Echinops Ritro</i>	3—5 ft.	margins of shrubbery
ruthenicus	3—5 ft.	" "
<i>Epilobium Fleischeri</i>	1—2 ft.	borders and rockery
<i>Epimedium macranthum</i>	9—15 in.	on margins of choice shrubs and American plants
<i>Erigeron speciosus</i>	9—15 in.	borders
<i>Eryngium alpinum</i>	1½—3 ft.	borders and beds, margins of shrubberies
amethystinum	1½—3 ft.	" " "
Olivierianum	2—3 ft.	borders and groups
giganteum	2—3 ft.	" "
<i>Funkia Sieboldi</i>	1—1½ ft.	peat beds and margins of American shrub beds
japonica	1—2 ft.	" " " "
grandiflora	1—2 ft.	borders and margins
<i>Gaillardia aristata</i>	1—3 ft.	borders, rather tender in cold and damp localities
grandiflora	1—3 ft.	" " " "
<i>Galega officinalis</i> and var. alba	3—4 ft.	naturalised in shrubberies or copses and borders
<i>Gentiana asclepiadea</i> and var.	9—15 in.	borders, and naturalised in copses or woods
acaulis	4—6 ft.	borders and wild garden
<i>Geranium armenum</i>	3—4 ft.	borders, edgings, and rock garden
sanguineum and vars.	1—2 ft.	borders and edgings
<i>Geum coccineum</i> fl.-pl.	1—1½ ft.	" "
<i>Gypsophila paniculata</i>	1½—3 ft.	borders and banks
<i>Helenium autumnale grandiceps</i>		
and pumilum	5—8 ft.	shrubberies, or for naturalisation in woods
Bolanderi	2—3 ft.	borders, &c.
<i>Helianthus multiflorus</i> fl.-pl.	2—3 ft.	margins of shrubberies and rough borders
rigidus	1½—3 ft.	" " " "
<i>Helleborus niger</i> and others	1—2 ft.	grassy banks, borders
orientalis and vars.	1—2 ft.	beds of evergreen herbs
colchicus	1—2 ft.	" "
<i>Hemerocallis disticha</i> fl.-pl.	1—2 ft.	borders, margins of shrubberies
flava	1—2 ft.	" " "
fulva	1—2 ft.	" " "
graminea	1—2 ft.	borders and rocky banks

NAME.	HEIGHT.	REMARKS.
<i>Heuchera sanguinea</i>	1—2 ft.	borders
<i>Iberis sempervirens</i> and vars.	1—1½ ft.	borders, banks, edgings, and rough rockwork
Garreana	9—15 in.	" " "
corneifolia		" " "
<i>Inula glandulosa</i>	2—3 ft.	borders, &c.
<i>Iris</i> (rhizomatous kinds in var.)	1—3 ft.	beds, borders, groups, grassy places
<i>Kniphofia</i> in variety	2—4 ft.	groups, beds, borders on the Grass
<i>Lathyrus grandiflorus splendens</i>	4—6 ft.	trellis-work, walls, climbing over low shrubs
latifolius and white var.	4—6 ft.	" " "
Sibthorpi	4—6 ft.	" " "
<i>Liatris spicata</i>	2—4 ft.	borders and in peat beds
pycnostachya	3—5 ft.	" " "
<i>Linaria dalmatica</i>	2—4 ft.	borders
Peloria	1—1½ ft.	"
<i>Linum perenne</i> and vars.	1—1½ ft.	"
narbonnense	1—1½ ft.	warm borders
flavum	9—12 in.	hardy in many districts, on banks and rocks
<i>Lupinus polyphyllus</i> and vars.	3—5 ft.	wild garden and borders
<i>Lychnis vespertina</i> fl.-pl. alba	2—3 ft.	borders
Viscaria splendens fl.-pl.	9—12 in.	borders and rocky banks
chalcidonica fl.-pl.	1½—2 ft.	borders
<i>Lythrum Salicaria splendens</i>	3—6 ft.	moist borders and waterside
<i>Malva moschata alba</i>	1—1½ ft.	borders and fringes, shrubberies, woods
<i>Monarda didyma</i>	2—3 ft.	sandy woods and shrubberies, moist borders
fistulosa and vars.	2½—4 ft.	" " "
<i>Oenothera missouriensis</i>	6—12 in.	borders, banks
fruticosa	1½—3 ft.	borders
speciosa	9 in.—2 ft.	"
tanacetifolia	1 ft.	rockeries, &c.
Youngi	1½—2½ ft.	borders
<i>Orobis canescens</i>	9—15 in.	borders and fringes of shrubberies
aurantius	1½—2 ft.	" " "
cyaneus	9—15 in.	" " "
flaccidus	9—15 in.	" " "
lathyroides	1—1½ ft.	" " "
vernus and vars.	9—15 in.	" " "
<i>Papaver orientale</i> and vars.	3 ft.	margin of shrubbery, groups, borders
nudicaule vars., various	1 ft.	borders
<i>Pæonia anemoneiflora</i> and vars.	1½—3 ft.	single specimens and groups isolated on lawns,
albiflora and many varieties	1—3 ft.	shrubberies, borders, mixed masses
officinalis and vars.	1½—3 ft.	
tenuifolia	1—1½ ft.	
<i>Pentstemon procerus</i>	6—9 in.	borders and rock gardens
barbatus Torreyi	3—8 ft.	borders
<i>Phlomis Herba-venti</i>	1—2 ft.	wild garden and borders
Russelliana	2—5 ft.	" " "
<i>Phlox ovata</i>	1 ft.	borders and rock gardens
glaberrima	9 in.—1 ft.	" " "
canadensis	9 in.—1 ft.	" " "
paniculata and vars.	2—4 ft.	borders and beds
divaricata	9—15 in.	borders and rock garden
<i>Polemonium Richardsoni</i>	1—2 ft.	
reptans	1—1½ ft.	borders and beds
<i>Potentilla hybrida</i> fl.-pl. vars.	1—1½ ft.	borders and banks
<i>Plumbago Larpenæ</i>	9—15 in.	margin of shrubberies, rough borders
<i>Pyrethrum uliginosum</i>	4—6 ft.	beds and borders
roseum and many vars.	1—4 ft.	borders, margin of shrubberies
<i>Rudbeckia speciosa</i>	2—3 ft.	borders
<i>Ranunculus acris</i> fl.-pl.	9 in.—2 ft.	rich light borders
aconitifolius fl.-pl.	9 in.—1½ ft.	" " "
amplexicaulis	6—12 in.	edgings, borders, and rock gardens
<i>Saxifraga granulata</i> fl.-pl.	9—12 in.	as a carpet under trees, beds of evergreen herbs,
(Megasea) ligulata and vars.	1—1½ ft.	borders, and banks
crassifolia	1—1½ ft.	" " " " "
cordifolia and other vars.	1—1½ ft.	borders, and for naturalisation
<i>Scabiosa caucasica</i>	1½—3 ft.	borders and rocky places
<i>Scutellaria alpina</i> and vars.	9—12 in.	borders, groups, and beds, and for naturalisation
<i>Sedum spectabile</i>	1—1½ ft.	warm borders
<i>Senecio pulcher</i>	1½—3 ft.	
<i>Sidalcea candida</i>	2—3 ft.	fringes of peaty beds, and for naturalisation in
<i>Spiræa palmata</i>	1½—3 ft.	moist places
Arunceus (good vars.)	2—4 ft.	borders, isolated on Grass, groups
Filipendula fl.-pl.	1½—2½ ft.	borders
japonica	1½—3 ft.	peat beds and moist borders
<i>Statice latifolia</i>	1½—2½ ft.	borders, groups, or singly
<i>Symphytum bohemicum</i>	2—3 ft.	wild garden and fringes of shrubberies
caucasicum	1½—2 ft.	" " "
<i>Thermopsis fabacea</i>	2—3 ft.	
<i>Tradescantia virginica</i> vars.	1—2 ft.	borders
<i>Trollius asiaticus</i>	1½—2 ft.	borders, groups, and wild garden
Fortunei	1½—2 ft.	" " "
europæus and vars.		" " "
<i>Verbascum phlomoides</i>	7—9 ft.	beds and groups, with the finer hardy plants, mar-
Chaixi	6—9 ft.	gin of shrubberies and backs of borders
<i>Veronica candida</i>	1—1½ ft.	borders
corymbosa	1—1½ ft.	"
longifolia subsessilis	1½—3 ft.	"

THE SWEET WILLIAM.

THE Sweet William has made distinct strides in the way of perfection, and what the florist prognosticated of it thirty years ago has come to pass; the flowers have become so large, smooth, and finely marked and coloured, that they have attained to that perfection which florists in the past tried to obtain. In colour, a refined strain of Sweet William varies from white and flesh-coloured and delicately tinted blush and rose, some being handsomely reticulated with a deeper tint, to the deepest, richest, and most brilliant shades of red and crimson, with many intermediate types. Violet, blue, and purple are not so strongly displayed as other colours, and yellow appears to be quite absent. Two very pleasing sections are, first, those having smooth edges to the pips and some dark central colour distinctly margined with white, and what is known as the Auricula-eyed, in which there is a bold white centre, margined with some dark colours or combination of colours. Some of the pips are elegantly fimbriated, while others are perfectly smooth on the edges, but both have their admirers, and deservedly so. In no place do the Sweet Williams show themselves off better than as an edging to shrubbery borders. I have seen them so employed in many places. In the public park at Wolverhampton they are largely employed in this way by the superintendent, and being a fine strain, they are much admired by the townspeople, who flock to the park in great numbers during the summer months. A good Carnation soil suits the Sweet William well. In the deep yellow loam in the Wolverhampton public park the plants root deeply, and stand well during hot and drying weather. They are annually renewed by seedlings, and the nursery in connection with this spacious park is well worth a visit, as many biennials and perennials are raised there for transplantation at the proper time.

Strains of Sweet Williams are now so generally good, that it seems altogether unnecessary to attempt to propagate certain varieties, and yet every seedling raiser is generally fortunate in obtaining something of special importance in his eyes, and, knowing he cannot depend upon reproducing it exactly from seed, he propagates by division or pipings—"pimpings," as the old florists used to term them. They did this when the shoots thrown up round the bases of the flowering stems were short and stocky, and when removed it is frequently found they have, where the stems touch the soil, put forth a few fibrous roots. To do these full justice a bed should be prepared of good sound loam and well rotted manure, with the addition of some leaf soil, and in this they should be planted at least a foot apart. Here they grow into fine plants for blooming another season, and such as need it should have supports if there is danger of their being blown about and damaged by wind. In some parts of the country trusses of Sweet Williams are exhibited. Objection is sometimes taken to their employment for this purpose on the ground that if the weather is hot the pips soon wither. But I have seen trusses of Sweet Williams even in hot tents keep so fresh and well expanded, that probably something depends upon the age of the flowers when they are cut, and also if the vessels in which they are shown are well filled with water. I have seen in the midland districts trusses of Sweet Williams of wonderful quality shown by cottagers, but then they had been well cultivated. One cottager told me he grew his plants in rich soil, that he allowed but one head or bloom to rise, that he removed all lateral blooming stems directly they appeared, and he thinned out the pips so that those left might become fully expanded and form a symmetrical truss. Then every flowering stem was supported by a stake, and when his plants were in full bloom they were the talk of the neighbourhood. The Sweet William is a thoroughly hardy plant, though in cases of specially severe weather, as when extreme frost follows heavy rain, the plants are much injured. A grower of fine varieties for exhibition will protect some of his best sorts on the approach of sharp frost, placing handlights or a frame over them, or some loose litter about them. They

are worthy this care, as they are objects of common interest to the cultivator. R. D.

FERNS.

VARIEGATED FERNS.

THE variegated Ferns are not numerous, and are confined to comparatively few genera. Although all are considered varieties, some appear to be quite distinct from any cultivated species with green fronds. Take, for instance, *Pteris tricolor*, which is generally considered a variety of *quadriaurita*, yet it is quite distinct in habit, and among the numerous seedlings which I have raised I have seen no variation either in habit or in the variegation; in fact all the variegated forms come quite true from spores. Perhaps I should say all which have any fixed or regular form of variegation, for we often get among seedling plants some irregular variegation, in *Pteris serrulata* particularly the variegation being in stripes across the pinnae. These generally grow out, or occasionally they will go in the other direction and lose all the green, which, of course, means that after making one or two quite white fronds the plants die off. This striped variegation also makes its appearance in other species. I have seen some prettily striped forms of *Adiantum macrophyllum*. Messrs. Veitch and Sons had one or two plants of this in their collection at the Fern conference. I have found plants so marked among seedlings, but have not been able to perpetuate them. *Cyrtomium falcatum* is another example. I have several times found seedlings with yellowish stripes through the pinnules. As the plants advance, however, they revert to the normal form. There is, however, a variety of this Fern in which the whole surface of the fronds has a yellow tint, and although I have not grown it, I believe it may be raised true from spores.

Of types which retain the variegation and may be readily obtained from spores, the following are the most distinct:—

P. TRICOLOR, previously alluded to, is the most beautiful of all the variegated Ferns; the pinnules have a band of silvery grey next to the rachis, then a band of almost a crimson hue, the outer portion being of a deep metallic green. Nothing could be more perfect than the regular markings of this beautiful Fern. It is perhaps a little more difficult to manage than many other kinds, but its great beauty will well repay the little extra attention it may require. The plants should be grown in the stove and placed in a position where no damp can settle on the fronds. If the sun should strike the fronds while they are damp they will lose their colour. This Fern succeeds best in a good rough loamy compost with plenty of sand. In potting, the crowns of the plants should be kept well down. As they advance the crown rises, and if not kept fairly well down in potting, the new roots which are produced at the top cannot take hold of the soil, and the plants consequently become weakened. As with all slow growing Ferns, large pots should be avoided.

P. MEMORIALIS VARIEGATA is a pretty Fern with pale soft green fronds, which have silvery grey linear markings. In a young state the fronds have a purple tint. It may be treated like the preceding, but is much more robust in habit.

P. ARGYREA, which is well known as one of our best market Ferns, differs from the last-named in being of taller growth; the white linear marking is more distinct, and the young fronds have no colour in them. This may be grown in a cooler house, but to keep plants fresh during the winter they require a little more warmth.

P. CRETICA ALBO-LINEATA is another useful variegated Fern, which when grown on freely

makes a most effective plant; the crested varieties of this, which are dwarfer and have narrower pinnae, are also among the most useful of the class.

LASTREA ARISTATA VARIEGATA.—In this the bright green surface is relieved by a band of pale yellow. It is a most effective Fern, but of rather slow growth. The best way to treat it is to grow several plants together in shallow pans; it succeeds well in a cool house, and the fronds being of good substance they may be used for decoration where those of the more tender sorts would perish.

DICTYOGRAMMA JAPONICA VARIEGATA is another useful Fern which succeeds well in an intermediate temperature. It should be grown in a light peaty compost with plenty of drainage; the spreading underground rhizomes like plenty of room. It is most effective when grown in pans, as recommended for the last named.

ATHYRIUM GOVINGIANUM PICTUM.—This hardy deciduous Fern is well worthy of pot culture. When grown under glass the colouring is almost as bright as in *Pteris tricolor*. It will grow well in good fibrous loam, and in the cool fernery gives a pleasing shade of colour, especially when associated with the deep green *Adiantum capillus-veneris*.

Besides those which have variegated fronds there are many Ferns in which the fronds have different shades at various stages of growth, and in some the young fronds have bright tints of various shades from soft fawn to quite a crimson hue: there are also many different shades in the fully developed specimens, from the pale silvery grey of *Cheilanthes tomentosa* to the deep green of *Pteris umbrosa*. By bringing the various colours together in a group under a good light, a beautiful effect may be produced. F. H.

MAIDEN-HAIR FERNS.

A GOOD supply of well matured fronds for cutting or well-grown examples suitable for house decoration in many instances is not produced as it should be. It is the usual practice at this season of the year to repot the bulk of the Maiden-hair Ferns. We frequently hear the remark when we meet with poorly furnished samples that it is impossible to have a good supply of fronds, taking into account the continued picking for various purposes that the plants are subjected to. To a certain extent, and no doubt in several instances, this is correct, but we must not accept this as the sole reason of their feeble health. In the majority of instances the plants are subjected to too much heat, and are also too frequently disturbed at the roots. I have many plants which have not been disturbed at the roots for three years, and they are in the most robust health. The drainage in the first instance was in perfect condition, and during the growing season, and especially the hottest months of summer, water is most abundantly supplied, with frequent applications of stimulants, such as guano and soot water, or even weak liquid manure formed from fresh cow manure and soot. The crowns of the plants are now bristling with young fronds, and with the exception of those plants which are too large for the pots, and which seem to require fresh soil, they will not be repotted. This continual or annual repotting cripples the fronds. The majority of our Maiden-hair Ferns are wintered in a temperature of 50°, and during the present severe weather it has often been considerably less. This appears to give the plants a good rest, as they afterwards start into growth with renewed vigour. With the return of milder weather and an increase of temperature of 5° or 10°, the crowns of fronds will advance rapidly. A few plants which I had arranged with the *Calanthes* in a warmer structure, and which previously had been in a lower temperature, are now one mass of healthy and large fronds. The secret of the cultivation of Maiden-hair Ferns, to have perfect examples for house or conservatory decoration, with an ample supply for cutting, is contained in a nutshell: Not to repot unless actually needed or division necessary to increase stock; abundant supplies of soft rain water, and frequent

feeding with stimulants during the growing season; a lower temperature than generally accorded, with shade from sun, and an immunity from an arid atmosphere or cold draughts. Plants grown as stated above are in capital condition for placing in the house, and in gas-lighted rooms I have kept plants for six weeks. In rooms where gas is not used, and with care in watering and freedom from draught, I have kept plants upwards of twelve months. In my own house I have such a plant.

RURAL.

GARDEN FLORA.

PLATE 790.

TEA ROSE ANNA OLIVIER.*

ANNA OLIVIER was sent out by Ducher in 1872, so that it is by no means a new Rose, but amongst all that have come before and after it, it stands out conspicuous, and would have to be included amongst the best six Tea Roses for the flower garden. Its constitution and sturdy, vigorous, bushy habit of growth are so good, that this Rose may be said to be thoroughly hardy, and doubtless herein lies the secret of its long and successful season of bloom. As a proof of this, when the frost came on so sharp and sudden last November Anna Olivier was one of the Roses that were then full of opening buds. Now, after two months' continuous frost, the thaw has come, and yet the bushes of this Rose have all their summer leafage upon them green and apparently unharmed. All the best Roses can be admirably and effectively grouped, but some are more suitable than others, and notably this one; in fact, it was the fine effect of this and one or two others that we tried in informal groups that led us to adopt that method of arrangement. It is by the aid of such Roses as this that their value and the charming way in which they will adorn the garden landscape have been found out. It seems strange that there should be any necessity to plead for their more extensive use in this way, but in how few gardens would one find a sufficient quantity of this Rose to give the slightest idea of its beauty and worth, whilst in the majority of them it is practically unknown.

The flowers illustrated are exceptionally bright specimens of their kind, but hundreds of buds and blooms of the same high colour might have been seen upon the group of plants from which those here figured were taken. Again, the variability of some of these lovely many-hued Teas in different localities is well known, Comtesse de Nadailac to wit, for never yet were flowers of this kind known to surpass in brightness and excellence those produced upon Mr. Prince's warm soil at Longworth. This characteristic is even more noticeable and pronounced in Anna Olivier. Apart from locality and the influence of different soils in the same garden and upon the same plants, the flowers vary both in form and colour in a remarkable and striking manner and to such a degree that in the autumn blooms when compared with those of the summer, one would hardly recognise the same Rose, the bud and flower having become rounder and more globular and the colour almost entirely a pale fawn without any of the warm mixtures of buff brown. All these are peculiar charms, but they do not in any way detract from the value of the variety, which is always beautiful in any of its many phases. Its exceeding value for cutting must be taken into account. The characteristic urn-shaped buds cut and placed in water im-

* Drawn for THE GARDEN at Gravetye, Sussex, by H. G. Moon. Autumn blooms from plants in open beds, wholly unprotected for four years. Lithographed and printed by Guillaume Severeys.



prove from day to day, opening gradually into a full expanded flower of fine form and fragrance. In a cut state the flowers do not soon lose their freshness or bright colour, and few Roses are so effective by artificial light, which brings out conspicuously the deep glow of colour in the base of the flower. This fact would give it a great value for table decoration, and if grown in such bold groups as the kind deserves to be, plenty of buds and blooms might be cut for such a purpose without stripping the bushes. A. H.

STOVE AND GREENHOUSE.

WINTER-FLOWERING BEGONIAS.

WITHOUT being acquainted with all the Begonias mentioned in *THE GARDEN* (p. 37), I thoroughly agree with the opinion there expressed as to their great value for winter blooming, and at the same time I would point out that there are a few hybrid kinds not given in the above article that are well entitled to a place in any selection. A very desirable group is formed by the various varieties of *B. semperflorens*, of which we have, beside the normal white-flowered kind, some whose blossoms are tinged more or less with pink, while some strong-growing deep-coloured varieties of Continental origin are the result of intercrossing this Begonia with the tall and vigorous *B. Lynchiana*. One of the best of this group is known under the cumbersome name of *B. semperflorens gigantea carminea*. This is a very free growing plant that branches much more readily than *B. Lynchiana*, whose one drawback is a tendency to run up tall and naked. There are some others of this class, but all greatly resemble each other, and the first mentioned will, as a rule, be sufficient.

B. CARRIERI is another valuable hybrid obtained by the intercrossing of *B. semperflorens* and *Schmidtii*, which, like its first mentioned parent, will flower almost the whole year. It forms a freely branched bush, not unlike a minor form of *B. semperflorens*, while the pure white flowers are borne in great profusion. So free is it, that if cuttings are taken of the shoots from the upper part of the plant many of them will scarcely grow, but keep pushing out flowers. A variety much like the last, except that the leaves and stems are very hairy, is *B. Carrieri villosa*, but I prefer the ordinary *Carrieri* to it.

B. GLOIRE DE SCEAUX is another favourite of mine, worth growing only from an ornamental point of view, added to which the flowers are very beautiful. The leaves are large, of a dark metallic green tint, while the deep pink-coloured blossoms are borne in good-sized clusters. This very desirable Begonia, which was sent out by Messrs. Thibaut and Keteleer and announced as a cross between *B. subpeltata* and *B. socotrana*, certainly shows little, if any relationship to the latter variety. Mention of *B. socotrana* reminds one of Messrs. Veitch's beautiful hybrids claiming parentage from that species, of which John Heal was illustrated by a coloured plate in *THE GARDEN* of March 9, 1889. Two more of these hybrids are *Adonis* and *Winter Gem*, while the typical *B. socotrana* must still be classed among the best winter-flowering Begonias.

B. WELTONENSIS is one of the oldest hybrid Begonias, and valuable either for summer or winter blooming. It was raised by Colonel Trevor Clark, between the white-flowered *B. Dregei* and the peculiar orange-salmon *B. Sutherlandii*. This is one of the few varieties that are grown in quantity by some of the market growers, though it does not seem so popular with them as it was fifteen or sixteen years ago.

B. SUTHERLANDII, noted above as one of the parents of *B. weltonensis*, is a very distinct Begonia, but its usual season of flowering is during the summer months. This generally forms a large irregularly-shaped tuber, from whence the numerous branches are produced. The leaves are light bright green, with reddish veins, while the stems

are also red. It forms a very graceful specimen, which, when laden with its peculiarly tinted blossoms, is very pretty.

B. ASCOTENSIS is another showy hybrid, whose stout erect stems are terminated by large drooping clusters of bright red blossoms. It is a very useful variety for the embellishment of the greenhouse during the summer as well as in the autumn and winter months. As a rule, it is not much grown for summer blooming, as at that time the tuberous rooted varieties are in flower.

B. MANICATA, with large branching spikes of small pinkish blossoms, is a great favourite of mine, for the light and elegant arrangement of the inflorescence eminently adapts it for grouping. The bright shining green leaves are very showy, while they bear on the undersides peculiar, fleshy, scale-like hairs, with which the leaf-stalks are also furnished. There is a variegated variety of this sent out a few years ago, which was then thought likely to be an acquisition, but it is now seldom seen. In this the leaves are marked with large golden blotches, as in the Japanese *Farfugium grande*. A specimen well marked is very ornamental, but the foliage generally shows a great tendency to become green.

B. SCHARFFIANA is, comparatively speaking, a new Begonia, having, I believe, first flowered at Kew in 1888 from seeds received there. It blooms during the summer, but continues until late in the autumn. This Begonia bears a certain amount of resemblance to the old *B. metallica*, but it is quite distinct and much superior. *B. Scharffiana* is a bold stout-growing species, reaching a height of a yard or thereabouts, with stout, erect stems and bronzy-green leaves, veined with red. The blossoms are borne in large, densely packed clusters, which, from their weight, assume a drooping character. The individual blooms are of a pale pink colour, thickly clothed towards the lower part with large reddish hairs, which impart a very distinct feature to the blossoms.

B. GLAUCOPHYLLA, a very distinct plant, will flower almost throughout the year. By far the best place for it is in a hanging basket, as then the pendulous shoots will hang down for a yard or more and produce a cluster of flowers from nearly every joint. The blooms are of a peculiar reddish salmon colour, and the foliage is of a very distinct light green shade. It is certainly a first-rate basket plant for the warm greenhouse.

B. CORALLINA is a free-growing species, sending up strong shoots from the base after the manner of *B. ascotensis*. These shoots will reach a height of 6 feet, but will often flower when shorter than this. The flowers are borne in long pendent racemes from the upper part of the shoots. They are of a bright coral-red colour, while the wings of the seed-pods, which frequently hang on for a considerable time, are of the same tint. This is seen to great advantage when planted out in some good soil, as if starved in any way it is never satisfactory.

Begonias of this class certainly have their merits to a great extent overlooked, no doubt owing to their being less showy than the popular tuberous-rooted varieties. H. P.

Tuberous Begonias.—"T. B." in *THE GARDEN* (p. 29), gave timely advice to all who are desirous of having a display of these beautiful plants during the coming season. The finest display I have ever seen was at Ousden Hall, near Newmarket, last season. There were close upon 8000 bulbs planted out, and as late as the middle of October they were in full beauty. Many of the flowers measured nearly 8 inches in diameter, the colours being very rich, varying from a deep cardinal to pure white, but the favourites of the season were the various shades of terra-cotta. In addition to those bedded out there were two houses filled with them in pots. Mr. Kett, the gardener, sows early in January, and treats them as mentioned by "T. B." The bulbs are lifted in the autumn with a moderate quantity of soil and dried gradually in a vinery. When thoroughly dry, they are shaken

out and stood away in dry sand for the winter in any place free from damp and frost. Early in April they are examined and placed in boxes inside to start them. They are then fit for bedding out in June.—J. B. JONES.

FORCING STOCKS.

DURING the past three or four years most seedsmen have offered a new forcing Ten-week Stock, this in some instances being given the distinctive names of *Snowflake* and *Purity*. As yet I have not observed any comments on this novelty in the horticultural press, and have met with few gardeners or florists who have anything to say in its favour, yet it is quite a gem among Stocks. From the first I have been more than pleased with it, and, in fact, I am acquainted with no other variety of Stock so perfect in every way, or which I value so much. As the names given it imply, it is a pure white variety, having smooth Wallflower-like leaves, while fully three parts of the plants raised form compact heads of very double flowers. Even the spikes of single flowers are superior to the ordinary run of single Stocks, the flowers being large, pure white, and very effective in a cut state. It is recommended by me principally for pot culture, and also for flowering early planted out in frames. Being designated a forcing Stock has, I have good reason for asserting, had much to do with different failures that have occurred in gardens and nurseries where the attempt has been made to grow it. It can be forwarded in pots so as to have it in bloom in less than twelve weeks of the time of sowing it, or, say, by the middle of April, but if anything in the shape of hard forcing is attempted, disappointment inevitably results.

My method of culture, and which has answered well for three years in succession, is much as follows: The seed is sown thinly in a pan of fine soil towards the end of January or early in February, another packet of seed being sown three weeks or a month later, so as to have a fairly long succession of bloom. Placed on a mild hot-bed, covered with a square of glass, shaded, and carefully moistened if need be, the seed soon germinates, and before the seedlings become drawn and weakly, or broken down by heavy syringing, the pans are raised well up to the glass, but still kept in heat. When nearly large enough to prick out they are placed on a warm greenhouse shelf swinging near the glass of the roof, this preparing them for potting off. I do not make the mistake of first placing them in small pots, in which if kept a few days too long or neglected for a short time after they want water, they are quickly spoilt; but instead of this they are placed direct into the pots in which they are to flower. The requisite number of 6-inch pots are moderately well drained, and then somewhat firmly filled with fairly rich light loamy compost. Into each of these three plants are carefully dibbled near to the edge or well away from each other; they are then returned to gentle heat, watered and shaded from bright sunshine, till they have recovered from the check and are growing afresh. I have tried keeping them longer in heat, but this has a most weakening effect upon the plants, and they succeed much better on the before-mentioned warm greenhouse shelves. Water has to be given very carefully till the soil is well occupied by roots, but when the flower-spikes are showing, much more water and frequent supplies of weak liquid manure have to be given. Thus treated, they grow sturdily and strongly, and their beautiful spikes of flower, obtained so early in the season, never fail to attract attention. The spikes of either double or single Stocks are of the greatest value to those who either make, or supply flowers for wreaths and crosses, and market growers ought also to cultivate this variety for sale in pots. W. IGGULDEN.

Monstera deliciosa.—This exotic was recently mentioned in *THE GARDEN* as a water-loving plant, and it reminds me of a fine specimen occupying a central position on the stage of a small plant stove, where it grew and fruited freely. To supply bottom-heat, a hot-water tank extended the entire length of the structure. This tank was covered

with a slate, this being covered with some 6 inches of clean shingle or small stones, on which the plants in pots were placed. On the west end of the hot-water tank was an open slate cistern, kept always full for watering. The roots of the *Monstera* soon found their way from the pot into the shingle, apparently using the same as a medium by which to reach the soft-water tank, and the plant thrived amazingly. From the spot where it stood to the cistern was some 7 feet or 8 feet. The strange part was that its roots did not extend in the shingle towards the east end of the tank where there was no cistern.—P. G.

THE EUCCHARIS.

I HAVE never grown *Eucharises* as advised by Mr. Tallack; indeed, my aim has been to keep them as far away from the vineries as possible, as they are so often troubled with insect pests that a wide berth is desirable, unless the plants are thoroughly clean. I do not think it is wise to excessively dry the bulbs; at any rate I do not practise it or recommend it. I find that we get less bloom when it is carried to excess, as by allowing the plants to grow freely and then feeding accordingly, they bloom on an average three times a year. On the other hand, a much lower winter temperature is given, and the atmosphere is consequently drier than is often advised. Our *Eucharis* house is often 45° at night in cold weather and 50° at other times, with a few degrees higher during the day. I endeavour to retain all the foliage, and therefore do not give more water during the winter than is necessary, and very little damping overhead. When *Eucharises* are grown in an intermediate house they do well, the foliage being more robust and not falling about the tops of the pots as when the plants are grown in strong heat. I also like moderate-sized pots, as I find that they are more useful, though I have grown and exhibited specimens in 18-inch size and larger, but for cutting, a few bulbs, say half a dozen, in an 8-inch or 9-inch pot give a good return. The great point is to get the pots full of roots, as if wintered in a low temperature and with few roots the result will be disastrous. Our plants that flowered in September are now throwing up a quantity of spikes, and have never had a higher temperature than above given. These are in 8-inch pots, and are now taken into a house a few degrees warmer to give a few early blooms. Those just showing will form a succession. As soon as the flowering period is past a shift will be given if necessary, the bulbs divided, and the pots plunged for a short time in bottom-heat a trifle warmer than the top temperature. They then get the intermediate house treatment advised, and are kept always growing. If bloom is desired at a certain period, they are kept a little drier for a short time. The bottom-heat is merely to give the bulbs a start, and is not kept higher than 65° to 70°. I used to grow the *Eucharis* in strong heat, but as the plants were attacked by the mite, I had a clean stock from an old grower of these plants who had them always in a small pit with little heat, and they have not suffered since. Great care is necessary in syringing, as these bulbs often go wrong with too much moisture either at the roots or overhead. They also like shade from hot sun, and, of course, moisture in the summer months accordingly. Abundance of good yellow loam that has been stacked for a time and dry cow manure, with some pieces of charcoal and quarter-inch bones or bone meal in the compost, is the soil I give, making the bulbs firm, with plenty of weak liquid manure when in active growth, also an occasional watering with clear soot water. The plants are kept near the light, but shade from strong sunshine is given in the summer, and by growing them on the cool side a strong growth and much dwarfer habit are obtained, with the result that the flowers when cut last a long time.—G. WYTHES.

— In THE GARDEN of December 20 (p. 585), Mr. Tallack says, "*Eucharis amazonica* can be grown in vineries. It revels in the heat, moisture, and shade to be found under the Vines." With this every *Eucharis* grower will agree, but I and many others will hesitate to follow the

advice given about treatment after flowering—that is, the drying-off process. I have seen the *Eucharis* grown in the eastern counties exactly as Mr. Tallack advises, with the ultimate result of failing both to flower and grow satisfactorily. I predict the same for his plants if he will persevere in treating them as he advises. I should like to know how long Mr. Tallack has pursued the system. I believe all *Eucharis* growers know what a difficult plant it is to recover from a bad state, whatever may have been the cause of producing it, and many highly successful ones would on no account dry off their plants, a rest which does not permit of the leaves flagging only being allowed. Of all things, beware of allowing the *Eucharis* to remain long in a low temperature.—A. LOCKE, *Danesfield, Walton-on-Thames*.

Kilmurry Carnations.—I am somewhat disappointed with these Carnations, as I understood that they flowered chiefly in autumn and winter, but very few out of three dozen plants that I purchased last year at this time have done so, yet they are vigorous enough to have made a good display. It may be, perhaps, that for the variety the stock was rather weak when purchased, and that now they are stronger they will behave differently next season. Whether they do so or no, it is evident that they require special treatment to get them to bloom satisfactorily. No fault can be found with the quality of the flowers; they are of large size and good form, while the colours are distinct and pleasing. I think that once the plants are of normal vigour they cannot fail to be useful.—J. C. C.

Gladiolus-flowered Cannas.—Intending purchasers of these beautiful flowering Cannas would do well to bear in mind that they can be sent far more readily at this season of the year when dormant than later on, and they can then be started and subjected to the treatment they will receive throughout the season. If obtained, however, a couple of months later they will then be growing freely, and apart from the increased cost of carriage the leaves are easily injured, added to which they may for propagating purposes have been pushed on in heat. If there is only a greenhouse available for their culture (in which they will do well), plants that have been coddled at first are never so satisfactory as those obtained when dormant and given throughout greenhouse temperature. These Cannas are rapidly increasing in popularity, and no wonder, for, apart from the handsome foliage common to all, the flowers are very showy, of various colours, and a succession is kept up for a long season. Liberal treatment is necessary to their well-doing, and then they give very little trouble and a good return in the shape of flowers. True, the individual blooms do not last long, but their place is soon taken by others. There is now quite a long list of varieties belonging to this group, and M. Crozy, of Lyons, to whom we owe the whole of them, still continues to put a few into commerce every year.—H. P.

Freesias.—The first year I tried to grow *Freesias* a complete failure was the result. In April or May of that year I received two pots of plants in full flower, and very fine they were, one of *F. Leichtlini* and the other *F. refracta*. After they had finished flowering they were placed on a shelf in full sun and gradually dried off. In August they were overhauled, the bulbs sorted, and then potted in the mixture generally recommended, and which I have since found very suitable for them, viz., loam, leaf-mould, well mellowed cow manure, and sand. The mistake was made of putting the bulbs into too airy a position, for though they will bear a lot of cold, anything like a draught before they get well started is fatal to their well-doing. The consequence was that the bulbs positively refused to start at all that year, although they were kept fairly damp. After several months I examined them, found that they were quite plump, but with no sign of root or shoot; and so they remained till the following July, when they were put into fresh pots and soil, the latter as moist as possible without being pasty, placed in the front of a cold frame, and very slightly covered with fine ashes in the same way, though not so deeply as Dutch bulbs for forcing are often served. After a few weeks

I had the pleasure of seeing them coming through the soil. The covering of ashes was then removed, and the plants remained in the frame until November, when they were taken into a greenhouse, where they flowered well. Since that time they have given very little trouble, except the annual sorting and potting—the plan of potting them on without shaking them out finding no favour. I have this year done without the covering of ashes, simply plunging the pots to their rims to prevent the soil from becoming dried up. At present, in a house, the temperature of which often goes down to 45° at night, our forwardest plants are strong, about 18 inches high, and the flowers are showing colour. I find *Leichtlini* slightly the taller and stronger of the two, though *refracta* is the favourite. The moral I gather from my experience is that the bulbs require a uniformly damp soil and a position free from draught in which to start them, plenty of water when growing, and a good ripening in full sun after flowering is over.—J. C. TALLACK, *Livermere Park*.

FORCING LILY OF THE VALLEY.

ALTHOUGH there are not so many failures as formerly in the production of good flowers of the Lily of the Valley during the early part of the year, yet there are gardeners who do not succeed, and the blame is generally attributed to insufficient heat in starting the crowns. A certain amount of heat is undoubtedly required, but not to such an extent as some imagine. The want of moisture is the source of more failures than any other cause. When introduced into heat some are under the impression that the crowns must fail to start into growth before much water is applied, but this is a grievous mistake. I have often heard gardeners remark on the length of time the crowns remain dormant, often several months, but it is certainly their own fault. At one time it was thought to be very early to have Lilies in full bloom by the new year, but now there is not the least difficulty in producing them by the middle of December. At this early date the foliage is not developed so well as in the new year, but from this time onwards there is not the least difficulty in getting the majority of the crowns to produce foliage in conjunction with the flower-spike. I place sixteen or eighteen crowns in a 4½-inch pot, these being arranged equally. The soil must be pressed very firmly about the roots and base of the crowns, which must be quite two-thirds out of the soil. A thorough watering should now be given, and the pots plunged in Cocoa-nut fibre refuse out in the open air, which has the effect of plumping the crowns up so as to be in good condition for forcing. The structure where I force our Lilies is kept at a temperature of 60° to 65° during the night. A propagating frame is in the house, where the bottom-heat ranges from 75° to 80°, and a portion is partitioned off, so as to enable the space to be confined and kept dark with a close covering. Within this enclosed space the pots are plunged and the crowns covered with Moss. The soil is kept constantly moist by giving a thorough watering every morning with tepid water. As soon as the growth has drawn out to about 4 inches, the pots are taken out and placed in the case with the glazed covering for about three days which has the effect of inuring the blanched growth to the light. Each pot is now placed in a saucer, which is kept constantly filled with water on a shelf near the glass. Flower-spikes and foliage now fully develop, the latter being of a good colour. If now placed in a cooler temperature the spikes of bloom last much longer when cut. RURAL.

Anoplophytum amœnum (*Vulcan*).—This appears to be the species you send. It is a very pretty plant and you have treated it quite right, but I cannot advise you about making cuttings. This is Ed. Morren's name, and he figures it in the *Belgique Horticole*, 1884, t. 17, but it is called *Tillandsia pulchra* in Baker's enumeration, and put into the sub-genus *Anoplophytum*. There are several very handsome kinds, amongst which may be named *A. incanum*, *A. strictum*, *A. geminiflorum*,

&c. All are plants that will succeed on a block or raft, give very little trouble, and present an interesting and cheerful appearance.

BASKET PLANTS.

At this date when other work is at a standstill through the severe weather, much time can be saved by preparing baskets and pans for plants, also cutting up sticks and pegs. Many handy garden men can make a basket, and a stronger one than is often bought, and when it is well covered the wires are not much seen. There are now so many plants for this form of decoration that to name them all would fill up a large space. Last season I saw some beautiful baskets filled with single and double Ivy Pelargoniums, with a few small creepers for bottom covering. For exposed places in the open, such as corridors and balconies, the small-leaved Ivies have a charming and lasting effect. *Tropæolum* are equally useful. The trailing *Myrsiphyllum asparagoides* is a pretty basket plant, and when once established gives little trouble, but, of course, needs protection. *Convolvulus mauritanicus* is also good, while many of the *Jasmines* and *Clematises* can be used with good effect. *Ruscus androgynus* (the climbing Butcher's Broom) is available for large baskets where a strong creeper is wanted. The *Plumbago*, when used for this purpose, seems to be in its right position, as it droops gracefully over the sides of the basket. The small varieties of *Passiflora* are also valuable. When required for permanent positions many of the hardier kinds of bulbs can be used in baskets for spring decoration. There are many plants in the fernery, such as *Aspleniums*, *Adiantums*, and *Davallias*, that are available. *Achimenes* are also most charming in baskets, and do better than in houses where stove heat can be given them. *Eschynanthuses* are most serviceable. *Torenia*s in variety should be raised for the same purpose, also plenty of *Selaginellas* and *Panicum variegatum*. G. WYTHES.

SHORT NOTES.—STOVE AND GREENHOUSE.

Tillandsia xiphioides (Kenny).—Plants of this come to me gathered in Buenos Ayres. It is a curious species with large snowy-white flowers, yielding a delicious perfume. The plants should be fastened upon blocks of wood and sprinkled occasionally.—W. H. G.

Tillandsia Lindenii var. *Regeliana* (Cannes).—This differs from the type, *T. Lindenii*, of which a coloured plate was given in THE GARDEN, Jan. 17, 1890, in having a much narrower spathe. The flowers are of a paler blue and the white eye is much larger. All the varieties apparently make very few roots; they thrive best upon a block of wood.—W. H. G.

Anoiganthus breviflorus.—This is the proper name of the handsome bulbous plant alluded to at pp. 44 and 76, and not *A. brevifolius*. I am trying it and many of the *Cyrtanthi* in an unheated frame. Last year they went through the winter well, but I fear this one is too severe for them. As a safeguard, I have some of each on a cold greenhouse (45° to 50° Fahr.) shelf, and that is a place where it is always prudent and safe to winter *S. African Amaryllids*.—JAMES O'BRIEN.

Euphorbia jacquiniæflora.—It would be impossible to over-estimate the value of this plant. One of its greatest charms consists in its coming into bloom at the very dullest time of the year—from November till February and March. The flowers of this *Euphorbia*, which are suitable for almost every kind of decoration, stand a long time when cut in a moderately warm room. Few things pay better for growing than this *Euphorbia* when the amount of bloom at the dull season is taken into consideration. It lends itself to either planting out or pot culture. The former plan gives the best sprays, although when grown in pots the plants are often more serviceable, as they can be used for house furnishing, &c.—DORSET.

Pitcairnia flavescent (Goetze).—This is the name of the specimen sent, the raceme now being about 9 inches long. The calyx is yellow, with long petals of a primrose colour, and with the stamens also yellow. It is a strong-growing species, forming a dense rosette of leaves upwards of 2 feet in length. These are bright green on the upper

side, white beneath, the scape rising from the centre. If taken care of to prevent the leaves being broken, it is a charming plant for a stove. This species should be grown in a pot.

KITCHEN GARDEN.

MANURES AND THEIR APPLICATION.

The application of manure suitable for the various spring crops in the kitchen garden will now be engaging attention, and various will be the materials brought into requisition. Manure, as a rule, is applied at the time of digging, and but for the severe weather this, no doubt, would have been performed ere this in many gardens. I very much doubt if the too early application of manure before cropping, as obviously necessary when early digging is done, is beneficial to the crops. With light or sandy soils I am certain too early manuring is a mistake, as before the crops have come to maturity the principal virtues of the manure will have been exhausted, and at a time when most wanted. Market gardeners in the neighbourhood of London very rarely apply the manure long before cropping. I am well aware that in many gardens where labour is somewhat scarce the digging and manuring have to be performed as opportunity offers, and generally the earlier the better, as if this was not done the work probably would be much in arrears at the busy season of the year. This is the only excuse that I can see for early manuring.

The too early wheeling out of manure is another mistake, at least where it is spread over the ground in small heaps. With the advent of frosty weather advantage is generally taken of the opportunity offered of getting the manure on to the ground. Certainly there can be no mistake in this, but there is in placing the manure in small heaps, especially early in the season when the frost is likely to be prolonged. In this way the virtues of the manure are wasted by being evaporated into the atmosphere. The best system is to wheel into one or more heaps, according to the size of the plot to be manured.

MANURES.

Farmyard manure is a commodity which all gardeners cannot procure, but where such can be obtained in fair quantity there can be no doubt of its being the best for kitchen garden crops. Cow and horse manure in about equal parts come next. Stable manure is the usual material at command, and very often not a great quantity of this, especially where the principal part of the droppings has to be used for the formation of Mushroom beds and the bulk of the remainder of the litter for hotbeds.

The manure must not be allowed to remain in bulk very long for fear of becoming overheated, as when such is the case the greater part of the virtue is lost. The heap must be turned as frequently as occasion requires. Where there is convenience, a tank or catch pit should be provided so as to secure all the drainings, which should be thrown back again over the heap. Old hotbeds composed of stable litter and leaves generally have to be used up in the kitchen garden, where manure is scarce, but these are not very rich, and, excepting for Potatoes, such material is more useful for the flower borders. Leaves, which probably have been collected together in large quantities and become over-heated, are often used, but, unless for very heavy soils, I have not much faith in them. Decaying kitchen garden refuse and rubbish from lawns and pleasure-grounds, &c., are also often used, but their manurial value is very small, especially where used on lighter

land, and to some crops, where it is used year after year, it is injurious, and a disease which has been rather prevalent of late years among Peas has been traced to this source. Where such material has to be used, all the rougher portions should be burnt and reduced to ashes, and the remainder have a good dressing of fresh lime. Gardens manured with such material would be much benefited by applications of lime or a dressing of steamed bone-meal or, what would be better, superphosphate of lime. On light or peaty soils the above additions would be of marked value, especially for such crops as Peas or Beans. In the neighbourhood of large towns the road-scrappings, especially when they can be procured in a dry state, are excellent for improving soils.

Soot is a capital fertiliser for the majority of kitchen garden crops, but private gardeners, as a rule, do not give it the attention its merits deserve, market gardeners and farmers being more fully alive to its value. For dressing crops on our heavy limestone soil I save all I can get. Nitrate of soda will also assist some crops wonderfully, but must not be applied to roots of either Peas or Beans, or a superabundance of top-growth would be the result. As a stimulant to a bed of spring Cabbage which is backward in growth or in a stunted condition, the improvement is very marked, the plants forming hearts more quickly and taking on a dark healthy colour. The best Peruvian guano may also be used for the same purpose. Salt in moderation and on some soils is also good for Seakale, Asparagus, and Celery. A. Y. A.

SEAKALE.

THE value of a good stock of this vegetable is clearly demonstrated in such a season as the present when the other sources of supply are considerably diminished in many instances. Seakale is easily grown and forced where moderate means only may exist for either the one or the other. Being a thoroughly hardy vegetable, there is no fear of injury in the severe winters, this in itself being an important point. A supply can be kept up from the beginning of December until the end of April if needful, although in average winters it would be of most value from December till March. The Broccoli would during April supply its place as a white vegetable. After such a sharp turn of wintry weather as we have had of late a large number of Broccoli will, I fear, suffer severely. Such is already apparent in our case at least. When, therefore, there is a good stock of Seakale for late use, it will in such a season prove most serviceable, not only taking the place of the early Broccoli, but that of Celery, which I think is also hard hit.

FORCING.—In order to be on the safe side for early forcing, a good stock should be got out of the ground in November as soon as the leaves die off. What is not required for forcing at once can be kept in a cool place and covered with moist soil until needed, guarding, of course, against frost. Care is essential in digging up the plants for forcing to preserve sufficient roots as well as to obtain the required quantity of sets for the following season. When a good length of root can be had the growth is all the stronger, and the thong-like roots of the past season's growth when they can be had of good length make better sets for the next year. In digging up the Seakale for forcing, the work may be forwarded by taking out a trench in a line with the rows, as if the ground were to be double dug. It is easier then to get at the plants without breaking off the roots, all the small pieces of which should also be picked out, so that no future trouble is given amongst another crop, as small bits even will grow. In forcing, various modes may be adopted, according to the convenience of the place. A dark cellar or the Mushroom house are preferable to any means in which shading has to be employed to maintain darkness. I have

grown it very well indeed in long boxes filled with soil, these being stood upon the pipes in a Mushroom house, no fermenting material being used in such a case, but a plentiful supply of water given. This is about as simple a way as can be adopted where it is possible. I have succeeded well with it when a bed of leaves and manure was made up upon a Mushroom house floor, the same bed generally availing for at least two crops. In this case one good watering and frequent sprinklings afterwards were the rule, the bottom-heat at first ranging about 80°, not much, however, above that. I am now trying another plan. Having a large water tank for supplying heated water at my command, I have covered it over securely and closely, so that no heat escapes. Upon this I have made up a bed about 10 inches deep with soil which, although only made up a few days, is already at about the right temperature for the Kale. I believe I have hit upon the best plan I have yet tried, the moisture arising from the water and its warmth having a beneficial effect. The tank being at one end of the Mushroom house and in total darkness, no other trouble is needed, and as there is room for at least 400 sets when filled up, a good supply can be maintained without extra attention. I have also forced it in plant houses under Seakale pots, but do not like this plan. I have found it to do well in frames upon a bed of fermenting material, but when once the heat declines extra attention is necessary to keep all going in proper order. Later crops I find to do exceedingly well in a cellar with an average temperature of from 50° to 55° without any bottom heat. Forcing Seakale in vineries which are moving can also be carried out without much extra trouble. For such a case, a large box of good depth with its bottom taken out could be stood upon a bed of leaves, taking care after the Kale is put in to keep all in darkness. I do not care for the plan of forcing upon the ground where it is grown. It gives much extra trouble, not to say anxiety, in very cold weather to keep up the necessary heat without getting too hot. Forcing as adopted by the large market growers in large beds cannot be recommended for private use. It answers in the bulk very well no doubt, but would not pay when a less quantity in regular succession is wanted.

NATURAL GROWN SEAKALE.—By this I mean that which is cut from the plants in the open without any forcing at all. The supply thus obtained is often the best, as the growth is stronger towards the spring. This can be done either by using Seakale pots or with flower-pots inverted upon the crowns. In the latter case it is only necessary to stop the drainage hole with a lump of clay. Either of these plans should be carried out as soon as growth is apparent, but before this occurs a few ashes should be covered over each crown. This not only darkens the plant, but acts as a preventive against injury from slugs. First-rate cuttings may also be had when leaves only are used; in fact, where a good stock of Oak or Beech leaves are available, I would not desire anything better. These must, of course, be covered with litter to keep them in their places, but need not be of any great depth, 6 inches deep being quite enough. The growths will indicate the fitness for cutting by the lifting of the leaves into mounds as they progress. In such a case I would dust the surface well with lime before the leaves were applied, only covering a part of the stock at one time, so as to prolong the cutting in good condition. That which was covered last would in all probability be fit for cutting first, having somewhat advanced before being covered at all. I have further prolonged the supply when needful by taking up some crowns and laying them in by the heels in a cool cellar; afterwards, as wanted, they have been put in a rather warmer place in soil and well watered, coming in for cutting when all the outside lot were over. This is an excellent plan when there is a good stock and the vegetable supply is rather deficient in other things.

PROPAGATION.—I prefer sets decidedly as compared with sowing the seed, finding that I can thus get stronger plants in the first season. For the sets I select the strongest bits of roots available after

the crowns are lifted and trimmed for forcing. This I always like to get done as soon as possible, looking after all the promising roots from the early-lifted plants. I prefer to make the sets at least 6 inches long, short sets making short plants for lifting the next year. The top end I cut across square, the bottom end in a sloping fashion; thus no mistake is made if they are laid aside for a few days afterwards. This, however, should not be the case if it can possibly be avoided, immediate insertion in soil being far better. I prefer to use boxes which are filled with fairly good and fine soil for this purpose. Into these I put the sets pretty thickly, but not touching each other. One watering is afterwards given, and then the boxes are placed in a cool cellar where early in the spring a forward growth is started, commencing at first by a ring of young buds clustering around the upper end. By moderately encouraging this early growth some two or three weeks are gained, and this is an important point in securing a strong lot of crowns for another season's forcing. Well-grown, one-year-old plants are always fit for early forcing, but when a little time is gained at the start, as instanced, the plants have an opportunity of becoming even stronger still. I prefer to plant out the sets as early in March as possible when the soil is in good working condition. When depending upon seed-sowing for a crop of plants, it is not much use to sow earlier than that time with a risk of not getting such an even plantation. If the Kale is intended for taking up to force I plant the sets 1 foot apart each way, but a little farther between the rows, and three sets in a triangular fashion when it is intended to be covered with pots for cutting upon the ground. The sets are just covered with fine soil, all having been trodden firmly before planting, as with an Onion bed.

AFTER CULTIVATION.—This consists chiefly in keeping down the weeds and in not omitting to thin out the growths to the strongest one upon each set in good time. A free use of the hoe is always beneficial as long as it can be worked between the plants. Before the growth has appeared above ground I have given a fair sprinkling of salt with good effect, the Seakale being a saline or salt-loving plant. This acts as a manure, besides keeping in check the earliest of the weeds, which would otherwise appear pretty thickly when it would not be very safe to use the hoe for fear of injury to the young shoots just appearing above the soil. I have never found it necessary to water this crop during its growth, it being generally well established before dry weather sets in.

SOIL, &c.—A deep rich loam is best for obtaining extra strong growth. Such soil needs but little manure. Having to grow mine upon a shallow and gravelly soil, I am obliged to manure pretty freely, or the growth would be poor. I prefer farmyard manure to any other, but always add a dressing of lime and soot, the soil being much infested with wireworms. Since using these agencies the growth has greatly improved. In preparing the ground, my plan is to dig as deeply as possible with the spade, then follow with a digging fork sideways in the open trench. Thus at least 20 inches in depth is moved and well broken up. This work should be done in time for the ground to settle before planting. Change of ground every season is not absolutely essential. I prefer it to be so, but have succeeded very well when keeping to the same piece for a few years. Those plants which have been cut from upon the ground will, if allowed to remain, make very good stuff for early forcing another season, and also supply good material for the next batch of sets. In conclusion, I might note that in cooking Seakale it is needful to use a plentiful supply of water, otherwise it is apt to be bitter. Seakale should not be cut any longer than can be avoided before it is cooked, otherwise it becomes limp and loses in flavour. Neither should it be permitted to get extra long before being cut, as if so, it will have to be cut in two, and this is not advisable. For general purposes I have found the old variety to be still the best. I consider it is of a hardier constitution than the Lily White. This latter variety I am fully aware is an excellent one where it

succeeds. Probably in more favourable soil it proves to be of better growth than with me, as mine does not grow so strongly as the type.

J. HUDSON.

ORCHARD AND FRUIT GARDEN.

PEAR TREE TRAINING.

IN the matter of training Pear trees gardeners in this country are very slow to change their ideas and methods, this being more especially in relation to those grown against walls. Evidently we are far behind our neighbours the French in this respect, who seem to have special aptitude for this kind of work. There is no reason why we should adopt their fantastic styles of training, but most of our garden walls and other available sites would be far better furnished if some of the French methods were more generally followed. The horizontally trained tree is to be most frequently seen in our gardens, and next to these irregularly fan-shaped specimens prevail, while occasional instances of walls being well covered with cordons with one or more branches are to be met with. Of these three styles of training, the last, or that least often adopted, in addition to being extremely simple, is also the best calculated to furnish the walls the most closely, though fewer mistakes would be made with the other methods if the trees were not expected to do too much. Under very favourable circumstances, horizontally trained and fan-shaped trees might cover a 20-feet width of high wall, but more often than not they fail to do so. Not unfrequently, those who plant them are unaware or indifferent as to the stock the trees are grafted on, yet this ought to make a very great difference both in the manner of planting and subsequent treatment. As a rule, horizontally trained trees on the Pear stock ought to be not more than 18 feet apart, the fan-shaped trees being 14 feet apart, and should the border not be largely composed of fresh good loam, then would I plant them yet closer together. Instead of allowing those on the Quince stock much the same amount of space, these ought to be located at least 6 feet nearer together all round, or have upright cordons planted midway between them.

In very many cases, however, the mischief, if mischief I may term it, has already been done, and my object in penning this paper is to offer suggestions as to how best to remedy any errors of judgment that have been committed, at the same time commenting favourably on the class of trees known as Palmette Verriers. By the adoption of this style of training and the aid of a few more trees comparatively high walls can be both quickly and simply furnished with bearing wood, and I believe I am right in stating that it is this plan of training or slight modifications of the same that finds the greatest favour with French fruit growers. Even with this style of training, each individual grower should use a certain amount of judgment, first, in the selection of trees, and again with regard to the proper distances at which to plant them apart. It is almost needless to add that those on the Quince or dwarfing stock are the first to come into good bearing, and in addition are most to be commended for either shallow soils or low walls. The soil being of good depth and a height of wall well above 9 feet available, it is advisable to largely plant trees on the Pear stock, these eventually developing into handsome productive specimens. The latter are capable of forming from twelve to sixteen branches, 1-foot run being allowed for each branch, while those on the dwarfing stock may

well be confined to eight branches or even less. Where, therefore, a number of young horizontally trained trees are already disposed 16 feet apart or thereabout, the method of training I am about to describe may yet be adopted, more trees on the Quince if need be being planted midway between them and all similarly trained.

If the selection is left to a nurseryman, the chances are a mixed lot of trees will be sent; whereas what is particularly to be desired are comparatively young horizontally trained trees with low stems. I prefer those already furnished with two pairs of branches and the usual strong leader, the lower pair being not more than 9 inches from the ground, and order these accordingly. There is no very strong reason, however, why somewhat older trees or those with three pairs of side branches should not be planted, but I find the younger trees, as a rule, take most readily to their new quarters and are most amenable to the style of training adopted. Those who know how to proceed with the pruning and formation of ordinary horizontally trained trees need little or no advice as to how to go to work in the laying the foundation of either a large or small Palmette Verrier. The

down to a horizontal position must not be long deferred, or the branches will become too set to train as required. The lower pair of branches will have eventually to complete the outline of the tree—at any rate as far as to two sides out of three are concerned. When these have reached the limited width, the points should have a sharp curve given them, so as to bring them into an upright position, and all that is necessary afterwards is to continue them as straight as possible till the top of the wall, fence, or espalier is reached; the next pair of branches to be taken to within 1 foot of the outside pair and then trained uprightly, a similar course being pursued with the rest till all the width is occupied. Nothing can well be more simple than this.

Having taken our ideas from the French system of training the trees, it may seem somewhat ungrateful to find fault or differ with them in their method of pruning. French growers not only shorten the leaders at the winter pruning, but the side branches are also lightly pruned, with the idea that shortening the most vigorous more freely than the more weakly ones checks the growth of the former and promotes the vigour of the latter. With this I cannot

turning the branches round the angles of a wall have invariably led to that portion of the tree becoming by far the most productive.

W. IGULDEN.

MADRESFIELD COURT GRAPE.

It is generally admitted that the above excellent Grape is about the best mid-season variety in cultivation, taking into consideration the quality of the fruit, size of berry, and excellent colour. What more could be wanted? It has a defect, however, viz., that of the berries cracking when about half-coloured. This is a bad defect, I must admit, but yet one that I think can be overcome. On account of the above fault many people have discontinued its cultivation, which is to be regretted. My employer has taken such a liking to this variety after the early Hamburgs, that in addition to the Vines we now have, I am thinking of devoting a whole house to its culture, and this by grafting it on to the Black Hamburg. These Vines are now young and vigorous, having been only planted four years. Madresfield Court also does admirably when grown in pots. To ensure perfect colour in the berries, a greater amount of fresh air appears to be necessary than with other varieties. The theory of too much water when on the point of colouring has been put forward as the cause of the cracking of the berries, the flow of sap being too great. To obviate this a lessening of the water supply, cutting half through the laterals, also drilling a hole with a gimlet through the centre of the lateral and an unlimited run of sub-laterals have been recommended, but cracking still goes on. The fact is, the fault is really atmospherical. When growing in a mixed house of Vines, the same treatment which will swell up a Hamburg to its full size causes cracking in the Madresfield. This is very disappointing, as just at the time when the grower is thinking of reaping his full reward in having perfect examples, one morning he may find to his dismay on entering the house several of the most prominent berries cracked, this entirely marring otherwise perfect examples, whether required for exhibition or home consumption. I have proved that the evil can be combated by the following course of treatment. As soon as the stoning process has fairly started, extremes of temperature or fluctuations must be guarded against. One of the principal is to prevent the temperature from unduly rising in the morning before an increase of ventilation, and the other not to damp down and close the structure in the afternoon, so as to increase the temperature even 5° or 10°. However mild the night a little heat must be kept constantly in the pipes with a little top and bottom ventilation on, to be increased more fully when colouring has fairly started. Early in the morning increase the ventilation before the sun has power to raise the temperature. In the afternoon as the sun loses power, the ventilation must be decreased by degrees, taking care that the temperature does not rise above the point to which it was before ventilation was decreased. Moisture must be prevented from condensing on the berries.

RURAL.

Black Hamburg as a late Grape.—It is not often that this variety is seen in good condition as late as the middle of January, but such was the case on a recent visit to Trentham. Many bunches of this variety were hanging upon the Vines in very good condition indeed, and far superior in flavour to many of those sorts which are termed late keepers. The Hamburgs were juicy, sweet, and still maintained that agreeable taste which this good old kind is notable for; even though the skin of some of the berries exhibited slight signs of shrivelling. The bunches were not large, but had been well thinned, which added to their keeping qualities by allowing so free a circulation of air amongst the berries, that damping by crowding was reduced to a minimum. At Trentham, the flavour of this Grape is much preferred to that of Lady Downe's, for instance; hence the keeping of the fruit of this kind as long as possible. Madresfield Court, growing in the same house, does not prove nearly so good a keeper as the Black Hamburg, neither in



Pear Triomphe de Jodoigne in palmette form.

number of side branches required must be determined by the width of wall space to be covered, and all that is needed to obtain these is to cut back the leader each winter to within 12 inches or rather less of the last formed pair of branches. Supposing the tree to be in good health, this pruning will be followed in due course by the production of several shoots near the end of the leader. Select the two best placed, one on each side and about 9 inches from the branches below, and also a good central shoot as a leader. Train the two former somewhat obliquely and the leader uprightly, stopping or removing any other shoots there may be in order to let those reserved have the full benefit of the tree's energies. The French growers usually leave a central branch to their trees, but each time I have also left the leader to complete the outline of a tree, this has invariably grown too vigorously, robbing the side branches accordingly. I prefer, therefore, to so arrange the spaces as to have to lay in two side branches only after the final pruning of the leader. During the first two or three years the side branches have to be trained obliquely, laying them in horizontally checking their progress considerably. Bringing

agree, and I much prefer to lay in the leading young growths on side branches to their full length each season till the top of the wall is reached. To hard prune stout shoots is only a good method of increasing the vigour of subsequent growths, while if only lightly pruned they break near the cuts only, the rest of the shoot being naked ever after. Once they have taken the lead they will usually keep it, and the best plan is to allow all alike to extend as they will. Left to their full length each time, the chances are that either young growths or, better still, fruit-buds will form at each joint, and in any case a straight, well-furnished branch is obtained. Stopping the strong branches when their limit is reached, side shoots also being kept within bounds, will soon lead to increased vigour in the rest, and in time there will not be much difference observable.

A rather sharp curve being necessarily given to all the branches serves to check a too free flow of sap, and the trees are likely to be more productive than is the case when no such obstruction to the free movement of sap is offered. If there is any need to demonstrate this fact we have only to point to numerous instances where

plumpness of berry, nor in flavour, which was somewhat acid, certainly not at all pleasant to the palate. The berries, too, had shrivelled and dropped off, so that the bunches were much disfigured.—E.M.

THE QUINCE AS A STOCK FOR THE PEAR.

I HAVE taken some trouble, which has extended over several years, to ascertain the average life of the Quince stock when used for the Pear. I was under the impression that the Quince had a short life when used for the purpose indicated, and I think that is the opinion held by many cultivators. I do not say that the opinion is erroneous, as it has been, no doubt, justified by the examples that came under notice. I find that trees on the Quince will remain much longer in a vigorous condition in a rich, deep, and fairly moist soil than in a lighter and drier medium. I think that those who say that the Quince is not a durable stock for the Pear, must have drawn their conclusions from trees growing in a light soil. I find that cordon Pears on the Quince are the first to show signs of weakness, the restricted character of this form of tree being, I think, quite sufficient to account for it. The next form that shows the influence of severe pruning is small bush or pyramid trees. In the year 1859 I planted a long line of bush and pyramid trees alternately. I had an opportunity of seeing the same trees last autumn after an absence of many years. Some of them had disappeared altogether, while the majority of those left presented a stunted and starved appearance; the few fruit they were bearing were cracked and worthless. I think that if Pear trees grown on the Quince were to be allowed to grow to a fairly large size, more sorts would thrive on that stock than is generally supposed. It is the persistent system of annual pruning that shortens the lives of the trees worked upon the Quince. As a proof of this, I know a rectory garden where the cordon trees are every year getting weaker, while trees of the same age taken from the garden to the orchard after they had been allowed to form a main stem in the form of a standard, the horizontal branch having been cut away to allow them to do so, are in the most vigorous and fruitful condition. It is altogether wrong to attempt to get a long-lived and fruitful Pear tree on the Quince stock if the branches are to be restricted to a limited space. While saying this I am well aware of the influence of the Quince as a stock in promoting early fruitfulness. I am not, however, discussing that point. What I want to show is, that in the majority of cases so far the Quince as a stock for the Pear has not been properly tested. The early fertility of trees worked upon the Quince has so far been the one redeeming feature. I think I shall be able to show that its enduring character when planted in a suitable soil has not been fully recognised. Pears on the Quince are only fit for planting in a rich, deep soil that is fairly holding in its nature. Given such a root medium, the future behaviour of the tree is in the hands of the cultivator. If the growth of the branches be restricted by severe pruning, a fertile tree may be obtained in two or three years, but it will be short-lived compared with one that is allowed to grow to something like natural proportions. Personally, I do not care for the Quince as a stock, as it does not adapt itself sufficiently to a variety of soils. The best evidence perhaps that I have been able to get of the enduring character of Pear trees worked on the Quince is to be seen in the garden at Wilton House, near Salisbury. At this place there are some very large pyramid trees which Mr. Challis, the gardener, told me were 90 years old, yet as regards health and productiveness they are as satisfactory now as at any time previous. I must, however, mention that the trees are above the ordinary size, some of them being as much as 14 feet in height, with a proportionate spread of branches. Their age and condition conclusively prove that when the trees on the Quince are treated in a proper manner they are not so short-lived as is commonly supposed. J. C. C.

Apricot Moorpark.—Having noticed that I am likely to lose several branches of my trees of

Moorpark Apricot from canker, I should like to ask in THE GARDEN whether this variety is given to the same disease in all parts of the country alike, or is it only in certain localities? Here the soil is of a strong, rich loamy character, said to contain plenty of lime; and judging from trees in this district, Apricots (Moorpark excepted) thrive admirably. Twelve months ago I partially lifted three trees, relaying the roots in fresh soil, gave a good mulching of manure, and watered them freely through the growing season; yet, as above stated, I shall lose several branches. Neither of the other four kinds that I grow shows any trace of canker. Is there any other variety of Apricot that is equal to Moorpark in size and quality of fruit?—J. HINTON, *West Worcestershire*.

PERMANENT POT VINES.

FOUR years ago I had to replant a long range of vineries, and in order not to leave a greater break in the supply of Grapes for the autumn than could possibly be helped I had previously grown a number of pot Vines, chiefly Alicante, Lady Downe's, Muscats, and Gros Colman to fill up the gap. I also made provision to grow an equal number for the following year, but unfortunately the plants failed altogether through the attacks of that insignificant, but dreadful little pest, which occasionally plays such havoc among young Vines.

I still had by me the Vines fruited in pots the previous year, and as the spurs were fairly strong and seemed well ripened with small, but plump buds, I decided to give them another trial. They were pruned, and in due course started into growth, certainly without expecting much from them. In this, however, I was agreeably surprised, as they carried heavier crops the second year than they did the first. The Gros Colman would average at least 8 lbs. of splendid fruit to the plant.

Last year was the fourth year, and they produced fruit equally as good and abundant as they did the second year, and from present appearances they will go on fruiting if wanted for any length of time. The treatment the plants received was as follows: Before starting the second year, nearly half the old soil was taken out of the pot, and the space filled up with stiff loam and a liberal admixture of bone dust; another pot (8-inch) was placed on the top of this, the cane run through the hole in the bottom of the pot, and filled with a similar mixture. Towards the beginning of June I was pleased to see a regular army of voracious roots digging into the top pot from the stem of the Vine, which it soon filled, necessitating a top-dressing of a layer of clay and cow manure above the rim of the pot, which in its turn again was soon filled with roots. The plants were watered three or four times a week with moderately weak manure water. As soon as the fruit is cut the plants are placed out of doors against a wall, the pots being protected by leaves and litter, and in starting again in spring they are treated in the same way, namely, the soil taken out to half its depth from each of the pots and replaced with the rich soil previously mentioned.

That Peaches, Plums, Apricots, Pears, &c., can be, and are, successfully grown in the same pot for many years is well known, but that Grapes can be grown on the same principle is, I think, not so well known, and the discovery, if it can be called such, opens out a very interesting prospect in Grape culture, and will, I think, especially commend itself to amateurs who wish to grow Grapes as a recreation and from a love of the art, and whose glass conveniences are on a limited scale. In a comparatively small house many Vines of this description might be

grown, and to those who have a weakness for many varieties this could be indulged to its fullest extent by this method of culture.

The Gardens, Chatsworth. OWEN THOMAS.

EARLY MELONS.

WITH the advent of the new year we are reminded of the commencement of another Melon season, and where ripe fruits are required during May it is full time a batch of plants for affording such supplies was attended to. The raising of a batch of early Melons is not such a formidable operation as formerly, when hotbeds had to be called into requisition for the purpose. Even with hotbeds I have known good Melons to be cut at the end of May. What with our improved systems of heating and suitable structures in almost every garden, the task is easy enough. That some succeed better than others cannot be disputed, but with ordinary care there should not be the least difficulty. Some growers have almost as many varieties as plants, but this, I think, is a mistake. By all means try a novelty, but rely on a well-tried variety for the main supply. This will be found much more satisfactory where Melons are appreciated. I have selected a variety which I can depend upon being approved of when sent to table, and as it is equally satisfactory as regards cropping qualities, handsome appearance, and good constitution, it will have to be a good one to displace it. I make a selection of the most characteristic and handsome in appearance each season for seed, and as I grow no other it is certain to be kept true. Where numbers of varieties are grown together they must intercross. That Melons are not better than formerly is a well-known fact, although new ones are certificated every season. I fully believe that it is necessary to bring out fresh varieties, as if this was not done in many gardens there would be a mongrel lot, simply on account of the intercrossing of varieties.

SOWING THE SEED.

Instead of sowing several seeds in a 5-inch or 6-inch pot, to be potted off when large enough, I prefer to sow singly in a 3-inch pot, using soil of a heavy texture without the admission of sand or leaf soil. The soil should be in a rather moist condition, but not sticky, as it should not be watered until the seed leaves show above ground, or the seed is apt to rot. It is a common practice to half fill the pots and earth up as the seedlings advance. I think this is bad practice, and also a source of canker later on. The pots should be filled, and as the seedlings increase in size, give support with a neat stick. At this stage the little pots are plunged in cocoa-nut fibre refuse up to the rims in a shallow box, this keeping the roots in an equable state of moisture. Place near the light, but not too near the glass to cause a chill. The night temperature should range about 65°, dropping to 60° on cold nights. We have now to consider whether the plants are to be grown on for planting out on hillocks or to be fruited in pots. Certainly more care in watering is requisite when grown in pots, but conveniences at disposal will decide the matter.

PLANTING ON HILLOCKS.

A large amount of soil is not necessary; indeed it is positively injurious, as the roots do not require a too liberal root-run. The soil selected should be of a heavy nature, or what we may term a clayey loam, this being quite rich enough without the addition of any animal manure. A little charcoal and old lime rubbish are all that is necessary. Our Melon houses are well constructed, being light and fully exposed to the sun, as well as being abundantly supplied with both top and bottom heat. Over the bottom-heat pipes are bricks, which are arranged openly for the heat to pass through. Along the whole house and to the width of 3 feet are placed well-worked stable litter and leaves, and occasionally leaves alone, to the depth of 2 feet, and firmly trodden. This will be found much more genial for the roots than placing the soil close on the bricks. Hillocks of soil must now be placed at a convenient distance apart, let-

ting them remain for a day or two to become warm. When ready for planting well ram the soil, as the Melon delights in a firm root-run. Deep planting, or up to the seed leaves, as often recommended, is, in my opinion, a fruitful source of canker. Plant so that the soil is about half an inch above the ball, well pressing, or rather ramming the soil, taking care that the hillocks are also firm. Place a neat stick to each plant, but do not secure to the trellis as yet, as the fermenting material may settle down. The plants should receive a thorough watering with tepid water, as, unlike other things, Cucumbers and Melons are benefited by watering immediately after planting. It may be necessary to place a piece of paper against the plants for a day or two if the sun should shine brightly, but this is all the shade that I ever give to Melons, however bright or hot the sun may be throughout the summer months. Melons revel in tropical sun, and it is only weakly or coddled plants which collapse. A night temperature of 65° or 70° on mild nights is quite high enough, allowing 5° or 10° by day or more with sun heat. Guard against high, dry temperatures from fire heat, as they are very hurtful. I never syringe the plants unless during a few weeks after planting. This, I am aware, is against the orthodox system, but I am convinced that it is injurious to the foliage in causing it to collapse before the fruit is ripe. It is impossible for Melons to be richly flavoured when the foliage is withered up or the plants nearly dead before the fruit is cut. For Melons to be full flavoured the foliage should remain firm and green up to the last, and this it will do by not shading or syringing, and by free, yet judicious ventilation, watering, and attention in inducing surface feeders.

SURFACE FEEDING.

When the roots appear on the surface a slight top-dressing will be necessary, taking care that this is kept away from the stem. But it is not until the fruit is set and swelling that I attempt feeding. The laterals must be thinly trained, rubbing out every other one as soon as perceived. Stop the lower side laterals at the second or third leaf, which will soon cause fruit blossoms to show, at the same time as others higher up the vine. When the fruits are setting, the atmosphere and the soil must be kept drier, with ventilation whenever it can be applied, even a little at night. All the fruits on each plant should be set within a day or two, finally selecting those which appear to be swelling evenly together. Feeding must now take place, and for this purpose there is nothing better than fine bone-meal. This must be sprinkled lightly over the surface of the hillocks, and almost as if by magic hundreds of surface feeders appear. These should now be top-dressed with about an inch depth of soil, and as soon as the roots take possession weak liquid manure in a tepid state must be applied occasionally. The fruits must be supported with strips of raffia, and as soon as they change colour stop applying liquid manure. The water supply must be considerably lessened, but not wholly stopped, sufficient being applied to prevent flagging.

MELONS IN POTS.

The pot treatment is similar to that given above, but the pots should be plunged in warm leaves. This is especially necessary for green-fleshed varieties, but scarlet-fleshed will do with drier treatment. These we have arranged along the kerb of Pine stoves or any similar position. With Melons in pots it is necessary to secure the earliest fruits, the laterals being also more closely pinched in. The secondary laterals, both of the plants in pots and planted out, must be kept rubbed out as soon as large enough to handle, so as not to interfere with the main leaves, as these are the supporters of the fruit.

A. Y. A.

Apple Mere de Menage.—This is a splendid winter Apple where it succeeds. It is of excellent appearance, high colour, and a first-class kitchen variety, cooking quite as well as could be wished, and keeping well until the end of February. The tree is a strong grower, especially as an extended bush. It will quickly run up 12 feet high, as its rate of growth is rapid. The extension method of pruning

seems to suit the variety, and it may be through restricting its growth so much with the pruning knife that it fails to fruit freely. Our trees of this kind required supports placed under the branches to bear up the crop of fruit.—E. M.

VINES FROM EYES.

No time should now be lost in making a start if it has not already been done in this direction. The groundwork will thus be made for a useful lot of Vines either for planting for the following year, or to be cut back and grown on into strong fruiting canes for the next year after that. It is quite possible—nay, I firmly believe it to be far preferable—to dispense with bottom heat throughout the course of pot Vine culture up to the fruiting season, and I would then only adopt it as an incentive to an early, even, and expeditious break. In making a start with eyes I think it decidedly a better plan to insert one eye only in each pot, these pots being what are commonly called sixties. The eyes should be just covered with soil as in the case of seeds, as the buds do not then become scaly or hard. A loamy soil with plenty of sand around the eyes will suit them; this should be made fairly firm when the eyes are put in and one watering given. They should then be placed in a position where but little water is likely to be required until the growth has commenced. Mine are now standing upon a shelf along the front of a pot vinery in full work; there they will remain till about 3 inches in height. After that I shall give them rather more light and pot on into a larger-sized pot when slightly more advanced. Then they will bear a rather closer atmosphere to encourage a quicker growth for a few weeks, afterwards to be rather more exposed, so as to prevent a spindly growth, all the light possible being given to further this end. Even if it is intended to cut them down it is just as well to have the growth as nearly as possible what it ought to be. When about that stage is reached, I am generally troubled with a very minute species of white spider. This persistently attacks the points of the shoots and quickly causes the leaves to drop, resulting in a blind lead if not stopped in time. The best remedy for this I have proved over and over again to be a bag of soot placed in the water tank. One of ordinary size would need from half-a-gallon to 1 gallon of soot. With this the young Vines should be frequently syringed, not only to check its progress where present, but to act as a preventive. This insect may at first be distinguished by a crippled appearance of the leaf, which has also a shiny and somewhat blistered look. After a few days the leaves fall and then the injury is more apparent. This species of spider, no doubt, does a deal of harm. It is not easily detected without any previous knowledge of it, being so minute (resembling a tiny grain of silver sand), thus causing no suspicion at first. Upon inspection with a magnifying glass these very small insects can be easily discerned, or if watched for a while will be found to be extremely active in their movements. By a constant use of the syringe this insect can be kept under. The young Vines should therefore be stood where they are easily reached with the syringe. Each one should have a slender stake as a support soon after the first shift is given. For early use as fruiters in pots from which to take ripe fruit in April and May nothing surpasses the Black Hamburgh in its colour or for general utility as a cropper and as a reliable sort. Foster's Seedling is about the best of the early white kinds, but I am strongly persuaded that in Diamant Traube we shall have a most superior white Grape. It is known to succeed well in pots and is also of a good hardy constitution. A few canes of Madresfield Court Black Muscat should find a place where the room is not too much limited. Beyond the four kinds named, I do not think it is advisable to go for early supplies, as they fulfil all the general requirements which can reasonably be expected in pot Vine culture. If the object be that of growing planting canes only, it is not essential to push the growth in such a rapid manner.

J. H.

Strawberry foliage.—One of the effects of the hard weather, and especially of the snow, has been to destroy generally all Strawberry leaves,

leaving the plants now seriously denuded of foliage. Probably no particular harm will result from this, as the foliage had done its work and it now remains for the crowns to produce new leafage, and with it bloom and fruit. The old foliage, under the influence of the thaw, is so rapidly decaying, that where the ordinary course has been adopted previously of forking in lightly between the plants a dressing of manure, the decaying leafage may well remain to protect the fruit later from the dirt and form a kind of natural mulching for the plants. I remember once inviting the opinion of so practical a gardener as the late Mr. Wildsmith as to the harm likely to result from the removal of old leafage from Strawberry plants in the winter. He remarked that as new crowns produced their own leafage, he thought the loss of the old foliage to be of little consequence. There is none the less room for an expression of opinion on the part of Strawberry growers as to what is likely to be the effect upon the anticipated fruit crop of this general destruction of leafage. Probably, should any harm result, it will be through the special exposure of bloom, because devoid of protecting foliage. The bloom usually comes a little in advance of leafage, but still the new foliage comes rapidly after, and ere long gives that protection which the severe weather has removed by the destruction of the old foliage. We may find it to be desirable to note during the ensuing season the varying products of Strawberry breadths, and thus see in the most practical fashion how far loss of leafage militates against fruit production or otherwise.—A. D.

TEMPERATURE FOR VINES AND DISBUDDING.

IN THE GARDEN, January 17 (p. 51), "Practical" makes the following remarks on pot Vines: "There is no necessity for, or wisdom in, admitting air when the sun shines brightly, an increase of temperature for a short time doing more good than harm." Further on, on same page he advises giving a chink of top air at 11 o'clock for an hour or so. Now I have always advised my men to give a small amount of air and followed the same practice myself, weather permitting, if only for a few minutes, as a little fresh air, I hold, is beneficial in sweetening the atmosphere, and thus promoting a healthy growth. My practice may be wrong; still I mean to adhere to it. We often get a few hours of bright sunshine during January, and to keep pot Vines without air with the given temperature of 75° by fire-heat, I see no reason when the thermometer is over 80° why a chink of air should do more harm than good, as I maintain it strengthens the foliage, and thus gives a corresponding strength to the bunches, for without good foliage we can hardly expect good berries. I have for many years observed that our best Grape growers advocate giving air when the temperature has been raised by sun-heat. For the past few weeks, unfortunately, we have had little sun, and have been obliged with early pot Vines to keep the houses close, and as most cultivators know, this carried to excess means weak flabby foliage. I, like others, was glad to see the sun and feel its warmth. The Vines do much better when a little fresh air can be admitted daily, at the same time keeping up the temperature. Our best Grape growers advocate, and rightly so, a chink of air left on the vineries all night long, in order to create a sweet atmosphere for the Vines. Where this practice is carried out the foliage is in a healthy condition, and scorching is a thing unknown. Why air should never be admitted I cannot tell. No doubt it is "Practical's" wish to hasten on the Vines as much as possible, and thus get early fruit; but I maintain that a little air judiciously given will go a long way to bring about the desired effect, and also give a better finish to the fruit. During easterly winds when the Grapes were in flower the advice would be good to a certain extent, but even then we give a little fresh air daily if it can be done with safety. I also disagree with "Practical's" remarks as to disbudding when he states that not much disbudding is needed in the case of pot Vines. I maintain that the Vines should be disbudded, and only a moderate amount

of bunches, say five or six, allowed on the Vines. All superfluous shoots should be removed, as it is impossible for a pot Vine to finish the bunches properly if the Vine is covered with a multitude of shoots. I do not mean that the Vines should be restricted to the five or six shoots with the bunches on, but that a fair portion of shoots should be left, so as to distribute the sap equally up the cane, removing all others. The Vines having only a limited quantity of roots in a small space will only supply a certain amount of nourishment, and if not disbudded the Grapes will not colour properly, and most likely shank at the finishing period. Pot Vines are often grown on pipes, or in beds, or in places where it is impossible to give the roots from the bottom any assistance in the way of rooting material, so that the disbudding system is imperative. Much can be done by top-feeding, but all that can be given is needed for the production of well-finished bunches, so that, I maintain, thinning the shoots must be resorted to. Vines that are not disbudded soon flag with hot sunshine, as the roots are unable to bear any strain when a sudden change of temperature occurs. POT VINE.

ROSE GARDEN.

SELECTION OF ROSES.

I QUITE agree with Mr. C. J. Grahame in his main object, viz., to reduce Roses to a hundred varieties or even fewer if possible for general cultivation. For botanical or other reasons it may be desirable to find space for almost all the Roses in existence. As the value of free-growing varieties for the production of lovely landscapes gets to be better known more space will be found for masses of Roses in place of the sombre blocks of Laurel, Yew, Holly, and Box. But it is hardly of such objects that Mr. Grahame writes. His advice and warning are more for amateurs whose space and means are mostly somewhat severely limited, and no sounder advice can be given than to go in for good Roses, no matter how old, nor for that matter how new, provided always that they are better in form, colour, or fragrance than existing varieties. Better by all means to have fifty of one Rose than fifty Roses of somewhat similar character, neither of which is equal to the original. But then with classes of 72 to fill, the amateur will hardly be convinced of this. Many societies limit these large classes to nurserymen and florists, and rightly so. Others leave them open, and hence largely the struggles to grow very large collections. Two other influences have worked powerfully in the same direction—the agricultural depression and the exhibition craze. Almost every Rose, new or old, was pressed into the service of exhibitors, and thus a powerful impetus was given to the multiplication of varieties. All this doubtless fostered trade and multiplied Rose growers. But the love of the Rose for its own sake is one thing, and the love of prize money is quite another and a different thing. It cannot be too often repeated that quality, not quantity, should be the goal in horticulture. Hence 24 or 48 very distinct Roses, perfect in size, form, colour, and, shall I add, age and fragrance, may far exceed in cultural merit 72 or 96, 50 or 75 per cent. of which are probably far inferior to the best 24. Culturally and educationally, these huge classes are not only useless, but mischievous and misleading. They confuse and confound the issues which ought to be made clear to the merest novice at Rose shows. That issue should be that nothing but the best should find either space or prizes. Every visitor would thus have an object lesson in the delightful art of Rose growing. But owing to the prevalence of these huge collections, what more common than to find the highest culture and commonplace mediocrity huddled together in one box of 72. And to render confusion worse confounded, two boxes of 72's are placed side by side and bracketed first and second, while the difference between them is often wide. And yet the two boxes may be placed first and second, to the utter bewilderment of visitors, and

even if placed, as at times, first and third or fourth, still the lowest has got far more than its deserts. On inquiry it will appear the inferior Roses got the prizes, simply for lack of others to compete against them, and, being no others, easy-going judges dub them second to save trouble. Logically, where there are but two 72's, one must be second best, as a matter of course. But, culturally and meritoriously, the second may not be on the same plane of merit as the first and should be disqualified. Thus large classes are largely filled with mere mediocrity and win prizes, not on their merits, but through the chances of simple addition. By limiting all but the great trade growers to 48's, the different societies would powerfully stimulate quality rather than quantity, and would strike a heavy blow at the mere rage for variety for its own sake that has caused so much vexation to true rosarians. Take one point, seldom specified, so important to quality, viz., the age of the blooms. How often are classes



Syringa Emodi. For description see p. 92.

of 72's dragged seriously down through a few miserable blooms with faded colours, or open eyes or hearts. None such would have been needed to furnish forty-eight stands.

Leaving at present to others the criticism of his selections which Mr. Grahame invites, I must express my surprise to find Her Majesty in his list without apology, while Homère is thought to need both an apology and an excuse. As one of those many people who believe in that Rose, and uphold its form as almost perfect in its best estate, I would advise him to leave Homère to stand upon its merits, and bracket Her Majesty with his apology.

D. T. F.

P.S.—Since the above was written I have read in Herbert Rothera's criticism of Mr. Grahame's notes that Homère grown under glass is good, but as a garden Rose unsatisfactory. In my experience the opposite is the case.

ROSE PLANTING.

It may be safely said that within the last twenty years there has not been so little done in the way of planting Roses as in the present season. The beautiful summer-like weather that prevailed during autumn kept the plants growing later than usual, and before there was time to do much planting the frost set in with unusual severity, and continuing with little intermission since, it has stopped everything in the way of carrying out such work. There will be a difference in opinion as to what it is best to do under the circumstances. Some argue that when Roses are not planted before the end of November it is better to defer the work until well on in the spring. I have had Roses do well that have not been moved until April; but in such cases the Teas and Hybrid Perpetuals push their young shoots considerably before that time. Removal destroys this growth, which is so much wasted energy, as the plants have to break again from the eyes nearer the base of the shoots, which always come weaker, consequent on the effort that has been already made. There is another drawback connected with late planting, that is, the drier condition of the atmosphere dries up the plants, both roots and tops, when they have to be moved any distance, unless more than ordinary care is taken in the packing. Taking all into account, I should be disposed to plant as soon as a thorough break up of the frost takes place. In reference to the character of the soil suited to Roses, it is scarcely necessary to say that the strong holding loam, even when so heavy as to approach to a clayey nature, gives better and more permanent results than obtainable in light sandy soil, though in the latter, when newly broken up from Grass, with the aid of plenty of manure, most Roses grow and flower fairly well at first. But where the land is too light, much more can be done than is often either advised or attempted in the way of improving it, and this at a trifling cost in labour and material. Marl or clay judiciously applied in sufficient quantity will bring light land into a condition suited to the growth of Roses, little inferior to that of soil that is naturally suited to them. Of course marl is better than clay, being rich in fertile elements, but it is not so readily obtainable as clay, which latter may be had easily in most localities. The way that I have applied either of the materials named is, after trenching the ground and working in plenty of solid manure, to put on the surface about 6 inches of the marl or clay and allow it to remain until it crumbles down by the action of the weather. Then fork it in, mixing it evenly with the soil to a depth of about 12 inches.

A word as to trenching ground for Roses. In all cases, but more especially where the land is of a heavy nature with a subsoil that is close and impervious, it is necessary to stir it considerably deeper than the roots will penetrate. If this is not done after heavy rains, there is too much water held about the roots. But in trenching for Roses, as for plants in general, the mistake is often made of burying the good surface soil out of the reach of the roots, and bringing a lot of raw, crude material to the top, to which the roots are necessarily confined. In place of this, the operation understood amongst gardeners as "bastard trenching," which consists in keeping the top spit at the top and simply loosening up the under surface and allowing it to remain there, is what is required. Instances innumerable may be seen of the results of bringing too much of the raw under surface to the top with plants of all kinds, from ordinary kitchen vegetables to Roses, shrubs, and trees.

As to the effect which the late severe weather has had on Roses, it is too soon to see what damage has been done. The protracted dry bright weather in autumn did a good deal to ripen and harden up the wood, most of which was formed under conditions unfavourable to solidity, and the frost again

has been more partial in its severity than usual. In places not more than a score of miles apart, and where there is comparatively little difference in the elevation, there has been a great difference in the amount of frost registered; when, for instance, at Croydon, the thermometer was down to about zero, there was not more than 14° or 15° a few miles north of London. But doubtless the Tea varieties and some of the Hybrid Teas will have suffered. Regarding protection to Tea Roses, we do not do nearly so much in this country as is done in parts of the Continent where the winters are more severe than with us. The result is, that the plants suffer more in England than they do where there is a greater amount of frost accompanied by means for protection. One method that I have followed with Tea Roses either when the plants have been struck from cuttings, or grafted low enough so as to ultimately be on their own roots, is to peg the whole of the shoots down to within an inch or two of the ground, and to cover them over with Gorse, Spruce, or other Evergreen branches, inserting these securely in the soil, so that they laid almost flat on the Roses. Protected in this simple manner, they escape injury from double the amount of frost that would kill the tops if unprotected. Mulching with a few inches of spent manure, leaf-mould, or leaves with a little soil sprinkled on the top to keep them from blowing about, keeps Tea Roses alive at the collar frequently when the tops are killed, but when the branches are destroyed the plants are weakened, and it is much later in the season before flowers are forthcoming than when they can break in the ordinary way from the branches. A sufficiently thick covering, such as instanced, does no harm, provided it is cleared off as soon as the time for a low temperature is passed. If the protection named was generally adopted, there would be no room for the cry so often heard that it is little use to plant Tea Roses, except against walls, close fences, or buildings, which shelter them, but which cause them to suffer much more from the attacks of aphides and red spider, as well as prevent them from getting the benefit of the rain. T. B.

EARLY FLOWERING HYBRID PERPETUAL ROSES.

I INTERESTED myself in the early part of last summer in compiling a list of those Hybrid Perpetual Roses that I found well in flower on a certain date, or about three weeks before any Rose shows of importance were held in the country. Besides those grown in my own garden, the list, I may mention, was chiefly drawn from the well-known collection of Roses cultivated by Mr. R. N. G. Baker, of Exeter. The information I have to offer may therefore be of some use to intending planters. Mr. Baker's collection includes most of the old and new kinds.

NEW ROSES I will briefly refer to first. John D. Pawle is a light crimson Rose that promises to be useful early in the season, which I think is its only merit, as we have already too many in that line of colour. Mr. J. Brownlow is likely to take a high place as a garden flower, as its growth is vigorous, with large and handsome foliage, and promises to be a late as well as an early bloomer. The colour is clear bright carmine and the fragrance very sweet. Lady Arthur Hill is sufficiently distinct for a select collection. The colour is a rosy-lilac, the flowers of fair size and symmetrical in form, besides being freely produced. Sir Rowland Hill is of a peculiar claret colour, very effective at a distance, but except for that feature I was not charmed with it. A more beautiful and distinct Rose is Earl of Dufferin, the erect bearing of the flowers and long pointed buds being at once conspicuous. The blooms are finely formed, and shaded with deep velvety maroon colour. Caroline d'Arden produces flowers of a charming soft rose colour. It has all the characters necessary to place it in a good position, not the least point being the fragrance of the flowers. Amongst the older varieties I found the following well advanced in flower as compared to some others that are relied upon to produce ex-

hibition blooms later in the season: These are Alphonse Soupert, Mrs. Baker, Mrs. J. Laing, Viollette Bouyer, Marquise de Castellane, Prince Camille de Rohan, Mme. Gabriel Luizet, Marie Baumann, Mrs. G. Dickson, Victor Hugo, General Jacqueminot, Boule de Neige, Alfred Colomb, and Charles Lefebvre. Anyone requiring a longer list of fairly reliable early bloomers may select Victor Verdier, Paul Verdier, Miss Hassard, Annie Wood, Magna Charta, and John Hopper. There is a decided advantage in growing these early blooming kinds, as they are invariably good Perpetuals, by which I mean they flower well again in the autumn. This is not difficult to understand, as the first display of blooms being over early, the plants have a better chance of recruiting their strength and giving an autumn crop than those that do not bloom for a fortnight or three weeks later.

J. C. C.

THE WINTER OF 1890-91.

AMONG THE ROSES.

IT is greatly to be feared that this winter will prove more disastrous than that of 1860-61. But that, though more severe, was nothing like so long as this has lasted already, and there is no saying how much longer it may last, as hitherto the thaw seems to have been in league with the frost, only loosening its grasp for a few hours or day or two to enable the frost to gain a deeper grip, a firmer hold of Roses and other plants. Again, the hardest frost in the winter of 1860-61 was on Christmas Eve, when the thermometer ran down to 4° below zero in the eastern counties, and left its death-roll deep and heavy among the Roses and other semi-hardy shrubs and trees. But this year the lowest temperature we have had as yet came a month earlier, on November 24, when the thermometer reached zero in some parts of East Anglia, and fell to within a few degrees of it throughout the greater portion of the United Kingdom. From that date till now, with the transient intermission already mentioned, the frost has continued up to January 22. Under ordinary conditions of vegetation, possibly the fact of the frost coming a month earlier than in the severe winter of 1860-61 would have been rather in favour of the Roses and other semi-tender plants. But the conditions were neither ordinary nor normal. Not a few of the Roses were in bloom a few weeks before the frost came down upon them, and nearly all were greener and more immature than usual. So general was this immaturity of growth, that thousands of Roses had their leaves withered and scorched up on the trees, just as if a sudden breath of fire had passed over them. The fact of these leaves being frozen on to the trees and bushes of itself alone has rather favoured the safety of the Roses, for dried up, withered leaves are a protection in themselves, and the wintry weather being singularly free from wind, these leaves caught and held a larger percentage of snow than the bare twigs could have done. So far, the blasted leaves rendered a protective service to the rosarian. But a glance at the wood and the buds on the Rose twiglets thus caught up by the early frost suggests very serious doubts and fears to the rosarian for the safety of his favourites, and there cannot be a doubt that the death-roll will be long and heavy this winter, presuming that the Arctic-like weather vanishes now, or at longest with the month of January. But supposing it follows the precedent of fifty rather than thirty years ago and runs on until the middle or end of February, as in 1841, who can tell what may happen to the Roses? During the long-continued frost the cold has penetrated deeper and yet deeper. One result is already certain—short pruning will be the rule in the coming spring. These severe colds have settled that matter for us by its sheer hard hitting into the branchlets and wood of our Roses. It will hardly be safe to prophesy more until we know, nor is it worth while to croak till the disasters among the Roses through the winter of 1890-91 are more clearly written on the true state of our Roses after the permanent thaw.

One thing we can do now, and that should be done quickly, is to make the most and the best of

all inside Rose wood for the purpose of scions or cuttings. Stocks may also be ordered or lifted as soon as the frost goes, so that the processes of root-budding and stock-grafting may proceed at once, or as soon as suitable material can be obtained outside or in, as there will probably be an altogether inordinate demand for Rose plants throughout the coming spring. D. T. F.

TEMPERATURES.

MR. HUDSON'S note in THE GARDEN of Jan. 17, p. 51, was opportune, and a few remarks on this important subject may not be out of place. I have repeatedly urged the importance of maintaining a low temperature during the winter months, and have read the advice given with much interest, as this winter the fuel account will be a serious item, especially to those who are only allowed so much for garden expenses. In this case that drawback should be taken into account and the garden not be allowed to suffer. Considerable waste in fuel often takes place by overheating in frosty weather. Much can be done to economise in this direction, as it is most injurious to the health of the plants. To save fuel in small houses, prepared or dressed canvas covers are used; they are made in different sizes to fit the roofs, and by this means from 7° to 10° more warmth is secured. These Mr. Hudson recommends, and they are far more suitable than mats, though these are useful for many purposes. We have been obliged this winter and in previous seasons to be content with a lower temperature than advised and with care in airing and watering have not suffered. It is almost impossible with large lofty houses to keep up a high temperature with an insufficiency of piping, and indeed it is best not to attempt it. The great amount of fuel consumed makes it a costly matter. Much depends upon boilers and how they are kept, as great waste occurs in dirty or choked up flues, as a sharp quick fire at the time required is far cheaper than a boiler being continually charged and never properly burning up the fuel.

I once had a stove that was badly heated, and in cold weather it was never over 50° at night and 5° higher during the day; I never saw healthier plants nor any requiring so little cleaning, but, of course, watering must be carefully done, while repotting and starting into growth will be later. When new growth commences air must be judiciously given, so that if extremes are not carried too far a low temperature is beneficial, care being taken to reduce the temperature as soon as the growths are ripened, for the latter purpose admitting the sun freely and not shading very heavily. Indeed, with a lower temperature and slower growth, the plants will bear more sunshine than otherwise. There are a few plants that I have treated differently and given more heat than is generally advised. It has answered when we have had a succession of dense fogs. Bouvardias we have saved by this means, and they have not lost their foliage as they have done in a lower temperature. Those in a few degrees lower temperature are mere skeletons at this date, and I should not advise this treatment for all plants, as it is unnatural. But as Bouvardias are easily and quickly raised we have not troubled in their case. Again, Calanthes just showing their spikes in November were given 5° warmer temperature, and I think this saved them, as others in less heat failed to push up. I advise the lower temperature when the spikes are fairly well advanced and commencing to open their flowers. In the case of pot Vines that have never been forced, 5° higher and a corresponding bottom heat are best in dark sunless weather (that is if the top growth is not too far advanced). We have wintered our Eucharis in a very low temperature never higher than 50° and at night very often 45°, yet no harm results, but as I have given our treatment in another note I do not describe it here. It is surprising the low temperature that many plants usually grown in hot stoves will do with, but then the change must be gradual.

Many plants can be prepared for a lower winter temperature by careful management. We have Adiantums used for cutting that have only had

sufficient warmth to keep out frost, *i.e.*, 40° at night and 45° by day. These look better than those in a stove; indeed, Ferns in many instances are much better with a lower temperature, and, of course, drier at the root; they make a much stronger growth when they start. The Maiden-hair Ferns named never get any heat in the summer months. Cyrtipediums in the same house also look well and are opening their flowers freely, but they are grown without any warmth in the summer, many of the hardier kinds only getting a cold frame.

G. WYTHES.

MARKET GARDEN NOTES.

AFTER one of the most protracted and severe spells of frost that have visited the south of England for many years, we at length have a return to more genial weather, and are able to reckon up the losses, which I need hardly say are very heavy amongst green and growing crops. From what I have seen in this immediate locality, and we consider ourselves favoured by reason of close proximity to the sea, there is very little left in the way of Broccoli, or, in fact, of the Brassica tribe of any kind. The sooner the whole lot is dug or ploughed in the better, as when the sun shines the whole atmosphere is filled with the smell of decaying crops. Another effect of the protracted frost is that no ploughing, sowing, or planting has been done for more than two months, and now a press of work comes all at once. The most urgent work now is sowing Broad Beans. These are usually got in either before or directly after Christmas, but February will be here before many are sown this season. The long-pod varieties are in greatest favour for the earliest crop, and Broad Windsor for the main one.

PEAS are also late as regards sowing, but I do not anticipate that it will affect the period of gathering, as I do not think much is gained by sowing before February. The soil is now getting into fine condition, and every favourable opportunity will be taken for sowing the early varieties. I may mention that the dwarf large-podded varieties are in great favour with market growers. American Wonder is largely grown, and those who invested in the variety William Hurst tell me that although the seed was so expensive, yet it paid them well for the outlay.

RADISHES are a very important early crop, and no care is thought too much to bestow on them. The work of setting out the beds, sowing and covering with litter is now in full swing, for although a good many are grown in frames, they are pretty closely followed by those in the open, and quite a speciality is made by some of the small growers of this crop. Wood's Early Frame and French Breakfast are favourite early sorts.

EARLY POTATOES.—Tubers required for seed should be placed in boxes to sprout. Those that have been carefully looked after during the frost are covered with sturdy shoots, and will be utilised for frames or any temporary glass shelters and for warm south borders. The Ashleaf Kidney and Sharpe's Victor, from the small amount of top-growth they make, are in highest favour, but for earliest open-air planting Pink and White Beauty of Hebron are preferred. One of the effects of the frost has been to send the price up nearly double to that which prevailed two months ago. Not only have a great many been spoilt by the frost, but the scarcity and consequent high price of other vegetables cause a much greater demand for Potatoes, and those who have good stocks of late varieties will get good prices.

FORCING HOUSES, pits, and frames are now in active work, Seakale and Rhubarb, Mushrooms and French Beans being in great request. Cauliflowers, Lettuces, and other plants are being pushed on under glass, so that plants may be available for spring planting. Mustard and Cress, Mint roots, and many other things now need space, and seeds of Cucumbers, Tomatoes, and other important crops are being sown.

FRUIT GARDENS AND ORCHARDS have generally had more than usual attention during the frost, owing to slackness of work in other departments, and pruning is pretty well completed and manuring

well forward. The planting of new orchards and filling up old ones have now been resumed. It is evident that much greater care is bestowed on fruit trees than was thought necessary only a few years ago, for nearly all the orchards in this part have had the centres of the trees cleared of useless spray and the stems dusted with lime and soot, or painted with some kind of insect-destroying mixture. Bush fruits have needed more than usual care to keep the buds from the birds.

Gosport.

J. GROOM.

NOTES OF THE WEEK.

The Lilies of the Valley in the nursery of Mr. Icton, of Putney, the other day were a splendid sight. Two large houses were filled with plants just coming into full bloom. The fragrant flower is grown here throughout almost the whole year, a constant succession being kept up, except from August until November.

Phoenix Rebellini.—This new and charming Palm is likely to become a favourite for decoration, if we may judge from specimens of it in the nursery of Mr. Icton at Putney. The plant is of graceful habit, and the much-divided fronds of a rich green colour. In a small state it is available for table work, and when of larger size for the adornment of halls and living rooms.

A very pretty Orchid, which we noticed flowering recently at Redles, Isleworth, is *Epidendrum atropurpureum*, a native of New Grenada, and usually described as blooming in the spring months. Its flowers are of a decided colour, the sepals and petals being incurved at the tips and brownish green in colour, while the lip is large and pure white, with the exception of a deep crimson blotch at the base.

Otaheite Oranges brighten many greenhouses and conservatories at the present season, giving acceptable colour to displays of flowering plants. A considerable trade is done in these little pot fruits during the winter season, and they can be made excellent use of in many ways for the house. The worst part of the business is that the plants are often raised rapidly in heat, and when transferred to rooms the leaves quickly drop, through a lower temperature.

Odontoglossum Humeanum.—An excellent form of this supposed natural hybrid, suggesting *O. cordatum* and *O. Rossi* as parents, is in flower with Mr. Bull, of Chelsea. It first bloomed in the collection of Mr. B. W. Hume, after whom it is named. The flowers resemble the best forms of *O. Rossi*, the sepals pointed and almost wholly covered with rich chestnut-brown blotches. The petals are broader and soft yellow, except the base, which is coloured in the same way as the sepals; the lip bold and white.

Williams Memorial Fund.—At a meeting of the committee, held on Wednesday, January 28, Dr. Masters in the chair, it was resolved: (1) That the sum of £250 be offered to the Gardeners' Orphan Fund, to enable two orphans to be at once placed on that fund, as B. S. Williams Memorial orphans, and that Mr. Harry Williams be requested to undertake the nomination of the orphans. (2) That the balance of the sum collected be devoted to the establishment of B. S. Williams Memorial prizes, in accordance with the terms of the appeal originally issued.

Magnolia stellata.—Although quite hardy, the flowers of this beautiful shrub are perhaps better appreciated when it is grown in pots and bloomed indoors. By this means they are obtained some weeks earlier, and are, therefore, of more value, and the flowers being protected from rough winds and rain, last longer and show to better advantage than they do out of doors. It forms a dwarf spreading shrub and is deciduous, the flowers appearing before the leaves. Each flower is 3 inches to 4 inches across, sweetly scented, and pure white when fully expanded, with the exception of a faint pinkish streak which runs down the centre of each petal on the outside. The petals are narrowly oblong, and vary in number on different flowers, but generally range between twelve and fifteen. The species is of Japanese origin, being indigenous to the woods of that country. It was first noticed by Oldham in the gardens at Nagasaki in 1862, and was afterwards introduced to the United States by Mr. Hall, in honour of whom a second name was given to it. The name *stellata* is, however, of prior date, and, in view of the starry arrangement of the petals, quite an appropriate one. When the plant is grown for

greenhouse work it should be potted in good loam, sand and leaf soil, and plunged in ashes out of doors during the summer, removing it indoors, say, in November. A plant in the temperate house at Kew is now commencing to open its flowers. The beauty of this *Magnolia* is well shown in *THE GARDEN* for June 15, 1878, where a coloured plate of it is given.—W. B.

Odontoglossum blandum is one of the prettiest Orchids in bloom now, and, thanks to the collector, it is not so scarce as formerly. At one time it was unusual to find even one example in a large collection, but this is altered now, and we can ill-spare such a gem as this. It was found by Blunt near Ocana, in New Grenada, flourishing at an elevation of 6000 feet. The flowers are like those of *navium majus*, and though not showy individually, have a delightful beauty when crowded thickly together on the short raceme. The sepals and petals are of about equal size, very narrow, pointed, and spotted with crimson-brown in the most charming manner.

Odontoglossum Edwardi.—This remarkably distinct species is in bloom now in more than one collection of Orchids in the suburbs of London, and always attracts attention by its unusual colour and spike. It deserves to be grown by everyone who cares for Orchids, the large panicles carrying a profusion of intense violet-purple flowers, which have an agreeable, but not unpleasantly strong perfume of Violets, similar to *Oncidium tigrinum* in this respect. The only relief to the violet is the bright yellow base to the lip. The plant makes a vigorous growth, is not difficult to grow, and is sufficiently plentiful now to show that it is not neglected. Its best months are February and March, but before January is out the panicles of blooms make a conspicuous feature in the Orchid house. It was introduced from Ecuador about 1878.

Paris flower markets.—A correspondent in a daily contemporary makes some interesting allusions to the flower markets of Paris during the recent severe weather. He says: "For six weeks they have been flowerless. The damage done to flowers in the environs of Paris cannot be repaired this year. M. Simon, secretary of the Horticulturists' Union, states that a Rose gardener at Ivry has lost £4000 worth of standard Roses, another at Malakoff £1200, and one at Brie-Comte-Robert £2000. He believes the losses of the other great Rose growers will be proportionate, and may be roughly set down for the neighbourhood of Paris at £40,000. The flower gardeners at Chevreuse have lost garden plants valued at £16,000. The losses of those at Croissy and Montlignon in flowers that were being reared under frames in pots are estimated at £36,000. Two thousand gardeners' assistants have been for six weeks out of work. It is impossible to compute the injury done to forests and plantations. Trees during the black frost were given the whole length of the bole. In splitting, they gave out loud reports."

Cœlogyne cristata and its varieties are now fast pushing up their flower-spikes, and in several gardens around London the display promises to be finer than usual in spite of the dense fogs, which do not seem to injure the young spikes. The commonest of all is, of course, the type, which when in full bloom makes a mound of white, if the specimen is large, and there are many splendid pieces in gardens and nurseries. One of the finest we remember was in the collection of Mr. Lee at Downside, Leatherhead, when his collection there was in its fullest perfection. We have now, however, several acquisitions, not the least of which is the Chatsworth variety; then there is the large-flowered form *maxima*; *Lemoniana*, in which the yellow of the lip is changed to a clear lemon colour, and the white variety, *alba* or *hololeuca*, the flowers of which are without a shade of colour. Even small plants fetch high prices. There is possibly no Orchid more cultivated than this *Cœlogyne*, and the reason is not far to seek. It is not difficult to grow, makes a splendid specimen, and in early spring is smothered in snowy-white bloom, while the racemes are of value for cutting. Those who still place all their faith in the

type should grow some of its varieties, and if it is not too expensive, the white form, which, by reason of the flowers having no colour whatever, is of unusual value for choice decorations.

Morisia hypogæa, from Corsica and Sardinia, has proved quite hardy in the open border, where it has stood all through the late severe weather. It is apparently an old species, having been named by Gay, but there is no record of its having been in cultivation until recently. It was collected in Corsica in 1880, and in Sardinia in 1882 by Reverchon, since which time it has found its way into cultivation, chiefly, we believe, through the efforts of M. Correvon. It forms a rosette of pretty, bright green, pinnate leaves, which lie on the ground, and from which proceed a number of large Chorispora-like flowers, creamy-white or tinged rose. It is certainly worthy of cultivation, and should be on every rockery during the coming spring. It flowers from April to June.

The annual **Prophet Flower** (*Arnebia cornuta*) should be noted as a fine annual. Messrs. Barr & Son showed a fine specimen in the Drill Hall last summer in a pot, and even in this semi-starved condition it was literally covered with its curiously marked flowers. In the old *A. echioides*, the spots only occupy the base of the petals, while in *A. cornuta*, the spot, which is black on a rich yellow ground, goes the whole length of the petal. On the second day after opening, the black spot changes to a rich maroon, and on the third day becomes a clear yellow. When cut and placed in water the branches are said to retain their first freshness for a week or ten days, and their curious changing flowers are very interesting. Now is the time to order seeds, which should be sown early in February in a warm pit or frame and the seedlings pricked out towards the end of April.

The **Garland Flower** (*Daphne Cneorum*), with its neat trailing habit and profusion of rosy-lilac flowers, should be grown wherever the soil appears favourable. It rarely exceeds 6 inches to 10 in height, and half-a-dozen plants make a most interesting group for the rockery. It thrives best in a moist peaty soil, and invariably fails where the soil is stiff and dry. It is well worth a place on the rockery on account of its sweetly fragrant flowers alone. *D. rupestris*, the pretty rock *Daphne*, is a neat, diminutive shrub, forming dense tufts 2 inches or 3 inches high, and covered with a mass of rosy-pink blooms. It requires a stony, peaty soil, and should be planted where there is no fear of its being overcrowded, as so often happens with these small plants. *Daphne Blagayana*, though a very beautiful species with white fragrant flowers, is one of the most tantalising in the genus. I have seen robust healthy specimens die off in a few days. On the other hand, where everything suits, this *Daphne* may be grown without any trouble. It seems to require a loamy, well-drained soil.—K.

Sarcocylus luniferus.—Now that the limits of this genus have been extended so as to include the older divisions of *Thrixspermum*, *Camarotis*, and two or three others of less note, it comprises altogether about thirty species, some of which are possessed of considerable beauty, whilst others take rank as some of the most interesting of botanical curiosities. It is to the latter group that the present species must be relegated. It is in bloom now at Kew, where it attracts a good deal of attention from visitors, on account of its very meagre requirements in the way of rooting material. It is growing on a thin twig not much larger than an ordinary penholder, having supported itself on this now for several years. It has no leaves at present, and it is only very rarely that it develops any, extending its long, flat roots, and flowering regularly without their aid. It is not, however, a leafless Orchid, as has been stated. The flowers are produced on a drooping raceme 1 foot long, each bloom being half an inch across. The sepals and petals are rounded and concave, the yellow ground being spotted with reddish-brown. Although the plant is so different in habit and appearance, the flowers have a strong resemblance to those of the pretty Australian species, *S. Fitzgeraldi* and *S. Hartmanni*. The finest representative of the

genus at present in cultivation is *S. Berkeleyi*, a species with handsome racemes of white flowers. Like *S. luniferus*, it is a native of the Malayan Archipelago.

Odontoglossum Rossi majus.—I beg to forward for your inspection the accompanying photograph of a plant of *Odontoglossum Rossi majus* which began flowering with me on November 22 last, and is now in full beauty. The flowers are large and pure white with bright chestnut markings, as will be seen from the enclosed spray, and form a cascade of blooms all round the pan. I bought the plant in October, 1888; in that year it gave two flowers; in 1889 thirteen, and now it has thirty spikes with seventy-three flowers—a proof, I think, that cool Orchids do well in the air of Worthing.—C. B. LUCIE SMITH (Major-General), *The Acacias, Worthing*.

The alpine **Primroses** have already opened the season and do not seem to have been much affected by the recent very severe weather. *P. viscosa* and several of its varieties are in full bloom to-day (January 27) and many of the other species appear ready to burst their flower buds. The well-known *P. denticulata* varieties are also coming on, a few in a cold frame being well in bloom, while many have suffered from the long imprisonment under mats and snow. Such species as *P. cortusoides* and many of the commoner sorts, that as a rule get their crowns well covered up and do not attempt to flower until about March, are none the worse so far as yet, the buds being fresh and plump, ready to push above ground with the increasing warmth. Indeed, the species planted on the open rockery have in every case suffered less than those kept in cold frames and protected by mats.

Chrysanthemum Etoile de Lyon.—Being surprised that no one has mentioned *Etoile de Lyon* as an excellent variety for late blooming, I send you to-day a couple of blooms taken from a dwarf bushy plant with eight flowers now open. It is from a June cutting which was cut back late in July. The flower buds did not show till the middle or end of November, and though the plant has been rather shaded so as to make the blooms white, they have all opened well. Those grown in full light are, of course, more lilac and finer in size. Up to this date (January 27) we have found such flowers invaluable, as they stand a hot room so much better than forced blooms. No other *Chrysanthemum* that I know of keeps so dwarf and healthy under glass; it should be grown by all.—E. H. WOODALL, *St. Nicholas House, Scarborough*.

Colchicum Sibthorpi, introduced recently by Herr Max Leichtlin, is one of the most beautiful of this highly popular genus. The flowers on strong specimens were much larger than those of *C. speciosum*, tessellated as in the well-known *C. Parkinsoni*. This fine species was found in Armenia, and is figured by Sibthorp, and Smith in "*Flora Græca*," t. 350, under the name of *C. latifolium*. A smaller species from the Anti-taurus resembling the above in the tessellation, but smaller in size and with pointed, not blunt segments, is called *C. chionense*, and promises to be a great acquisition to our autumn flowers. Both these species bloom late in autumn, *C. Sibthorpi* having even yet a few flowers that have been held in check by the late cold weather.

Crocuses in bloom.—One would hardly expect to see Crocuses in flower so soon after the snow has cleared, but to-day I saw several groups of autumn and winter-flowering species quite fresh and clean. *C. lævigatus*, with its numerous lilac-striped flowers, is in full flower. It is one of the hardiest, and through all our trying seasons it manages to increase in a surprisingly rapid way. *C. sativus* and its varieties *Elwesi* and *Cartwrightianus* are not far behind, the former lilac and the latter a delicate white being welcome just now. These Crocuses are very erratic in their time of flowering, as in ordinary seasons they begin in early autumn and continue until the spring species begin to bloom.—K.

Arnebia macrothyrsa will be a welcome addition. It is a native of Asia Minor, from whence it was introduced by Herr Max Leichtlin, of Baden-Baden, and said to be quite as attractive as the well-known

A. echioides. It is said to have large trusses of handsome yellow flowers. *A. echioides* where it does well is one of the foremost of dwarf herbaceous plants, renewing again and again during the summer months its curiously marked bright yellow, purple-spotted flowers. In such favoured spots it may be increased by division and root cuttings with the greatest ease. On the other hand, I have seen gardens where no amount of coaxing or ingenuity could get the *Arnebia* established. It is much the same with the charming *Omphalodes Lucilæ*. It is also somewhat fastidious, and all the calcareous mixtures in the country will not avail in unfavourable localities.—K.

Cypripediums in flower.—In spite of the long-continued fogs and frost, which have now happily given way to spring-like warmth and brightness, the *Cypripediums* have flowered freely and well. We noticed a houseful of the ordinary *C. insigne* in the gardens at Syon House, Brentford, a few days ago, and although the flowers were a trifle smaller than usual, they were fresh and invaluable for cutting over a long, dark, and unpleasant season. In the nursery of Mr. Bull at Chelsea there is a long list of types in bloom, amongst them *C. Dayanum*, *Dauthieri*, *Leeanum*, the curious almost self bright green-coloured *virens*, hybridum *marginatum*, conspicuous for its broad margin of white to the bold dorsal sepal; *barbatum superbum*, the delicate *barbatum pulcherrimum*, *superciliare ornatum*, a very fine variety of this Orchid; *Warneri*, and others, a few of which deserve a separate note. It is important to those who live near large smoky towns and have to keep up a constant supply of cut bloom to know what flowers resist fogs. The *Cypripediums*, from their behaviour this season, are certainly entitled to strong notice.

National Chrysanthemum Society.—A meeting of the general committee of the above society was held at Anderton's Hotel on Thursday, the 22nd inst., Mr. R. Ballantine occupying the chair. The hon. secretary, after reading the minutes of the previous meeting, formally announced the offer of certain special prizes by Messrs. Sutton and Sons, Messrs. Webb and Sons, &c., all of which were referred to the schedule sub-committee for consideration. Mr. Wynne rendered the report of the sub-committee appointed to revise the rules, the principal alterations suggested being the holding of the annual general meeting in February instead of January, that affiliated societies should at most only be allowed six medals of the National Chrysanthemum Society unless under special circumstances, that the catalogue revision committee consist of five members instead of three, as before, these members being elected yearly, and that the meetings in future of the general committee be held in the months of January, September, October, and December. A sub-committee of eight members together with the officers was appointed to proceed with the preparation of the new schedule. The hon. secretary submitted the draft report for the past year. In that document was contained a succinct account of the society's work, which when printed will be found to contain interesting allusions to every phase of the society's operations during an eventful year.

Meeting of fruit growers.—An important meeting of the Kent Fruit Growers' Association was held at the Bull Hotel, Sittingbourne, a few days ago. Mr. Faunce de Laune presided. Some important measures were discussed with a view of taking steps to bring imported foreign fresh fruit under the operation of the Merchandise Marks Act, 1887, and the prevention of the alleged selling of foreign fruit as English in the markets.

Gardeners' Royal Benevolent Institution.—We learn that Sir Wm. H. Salt, Bart., of Maplewell, Loughborough, has generously sent a donation of £50 to the funds of this institution.

BOOKS RECEIVED.

"Description et Emploi des Eucalyptus Introduits en Europe." Second Mémoire. Par Charles Naudin, La Villa Thuret, Antibes.

"Electricity: The Science of the Nineteenth Century." A Sketch for General Readers by E. M. Caillard, with Illustrations. London: John Murray, Albemarle Street.

WOODS AND FORESTS.

FORESTRY NOTES.

In addition to the culture of trees, the cutting up of wood into boards, planks, and scantlings of various shapes and sizes, both for home use and for sale, forms an important branch of the woodman's duty. Under a system of good management the forester can employ his men during a time of frost and snow to the best advantage manufacturing the timber and preparing it for market. It is likewise an advantage to all concerned to find constant employment for the hands at a time when other work is at a standstill through the inclemency of the weather. It would be superfluous to give a mere list of the shapes and sizes which the wood should be converted into, as the kinds of trees and the demand in the locality will always prove the safest guide in this respect. There is, however, a great art in the cutting up of round timber to the best advantage to prevent unnecessary waste. For example, a tree say 60 feet long and tapering in a uniform manner from the butt end to the top may require to be cross-cut into different lengths, each section of which should be capable of being converted into some particular size of scantling without wasting the timber by the removal of too thick a slab to reduce it to the size wanted. This is a point of much importance on the score of economy, and should always be well understood and acted upon by those in charge of such work. On the other hand, crooked trees must be cross-cut where the bend commences irrespective of length in order to convert the bends into a series of straight pieces of different sizes, which can then be cut up for a variety of purposes as circumstances may require. The wood should then be placed under cover in an open airy shed to season and become dry so that it may be ready for use when wanted. In seasoning wood it should be kept as dry as possible in order to prevent mould and black inky spots, which lay the foundation for rot and the growth of fungi, all of which are promoted by confinement and a close, damp atmosphere. The advantages derived by cutting up the wood and seasoning it on the estate where it grew are many. The cost of sending the manufactured timber to market is in some cases reduced by nearly one half when compared with sending the trees. Another point worthy of consideration is that when there is a stock of seasoned wood of all kinds, shapes, and sizes known to be kept for sale on an estate, tradesmen as well as farmers and others bring their own carts and remove what they require, so that the wood can be sold in many cases without costing the landlord a single penny for carriage. Home sales of wood need not necessarily be confined to manufactured timber, as the trees and the thinnings of plantations should be disposed of in the same way. I have practised this for many years for the convenience of the tenantry and others over a wide range of country, and found the system very satisfactory to all concerned. The sales, however, should be confined to certain days each week to prevent disappointment.

J. B. WEBSTER.

Trees for shade.—Wherever dense shade is required, the planter can have recourse to the Beech, Spanish Chestnut, Oak, Elm, and Sycamore, all of which are highly effective, and upon good soils produce stately single trees. As subjects for landscape effects by means of pollarding, we have the Ash, Willow, Oak, Elm, Lime and Poplar; for giving seclusion the Spruce Fir and Scotch Pine, as well as the Larch, Willow, Poplar and Birch, which may be cultivated with undergrowths of Holly,

Yew, Hazel, Portugal and common Laurel, Dogwood and Box, or, if within the direct influence of the sea, the Elder and the Sycamore. For beauty of form, there are the Birch, the Plane, and the quick-growing, but short-lived Balm of Gilead Fir.

THE BLACK ITALIAN POPLAR.

(POPULUS MONILIFERA.)

REARING its head in many instances fully a score of feet above its fellows, and breaking the sky-line of our general round-headed trees, this majestic Poplar may well be styled the giant of its tribe. Wherever planted it is a conspicuous object, and never fails to attract attention, though at the same time, so far as general appearance is concerned, it cannot rank as one of our most easy-habited and graceful trees. In the neighbourhood of London are many giant Italian Poplars, trees of from 90 feet to fully 120 feet in height, and wherever a slight rising of the ground is present, from that point not a few may usually be seen. The wonderful specimens at Syon House, few of which can be less than 90 feet high, and with massive forked limbs, are admired by everyone who sees them. For rapidity of growth the black Italian Poplar can compare with any other British forest tree; indeed, it may be said that in the production of timber and average annual upward growth it has few equals.

Planted alongside a running stream in fairly good loam, the black Italian Poplar, or the oft-confused *P. nigra*, soon reaches a height of 20 feet, and branches laterally in proportion. For damp ground they are of great value, but even where the soil is dry and inclined to gravel they do not refuse to grow. The great size and adaptability to various soils are not the only good qualities of the black Italian Poplar, for the timber for certain purposes realises a fairly remunerative price. It is used for purposes where wear and tear by chipping and knocking are great, such as for barrows, stone carts, sledges, &c. Then it is readily propagated, and is sold at a low price per hundred—all inducements to plant in quantity so productive a tree. There is some danger attached to big specimens of the black Italian Poplar, for owing to the branches being large, heavy, and sent out almost at right angles to the stem, they are apt in stormy weather to get riven from the trunk, and so occasion considerable damage to other trees or shrubs in their vicinity. Not only this, but the symmetry of the tree itself is sadly interfered with.

A. D. WEBSTER.

The Horse Chestnut.—The growth of this is so close and compact that its head would appear intolerably heavy, with its foliage in a round mass, quite destitute of lightness and airiness, were it not for the profusion of pink and white flowers which adorn it in May. In a foreground this tree, even in full bloom, cannot be considered otherwise than as a glaring object; for, though each flower is intrinsically beautiful, the effect of the whole mass is heavy from want of variety. Its proper place is amongst a mass of other trees, to give density to distant scenery, or it may be serviceable to screen objects near at hand.

The Austrian Pine.—This beats all the other Pines of the same class for shelter. In places where the Spruces do not succeed, the *Pinus austriaca* will grow fast and luxuriantly in the most exposed situations, and for that reason it has in years past been planted more extensively than any other Fir. Trees planted thirty-five years ago are still as bushy and fine as when they were young. It can be transplanted very successfully, and is even a better tree than the Scotch Fir, because of its much denser and thicker habit which renders it a perfect shelter in a few years. I notice, however, that whereas thrushes and other birds frequently make their nests in the common and Silver Spruces, they seldom or never patronise the Austrian Pine, nor do pheasants appear to roost on it, although they seek the Spruces. This I attribute to the peculiar arrangement of the branches of the Austrian Pine, and its uncomfortably placed needles which discourage the birds. Trees have

their antipathies; and I am not surprised to read that the Austrian Pine does not succeed so well in some parts of Scotland, where the Spruce thrives so well. *P. austriaca* carries its lower limbs well, and when it has room grows nearly as broad as high. I have transplanted many hundreds of them, of all ages, between two or three and fifteen years, and I do not think that one has failed, nor, with the exception of the first season's growth having been checked, have they suffered in any way.—Y.

PROPOSED CHAIR OF FORESTRY.

At the general meeting of the Highland and Agricultural Society, held in the society's hall, 3, George 4th Bridge, Edinburgh, on Wednesday, the 21st inst., this subject was discussed and met with unanimous approval. Sir Robert Menzies, Bart., reported that in accordance with the recommendation of the committee on forestry, and approved by the Board at their meeting on 8th November last, a petition praying for the establishment of a chair of forestry in the University of Edinburgh had been presented to Her Majesty's Commissioners for the Scottish Universities. Sir Robert, as convener of the society's committee on forestry, gave in the following report:—

At a meeting of the directors of the Highland and Agricultural Society of Scotland, held on 7th January, 1891, it was unanimously resolved that the time has now come when a strenuous effort should be made to provide permanent facilities for the study of the important subject of forestry. . . . It is believed that the necessities of the case will be best met by the establishment of a chair of forestry in the University of Edinburgh. With Edinburgh as a centre of forest education, the Arboretum and Botanic Garden, as well as the collection in the Museum of Science and Art, can be advantageously utilised, and excursions to the neighbouring woods and nurseries will afford the opportunities of practical demonstration. Facilities will also be afforded to young men who may wish to hold a forestry diploma to enable them to obtain good positions in forestry at home and abroad, &c.

The above is all very well, but what we require is men who have acquired a practical knowledge of tree culture, and I fear an occasional run to the woods and nurseries in the vicinity of Edinburgh would hardly meet the requirements of the case. In carrying out the details of forestry the man who loves and takes an interest in his trees has abundant facilities for gaining a knowledge of their wants in every-day life. In saying this, I, however, by no means despise theory and sound advice regarding forest trees, as much may be learned regarding their growth and diseases, as well as the conditions under which they are apt to suffer from insect pests. Fine illustrations of this can be seen at the museum in the Botanic Gardens, and cannot fail to be interesting and instructive to the young forester.

J. B. WEBSTER.

Seaside trees.—I have found no trees succeed so well as *Pinus insignis* and the Corsican Pine (*Pinus Laricio*). I have plants of the latter growing and flourishing where the Sycamore and Beech never could even become respectable bushes. Both Pines also have the advantage that hares and rabbits will not touch them, and the wood of the Corsican Pine is very valuable, while that of the Austrian, another great tree for the seaside, is worth but little. I have also succeeded in growing the Aleppo Pine (*Pinus halepensis*) from seeds brought from the Isle of St. Marguerite, opposite Cannes, where this Pine grows 'with its roots down to the salt water, and where it withstands the most terrific gales without seeming a bit the worse for them. Those who wish to plant near the sea should plant as follows: *Pinus halepensis*, *Pinus Laricio*, *Pinus insignis*, *Pinus austriaca*, *Picea nobilis*, and *Cupressus macrocarpa*.—A PLANTER.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1890, thirty-eight vols., price, cloth, £25 4s.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHARD AND FRUIT GARDEN.

NOTES ON LATE-KEEPING PEARS.

IN THE GARDEN, January 24, p. 82, "T. B." states "that late-keeping Pears have ripened sooner than ordinary. This is just what might have been expected from the character of the weather last summer, as it invariably happens that after a wet, sunless season the late-keeping varieties come in before their usual time." As if this were not sufficiently sweeping, "T. B." clinches it with his own experience thus: "After a hot dry summer I have had Louise Bonne of Jersey keep up to the beginning of December, Marie Louise past the middle of the month, Winter Nelis until the beginning of March, Beurré Rance to the end of April, and Ne Plus Meuris until June." No doubt. The only point deserving further inquiry is whether the wide disparities in the dates of ripening observed by most growers among these and other Pears are due wholly to climatal variations or to other causes, such as stocks, soils, localities, fruit rooms, &c. In fact, "T. B." acknowledges the potency of the fruit room as a powerful factor in the determination of the season of Pears or other fruits in this most suggestive sentence immediately after those already quoted: "The kinds I have named ripening at the dates given were kept in an underground cellar, free from damp, but with no drying influence to cause shrivelling in the way that usually occurs with fruit kept in a fruit room with a boarded floor and above another apartment."

There are no fruit rooms equal to such underground cellars or cool dry sheds with a cold aspect on the ground floor, and, so far as I remember, the two most famous fruit rooms known to me, that of the Royal Horticultural Society at Chiswick under the late Mr. Robert Thomson, and that at the nurseries at Sawbridgeworth under the late Mr. Thomas Rivers, were both of this character. Both these men, in estimating the qualities of the Pears and other fruits they grew and stored so well, were careful to separate climatal conditions of growth from the physical characteristics of their fruit rooms, though few fruit growers have ever attributed greater importance to the latter, as a powerful factor in the long keeping and high quality of Pears.

The reference to shrivelling in the last sentence quoted by "T. B." proves the necessity for the utmost caution in regard to such a matter. As read in the third column on page 82, it seems to be inferred that shrivelling hastens the ripening or decomposition of Pears. I do not for a moment assume that to be "T. B.'s" meaning, as shrivelling mostly has the opposite effect. More marvellous still, with some Pears, notably those of the Passe Colmar type, shrivelling, however much it may disfigure their form, seems absolutely to heighten their flavour. But this is aside from the main point, on which I crave for fuller evidence rather than assume an attitude of antagonism to "T. B.," viz., that the more wet and sunless the season, the earlier the ripening of choice Pears under identical conditions of storage and keeping. If this really be so, is there any evidence—chemical, physiological or geographical—to support it? The va-

garies of Pear seasons are so erratic, that few fruit growers will care to dogmatise on such matters. My first practical experience with a fine collection of Pears taught me a useful lesson of humility in regard to their time of ripening. With abundance of store room and a large family to supply, and fortified with the Chiswick list of times of ripening, the fine fruits were arranged with mathematical precision in the order of their ripening. Within a few months my faith in great authorities was shattered; my idol of orderly successions of ripening fled. And yet these were nearly all wall-grown Pears on the Pear, and mostly the produce of fan-trained or horizontal trees. Since then the Quince stock, root pruning, pyramids, and bush trees, and a variety of soils, sites, and modes of culture have added their disturbing forces to the seasons of the most popular Pears until almost every locality has its own special season and time of perfect maturity.

In justice to "T. B.," I feel I ought to state that though I have never heard any of the highest authorities on pomology affirm that the worse the summer the sooner the Pears ripen, yet I have heard some clever enthusiasts from the north broadly hint that Pears, like Gooseberries, lay on quality as they travel northwards. Certain it is that I have never seen nor tasted such perfect Jargonelle Pears as from the gable end of a house near Perth, N.B. But "T. B." does not mix up early maturity with the question of quality, nor does he contend, as some have done, that Pears that ripen before their time are generally or always inferior in quality. This might be so did their premature maturity arise from incipient or excessive fermentation of their flesh or juice.

I quite agree with Mr. Bunyard that some of the later sorts—such as Easter Beurré and Beurré Rance—are improved through a little artificial heat after they are gathered, but not that they should be served "with the chill off." As dessert is now mostly placed on the table some hours before dinner, and is seldom eaten till the ice epoch of dining arrives, the Pears will be warm in comparison with iced sweets, puddings and champagne. Any pronounced attempts to take the chill off Pears will also result in robbing them of their flavour, accelerating their loss of colour, and hastening their decomposition. D. T. F.

Peach Bellegarde.—There are few, if any midseason varieties to equal, and none to surpass, this well-tried Peach. It has several excellent qualities and not a bad one that I am acquainted with. No mistake can hardly be made in planting it, as it forces well and succeeds admirably in both successional and unheated houses, while it is one of the most reliable open-air varieties that can be grown. Being only a moderately strong grower, it invariably flowers abundantly, and, in common with other small-flowering sorts, no difficulty is ever experienced in effecting a good set. The fruits, as a rule, are not large, but they are of a full perfect form, and, if well exposed to light and sunshine, colour beautifully. Naturally, those ripened under glass are sweeter and more richly flavoured, but even those taken from trees growing against sunny open walls are satisfactory in every way. Bellegarde has long been in great favour with exhibitors, and many grand dishes of it have been shown. The dish of this Peach used to be a strong point in the collections of fruit shown by Mr. Coleman from Eastnor Castle.—W. IGGULDEN.

Raising Grape Vines.—Now is a good time to start eyes or short cuttings, whether the plants raised are required for growing into canes to fruit next season in pots, or for planting out in May or June. They succeed well on turves 5 inches square, the eyes being inserted in the centre of these and all set closely together. It is not everyone who can

procure turf that will hold together, nor will that of a clayey nature do; nor need anyone greatly trouble if the older plan of striking the eyes or single buds with a slice of wood on each side of it in 3-inch pots has to be resorted to, as one plan answers equally as well as the other. Plunge these pots in a brisk bottom heat, and the greater portion of the eyes will soon form both top and bottom growth. Stake up the latter and give the plants a shift into 6-inch pots before they become badly root-bound, using fairly good loamy compost, previously warmed by having hot bricks placed in the centre of the heap. Keep the plants growing strongly in brisk heat and a light position, and from the 6-inch pots they may either be shifted into fruiting pots or planted permanently in an inside border. Black Hamburgh, Madresfield Court, Foster's Seedling, and Buckland Sweetwater are among the best varieties for pot culture.—W.

GRAFTING EFFECTS OF STOCK UPON SCION.

It has long been my belief that the value of grafting, as far as it affects the quality of the fruit produced by the scion, has been much overrated. Productiveness and rapidity of propagation are, in my opinion, the only gains. Grafting a naturally strong-growing variety say of Pear on the Quince, or an Apple on the Paradise, must greatly retard the growth of the scion, simply because the stock cannot keep pace with the scion, the inevitable consequence of this check to the action of the sap, both in flowing and returning, being a much less vigorous and more fruitful top-growth. For a few years the slow swelling of the stocks may be an advantage rather than otherwise, but eventually it would be greatly to the advantage of the owner if the scion could communicate some portion of its vigour to the stock. We should then see fewer of those ugly swellings at the union of the two distinct varieties or species, as the case may be, and what would be the sure consequence? Fewer failures of comparatively young trees. The good attending grafting strong growers on weakly stocks is in many instances only transitory, the harm extending to the end of the tree's life.

Nor can I detect the slightest improvement in the earliness, lateness, flavour, keeping, or other properties of the fruit produced by the scion, no matter what the stock may be. If there is any difference or improvement, it is more probably owing to some cause other than that of the effect of the stock. Even the system of double grafting fruit trees, whatever its effect may be in the earlier stages of the tree's growth, has no lasting result. This I have repeatedly tested, and can vouch for. For instance, I have the Jargonelle on both the Pear and Quince stocks, and also double grafted, being worked with several other varieties on to large horizontally wall-trained trees, and in every case the same good and the same bad qualities are invariably present. No Pear that I am acquainted with is so impatient of restraint as the Jargonelle, and to have it at its best it must be allowed to have its "head." I find Easter Beurré when double grafted quite as liable to produce scarred, indifferently ripened fruit as when only single grafted. Winter Nelis cannot long be induced to grow to, for it, a great size; Beurré Clairgeau cannot be converted into a luscious, high-class fruit, nor Knight's Monarch be prevented from falling prematurely by double grafting. Nor is the flavour either of Glou Morceau, Doyenné du Comice, or Marie Louise affected by the stock beyond what the surface rooting habit of the Quince will do. Keep the roots of the Pear stock near the surface in good loamy soil, and the trees will soon surpass those on the Quince stock in size and productiveness,

the flavour of the fruit being first-class. Unhealthy trees, whether this be the result of starvation treatment or a too deep root action, ought not to be expected to produce fruit of the best quality.

My experiments in grafting and inarching Grape Vines confirm me rather than otherwise in the foregoing theory as to the effect it may have upon the scion. We cannot by grafting Alicante on the Black Hamburg make an early Grape of the former, nor cause it to ripen a week earlier even than it would do on its own roots, other conditions being similar. Nor, much as we might wish it, can Black Hamburg be converted into a late Grape by grafting it on to Lady Downe's or any other late variety. Each sort has its own natural time of starting and period of growth, and this is not altered by placing it on other roots than its own. A few years ago being anxious to re-furnish a house with rods and Vines of the Muscat of Alexandria without the loss of even a third of a crop, I brought a strong rod of Black Hamburg through from an adjoining house and made this a stock for several rods of Muscat of Alexandria. This strong Vine was trained along the front of the house, and the Muscat scions were established on it by means of bottle-grafting. Capital canes were formed, but I made the fatal mistake of allowing a number of spurs on the old rod to start and produce bunches, and these, although in the coolest position in the house, took such a lead as to quite rob the Muscat rods of their rightful share of sustenance. As a consequence they broke weakly and failed to do all that was expected of them. During the following year the Muscat rods did even worse. Nothing I tried caused them to start so early as the rest of the Vine, and as the Black Hamburg bunches produced then and for the last five years have been so much superior to most of those on the other rods in the Black Hamburg house, I could not afford to sacrifice them in order to favour the Muscats. Gros Maroc inarched on the Black Hamburg stock, and the latter not allowed to produce much growth, succeeds admirably, as far as the production of fine bunches and large well-finished berries go. There is, however, not the slightest improvement in the quality, and those Vines on their own roots are equally productive. Alnwick Seedling on any stock is neither more free setting nor better in other respects than it is when established on its own roots, and I fail to see the slightest benefit from grafting Mrs. Pince on the Hamburg stock. Gros Guillaume established on the Hamburg stock seems more productive than own-root Vines of the same variety, the modifying effect of the stock here making itself felt, this checking grossness somewhat.

It must not be understood that I condemn grafting *in toto*, but, on the contrary, it must be considered a good means to an end. It is the readiest way of altering the character of a tree or Vine, as the case may be—that is to say, a tree of an inferior variety may be cut back and regrafted with a superior form, and soon attain a useful size again. Then, again, if strong old Vines are in a healthy state both above and below ground, there is very much to be said in favour of inarching or regrafting these with other, it may be, superior varieties, a number of strong fruiting rods being thus obtained in one season. Some varieties are more given to deep rooting than others, this usually being accompanied by gross unfruitful top-growth, and it is these that would principally be benefited by being worked on to those that are more easily kept in a healthy productive state. Much in each and every case de-

pends upon circumstances, and more especially the state of the borders and their treatment, this whether under glass or in the open.

I. M. H.

Apple Warner's King.—Although this variety is generally classed in catalogues as being in season from October to December, it will keep in good condition well into February. Even in spite of the late unfavourable season, our fruits are at the present time in a plump condition. I notice also that this variety is considered unsuitable for planting in cold soil, with which I cannot agree, as here the soil is especially cold in the winter and spring, being very heavy and retentive. In spite of this, this Apple never misses a crop, the samples being especially good, clean, and handsome, but not so large as often met with, owing possibly to the fact that we do not thin to the same extent as for exhibition productions. Warner's King should be pruned on the extension principle certainly, especially when growing in a cold soil. Much close pruning tends to produce canker, which is much aggravated where the roots are some distance from the surface. The best plan with this variety when planting on strong land is to deeply trench the ground within a certain area, if not entirely throughout the whole piece to be planted, and then spread out the roots on the surface, mounding the trees up slightly with the lightest soil at hand. By this means when the soil settles down into its place the roots will not be too deep, as they would be if the trees were planted in holes in trenched ground. No variety that I know pays so well by giving an annual heavy crop of fruit as this one when treated in the manner described.—E.

Plum Coe's Golden Drop.—There are few gardeners who are not well acquainted with this old favourite, but not nearly enough trees of it are grown. No more sure bearer could be planted against garden and living house walls, fences, and outhouses, a long succession of fruit being obtained if the sites are varied. We have a tree against a wall facing south-east from which handsome richly flavoured samples are gathered about the third week in August; two others facing north-east ripen their crops during September, and from other trees against a wall facing north very late supplies of extra large and fairly well flavoured fruit are usually gathered. Sometimes the crops on all the trees, other than that against the hottest wall, will keep till November—long-keeping after the fruit is ripe being one of the best qualities of the variety. The fruits are mostly large, distinct in form, of a rich yellow colour with reddish blotches, and very juicy. It is fine for dessert, cooks admirably, and can be made into a preserve equalling, if not surpassing, that from the Green Gage. Coe's Golden Drop also succeeds well as a standard, and I have seen many hundredweights of fruit of it gathered from orchard trees in Essex.—W. I.

Ne Plus Meuris Pear.—Some small and so far, when gathered, regarded as insignificant fruits of this Pear were last October placed by me in a loft and practically forgotten; in fact, the fruits were not of sufficient size to merit consideration, but still they were placed on one side in the belief that they might at least be useful for stewing. They were from a natural pyramid on the Pear stock, a free healthy tree, and doing very well on our strong clay soil. A week or two since I lighted upon these fruits and was surprised to find how relatively very good they were, quite soft, sweet, and pleasantly flavoured. Had they been obtained from a tree on the Quince or from a wall or espalier, they would doubtless have been of double the size, and then would have made some capital dessert fruits. It is very evident that even of Ne Plus Meuris alone, if well grown, capital post Christmas samples can be had, although I doubt whether many would be worth eating after the end of January. I do not altogether agree with Mr. Bunyard's dictum that Pears in midwinter are too cold eating. The somewhat strong diet so common at Christmas, and which is so productive of animal heat, needs some antidote, and I do not see how that can be better secured than through the consumption of cool fruit,

such as Pears, Oranges, Grapes, Apples, &c. There is far more wisdom in striving to correct the excessive heat of the stomach by partaking of fruit than of ices or cooling medicines. I notice that "T. B." thinks Pears generally are best on the Pear stock, as the Quince stock is not so permanent in its effects, but I fear we should not have on bush or pyramid trees many first-class samples of the best varieties without the intervention of the Quince stock.—A. D.

CORDON FRUIT TREES.

STRICTLY speaking, a cordon would be a tree confined to a single branch, but modifications of this system of training are known as two-branched or three-branched cordons, and even trees with several upright or obliquely trained branches are also designated cordons. Their greatest recommendation is the rapidity with which walls or fences can be clothed by them, and enthusiasts maintain that the finest samples of fruit are also obtained from this class of trees. For a few seasons after they are planted, cordons will undoubtedly produce extra fine fruit, but this characteristic will not be maintained unless the trees receive liberal treatment at the roots. The system necessarily entails planting a considerable number of trees in rather close quarters, and these naturally soon exhaust the ground of much of its fertility. Unless this is restored and maintained the quality of the fruit produced by cordons will not surpass, or in fact hardly equal that yielded by much larger and less crowded trees. This is no mere imagination, for, as it happens, I have in the gardens under my charge what probably is one of the best furnished walls of cordon Pear trees in the country, this being 12 feet high and 50 yards long, with scarcely a blank place observable. Had I been able to collect a sufficiency of fresh turfy loam, the whole of this row of trees, not doing so well as they ought to do, would long since have had a portion of their roots lifted and relaid in fresh compost, but this being out of the question, the next best plan of baring the roots nearest the surface, mulching heavily with good farmyard manure, and returning soil to the top of this was resorted to with marked advantage to the crops produced during the next two seasons at least. Those, therefore, who have planted cordons or contemplate planting them extensively must not think that these trees require less attention at the roots than horizontally or fan-shaped trees that cover a very much larger area of wall space. If extra fine samples of fruit are desired, they can be had only by high culture. Cordons require closer attention in various ways than is the case with less restricted trees. Those Pears on the Pear stock and Apples on the Crab are especially liable to form too much wood growth, which, it is almost needless to add, is at the expense of the fruitfulness of the trees. This is especially the case with cordons trained horizontally alongside walks or in other convenient positions, and nothing short of partially lifting or root-pruning every two or three years will check this rank unprofitable growth. Neglect this unduly and the trees soon cease to yield properly. Biennial root-pruning, coupled with summer mulchings, keep the roots near the surface. Many years ago a number of cordon Apple and Pear trees were planted alongside the walks in the kitchen here, nearly the whole of them being on a free stock. All the while root-pruning was carried out these trees did well. Then came a change of gardeners, and the new-comer neglecting to root-prune got little else but shoots for his pains. When I took these trees in hand many of them had been allowed to go unpruned for three or more seasons, and the best thing

that could be done with them was to convert them into either standard, pyramid, or bush-shaped trees. One standard Pear has now a clear stem 9 feet high and a fine productive head, while several of the pyramids are of presentable form and bear freely. No one who saw them for the first time would imagine that these trees were ever two-branched horizontally trained cordons, but such was the case, and I cannot say I regret the change in their character.

Having pointed out the drawbacks to the system of training trees, more especially of Pears, Apples, and Plums, I will direct attention to the merits of cordons generally. In the ordinary style of planting and training fruit trees many years are taken up in well furnishing a given space; whereas by using cordons it could be done in about half the time and at no great expense. Cordons can be had with as many branches as needed, or good maidens can be bought and these soon made, if required, to form two, three, or more branches. Single cordons for covering walls ought to be planted 15 inches apart, and may be trained either vertically or obliquely; 12 inches or rather more, if on the Pear stock, is a good distance for the branches of other cordons to be trained apart, and the trees must be planted accordingly. Most of ours have three branches, and are planted 3 feet apart. If single cordons only are grown there is no necessity for or wisdom in cutting back maidens, unless the points are either damaged or badly ripened, as they sometimes are when what is known as the midsummer shoot is late in starting. If cut back at all, it ought to be done freely, or say to rather less than half the length of the growth from the point of union with the stock. If lightly pruned the chances are the lower buds will fail to break. Those not pruned may fail to form much fresh growth in the following summer, but this may perhaps prove an advantage rather than otherwise, fruit-buds or natural spurs being formed at nearly every joint. If either two or three branches are needed, cut down the maiden tree to within 3 inches of the union of the scion with the stock, selecting the best placed branches for laying in and pinching back the rest. Lay in these branches in each and every case to their full length every year, not shortening them in any way. The strongest, notably the central branches, will be the first to reach the top of the wall or fence, but all will eventually do so, and in all probability be clothed with fruiting spurs before their limit is reached. Summer stopping ought to be resorted to, this greatly strengthening the leaders, the laterals being finally spurred back to within an inch of the branches or spurs at the winter pruning. Two-branched cordons do well when trained in an upright position, but oblique training, or say at an angle of 65°, is perhaps the best for cordons on walls generally, this slightly checking the upward tendency of the sap. The end trees ought to be of strong growing varieties, such, for instance, as Pitmaston Duchess and Doyenné du Comice on the Pear stock. Supposing the trees are sloped to the right, this would leave an angle on the upper part of the wall to the left to be furnished, and another at the other end on the lower side. In the former case the end tree may have one branch trained at the same angle as the rest and a second trained uprightly, branches being taken from this at distances of 12 inches apart and trained obliquely till all the space is covered. The other end tree may have one branch laid in obliquely and another horizontally, the requisite number of shoots from this being laid in and the leader turned straight up the end of the wall. Sometimes it

is necessary to prune these end branches in order to get the required number of side growths, but vigorous trees will frequently produce all the shoots required without winter and midsummer pruning being resorted to.

Cordons with one, two, or three branches are admirably adapted for planting between horizontally trained trees, and are also equally suitable for profitably furnishing buttresses, clothing doorways, archways, covered walks, and such like. Those planted in front of other border trees or near to plant and other houses are usually trained horizontally, all but the end trees having two branches trained in opposite directions. The latter may be planted 12 feet apart, and all be trained to stout wires about 2 feet from the ground. Those Pears on the Quince and Apples on the Paradise stock come into bearing the most quickly and surely, and under good cultivation will remain in a profitable state for many years. These dwarf cordons from their nearness to the ground are the most liable to injury from severe frosts, but they can be readily protected with awnings and pay for the trouble.—W. IGGULDEN.

— Among the many methods of growing Pears the cordon system must hold a foremost place. For several years past I have taken a great interest in the cultivation of the Pear in widely different parts of the country and in a great variety of soils. According to my observations, no fruit varies so much in different soils, aspects, stocks on which the trees are worked, methods of culture, &c., as the Pear. A kind that is good in one situation may be worthless in another. In North Hants, in a garden of which I had charge, Easter Beurré was not eatable, while in a garden not half a mile distant it was splendid. My tree was growing on a west wall, and that of my neighbour on a south aspect. Again, in the garden I refer to, Glou Morceau on a south wall produced fruit of the highest quality, large in size, with a russety surface, a sure indication of good quality in this fine Pear, while in a large garden within five minutes' walk it was very inferior. It was large, but clear in the skin. These instances are not uncommon; hence the wisdom of trying all the best known and most reliable kinds. No method of culture lends itself to this so well as does the cordon, seeing a large number of sorts can be grown in a small space and can be fruited in a short time. When good trees are obtained and well treated they will begin to bear the third season after planting. In a recent number of THE GARDEN, Mr. Crump made some well-timed remarks in the matter of late dessert Pears. If good late kinds could be obtained in all gardens the gain would be very great. I know one garden where Beurré Rance proved excellent, and came into use in February and March. Bergamotte d'Esperen, again, in two other gardens I have found to be good and most serviceable during the two months named. When residing in a garden on the coast of Dorset, Josephine de Malines proved to be delicious, and was in use until the end of February. Again, in a Hampshire garden Beurré de Jonghe gave us good fruit in February. All points considered, no late kind I am acquainted with has proved so reliable as Olivier de Serres. The samples are of good size, of the highest flavour, and come in gradually till the end of March. I would recommend everyone to try many kinds as cordons, and no doubt one or more good late sorts would be obtained. This accomplished, those found suitable could be planted to any extent. Many of the Pear trees grown at Farnborough Hill, Hants, are cordons on a west wall. The walls there are high and built of red brick, with a splendid coping. This wall was covered with cordon trees. The system of training was oblique, and the trees were in the most perfect health. At the time I am alluding to there was a walk round the whole garden, the gravel paths being up to the foot of the trees. By this system there was no danger of destroying the young feeding roots by digging. The cordon trees in question produced enormous crops, and although not so severely

thinned as is sometimes the case, the fruit was magnificent. To the many advantages of the cordon system, I may add that a tree can often be placed in a position where room cannot be found for a large specimen. In small gardens the cordon is of the highest service, as many kinds can be grown in a limited space.—J. C. F.

— The other day I was looking at a wall of cordon Pears that had been planted three years ago, and the wall some 12 feet high was completely covered with trees in a bearing state. In no other way could the work be done so quickly. They were single-branched cordons on the Quince, and planted about 18 inches apart, giving plenty of room for some of the side shoots to be tied in, which is an advantage as far as fruit bearing is concerned. A little more freedom of growth than is commonly permitted has also a tendency to strengthen and prolong the life of the trees. The Quince may not in all cases be the best stock, but where it succeeds no other is required for cordon training. The main requirements are plenty of support in the shape of rich top-dressings and water in dry weather, the roots should never be disturbed with a spade or fork, and no other crop should be planted within 4 feet of the stems of the trees. It is unfortunate that some of the best Pears will not take kindly to the Quince stock. Marie Louise, for instance, to my mind the very best autumn Pear, will not grow on the Quince, but the list of good Pears that will succeed on it is long enough to ensure a good succession all through the season. For small families the cordon system will answer well, as it permits of a much larger variety being grown. Autumn Pears are very disappointing, their duration when in season being so uncertain. They may be excellent one day perhaps, and the next rotten at the core. It has often grieved me to throw bushels of splendid fruits to the pigs, because they could not be consumed whilst in condition.—E. H.

Grape Mrs. Pince.—In answer to Mr. Allan (p. 82) respecting the time the Hamburgs were ripe where Mrs. Pince Grape succeeded so well, I have to say that he was not far out in the conclusion he drew as to the time, for they were generally ready for the table by the end of June. Although I have had no experience of this Grape as a stock for other kinds, I can quite believe what Mr. Allan states in its favour, and it would probably be as suitable for a stock for Muscat of Alexandria and many others as it has proved for the Duke of Buccleuch referred to. Those who have not been successful with the Duke of Buccleuch might well profit by the reference to it made by Mr. Allan. I am pleased to see that Mr. Young is so successful with the kind, and it may be of interest to him and others for me to state that our Vine of Mrs. Pince was situated at the east corner of a vinery having a south-easterly aspect. The ends and roof of the house are glazed with broad panes of glass, and nothing interrupts the light from the end referred to. Referring to the question of light v. shade, although I like to see a good covering of foliage over some of the black kinds, I have always made some exception to those having Muscat parentage except Lady Downe's, on which, being so susceptible to scalding, abundance of foliage is encouraged for the purpose of alleviating that evil. To Mrs. Pince, Muscat Hamburg, and Madresfield Court I always give a fair amount of light at colouring time, and I have in some instances exposed a few bunches of Madresfield Court when I have wanted to hasten them along. As Mr. Young so justly puts it, "the densest colour is on the side of the bunch most exposed to the sun and light." Especially is this noticeable when looking the bunches carefully over to find out which is the best side to keep up on the exhibition board.—C. WARDEN, *Clarendon Park, Salisbury.*

The winter at Falmouth.—The winter of 1890-91 has been unusually severe all over England and the Continent of Europe, and has indeed been a test season for those places laying claim to mildness of climate. Falmouth has in this respect held its own remarkably well, and has established

its claim to possess a winter climate as good as that of any English watering-place, and which will bear favourable comparison with many of the Continental resorts. The mean daily temperature at Falmouth for November, 1890, was 45.4; for December, 1890, 38.8; and for the first twenty-one days of January, 1891, 36.4. The mean daily range for November was 7.7, for December, 7.6, and for the first three weeks of January, 1891, 10.8. The thermometer fell below freezing point during November on five days only, in December on ten days only, and on ten days during the first three weeks of January. Slight snow showers occurred on three days in December and one day in January, but on each occasion were far too slight to remain on the ground. The lowest temperature recorded for the winter was 22.4 on November 29, and the same (22.4) on January 18. This is the lowest temperature ever recorded at the Falmouth Observatory, which has been established twenty-two years, so that on no occasion during the past twenty-two years have quite 10° of frost been experienced at Falmouth. Dracenas do not appear to have suffered, though entirely unprotected. The spring will determine to what extent the sub-tropical plants have been affected. Primroses, Cowslips, and Wall-flowers are at present in bloom in the most exposed situation in the observatory garden and in many gardens in the neighbourhood.

ROSE GARDEN.

SWEET-SCENTED ROSES.

It may be useful to give a list of Roses that are more or less fragrant before the planting season is over. In the estimation of many cultivators a want of fragrance in any Rose, however valuable its other good qualities, is a serious drawback. The following list will, I therefore hope, be of some service.

Taking the Hybrid Perpetuals first, I may remark that *La France* would never have been so popular had it not been for the pleasant perfume of its flowers. In that respect it is probably the most valuable of any in its class, especially when the bloom is only half expanded. *Marie Verdier* is, I think, the next most remarkable Rose in this respect, the sweetness of the flowers being very noticeable, nor is it wanting in other good qualities. Its silvery rose colour and beautifully cupped shape leave nothing to be desired. There is a fragrance in *E. Y. Teas*, the colour of which is deep cerise-red. *Paul Verdier* is not perhaps a good perpetual, but there is no sweeter Rose grown, while its bright rose-coloured flowers are of good form and proportion. The sweetest of all the dark Roses is *Empress of India*; it is a misfortune that it is such an indifferent grower. *Prince Camille de Rohan* and *A. K. Williams* are of equal merit in this respect. One or both are indispensable in a fairly large collection. *Eclair*, bright red, and *Souvenir de Charles Montault* help to swell the list of those with different shades of red or crimson; both are fairly sweet. There is much fragrance in the flowers of *Cheshunt Hybrid*, and in a good climate it makes an excellent climber. Amongst those bearing flowers of shades of pink and rose there is none more fragrant than that old and well known Rose *Jules Margottin*. Next to this I must place *Mrs. J. Laing*, *Heinrich Schultheis*, and *Magna Charta*, the last-mentioned being a grand garden Rose. It makes a good standard, while it will cover a pillar 10 feet high. *Mme. Gabriel Luizet* is a beautiful pale pink Rose that is as beautiful in colour as it is sweet. *Elizabeth Vigneron*, although introduced as far back as 1865, is still unsurpassed as a delightfully fragrant flower of a rosy pink colour. *Rosy Morn* is an English raised kind that deserves including in this list.

It is remarkable that in this class of Roses there are more fragrant varieties amongst those with flowers of shades of red or crimson than of any other colour. I cannot explain why this should be. There are, as a matter of course, many sweet-scented Roses outside the list of Hybrid Perpetuals. The old Cabbage Rose everyone knows to be very

fragrant. The white *Provence* and *Souvenir de la Malmaison* are fairly sweet. Although so small in size, some of the Scotch Roses are remarkably sweet. Many of the China Roses are also very fragrant, none more so than *Mrs. Bosanquet*. But the most delicately tinted and sweetest Rose that is to be found in any of the various classes is *Celeste*. Although nearly a single variety, there is not one that can approach it. The habit of growth of the plant and the exquisite form of the flower make it a gem amongst Roses. J. C. C.

EFFECTS OF FROST.

A SEVERE frost like that we have just passed through is both instructing and interesting. The recent spell of cold weather has been more than usually partial in its effects. For instance, the last summer's shoots of climbing Tea Roses, standing out their full length away from the wall, appear to be no worse, whilst not far away the common *Aucuba* may be seen with last season's leaves and wood as black as if they had had boiling water thrown over them; and *Hollies* sixty or eighty years old in some cases are throwing off their leaves so thickly as to cover the ground. The slaughter that has taken place, especially amongst green vegetables, is such as to show the great mistake that is made in growing these on ground that is too heavily manured and in planting too closely. The destruction of Broccoli is particularly noticeable where the crop has been left to chance, and nothing done in the way of heeling over at the right time in autumn to give the necessary check to growth and protect the stems. Winters like this show the mistake that is made in growing little or nothing except the more showy sorts of vegetables, especially in the late kinds of flowering Broccoli, to the exclusion of the sprouting sorts, such as the purple variety, which is now scarcely to be met with in one garden in a dozen. This excellent old kind is not much to look at on the table; consequently where more is thought of appearance than edible qualities, the close-headed sorts are likely to continue to be grown in preference to the purple, though for flavour and general quality it beats the whole of the white varieties, and when properly grown will come unscathed through weather that makes a clean sweep of fashionable kinds. A good breadth of the purple form of *Cottager's Kale*, *Buda Kale*, or curled greens where they are present will be a good help to fall back upon. But, like the purple sprouting Broccoli, these sorts are now more noticeable by their absence. Those who make a point of planting out Coleworts, as other crops come off until late in the autumn will reap the benefit of their forethought, for a long time will elapse before the spring Cabbages will be in. It is a long time since the destruction among Potatoes has been so great, hundreds of tons having been frozen through in the trucks coming to the London markets. In the eastern parts of the country where Potatoes are extensively grown the destruction in the clamps is very great. The series of mild winters we have had has thrown those off their guard who do not make a point of being always prepared for the worst, through which an insufficient body of straw has been put immediately on the Potatoes and a like insufficient thickness of earth over the straw, further aggravated by an absence of the needful amount of litter, stubble, or other light material on the outside to keep out frost.

In the past frost, as always happens, it is in the few degrees that intervene, say, between 26° and zero, that plants which are usually considered capable of standing our severest winters suffer, and the way in which some things show the effects of excessive frost is both startling and in some sense unaccountable. One or two instances in times past I may name that have come under my own observation. Some ten years ago when there was a severe and protracted frost in the north of England, accompanied by a considerable amount of snow, a friend of mine, who grows Grapes for the Manchester market, had amongst others a house of Vines planted outside with some 2 feet of the stems be-

tween the collar and the openings through which they were taken into the house, exposed. This portion of the stems was protected in the ordinary way, with straw ropes wound closely and thickly round them. As the snow on the roof melted the water in the ordinary course ran down to the gutter, which was filled with solid ice; each day as the sun came out the melting continued, and the water overflowing the ice-filled gutter found its way to the stems of three or four of the Vines, the straw jackets of which became encased with a solid mass of ice. When the thaw came nothing noticeable occurred until the Vines were started, when those that had had the outside portion of their stems encased in ice in the way described only broke at the lower part of the rods, varying from 4 feet to 6 feet up from where they entered the house. The portions of the rods above the length mentioned failed to break altogether. One would naturally have supposed that the parts of the stems that were outside and encased in ice would have been the portions that would suffer, and the whole of the rods above would have been in a like condition. But here the injury only showed itself on the tops of the Vines that were not exposed to the influence of the frost at all. Another instance of unlooked for effects of extreme cold which I saw was at Lambton Castle, where during the same winter as that which affected the Vines I have mentioned, the thermometer, after a heavy fall of snow, fell below zero; the slaughter in the pleasure-grounds was such as I have never seen anywhere else. Amongst other things that suffered was the common English Yew, which has been largely planted there; the trees were in a vigorous, thriving condition, and averaged, as far as my memory serves me, from 15 feet to 18 feet high. A large number had their tops, both branches and stems, killed quite dead down to some 4 feet or 6 feet of the ground. The bottom branches that sprung from the stems near the ground were at the time the frost occurred completely covered with snow, and some of those immediately above them were bent down under it, so that a large portion of their extremities was also under the snow. In almost every case where the ends of the branches were covered in the way described, it had the effect of preventing the destruction of the heads of the trees up to immediately above the branches, the extremities of which were covered. Here was a case in which the effects were just the opposite to that of the Vines mentioned, as in this case the snow covering on the extremities of the branches saved the lower portions as well as the trunks of the trees up to above where these partially covered branches sprang from. Something is to be learnt from both these cases, which, so far as the Vines were concerned, showed that though the part of the stem that was frozen did not suffer, still the effect was such as to destroy a large portion of the canes above. Regarding the Yews, the mantle of snow with which a portion of the branches was in part covered had saved the base, though exposed, as well as the trunks.—T. B.

— Severe as have been the effects of the late frost on the gardens around London, they are not nearly so disastrous as in those about Paris. The Grass on the lawns and in the parks is browned and quite withered up as if killed to the very roots. The shrubs have suffered terribly. *Euonymus*, *Privet*, *Azara*, and common *Laurel* are brown and shrivelled up as if a fire had passed under them, but *Aucubas*, *Box*, and *Bamboos* do not seem to be hurt. *Furze* on the common looks as if it is killed, for it is perfectly brown, and a great contrast to the Broom where growing near it, which still remains quite green. The vegetable gardens are pitiful to behold—Leeks, Broccoli, Sprouts, and everything of the Cabbage tribe white and rotten to the core. It is only as one approaches Boulogne or Calais on the north that here and there a bit of green-stuff appears in the gardens. In fact, the country from Paris to the north is like a dreary desert compared with Kent on the other side of the water. Those who grumble at the English climate should experience and see the effects of what they have had lately on the Continent.—R. J. G. R.

TREES AND SHRUBS.

THE MEXICAN ORANGE FLOWER.

THE fragrant Mexican Orange Flower (*Choisya ternata*) is better known to those who live in the north of England as a greenhouse flower than as a bush in the garden, but in the warmer clime of the southern counties it flourishes out-of-doors with great vigour. The accompanying illustration shows it as a garden shrub in Devonshire, a county that can boast of many beautiful specimens of things that are in more northern districts known only as glasshouse plants. The specimen shown in the engraving has been in

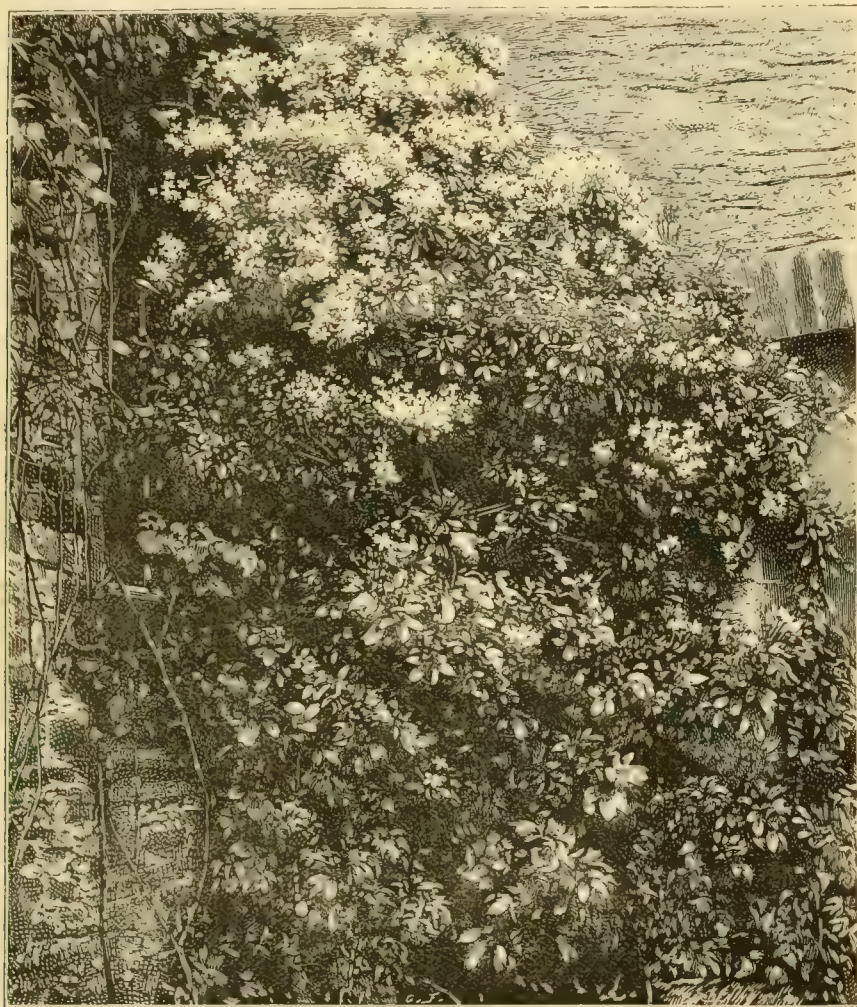
the past long-continued period of severe frost and snow. Reports are constantly coming to hand of the destruction of shrubs, one nurseryman writing us that his plants of *Veronica Traversi* and *Azara microphylla* have been completely killed. Such things as *Choisya ternata* are certain to have suffered keenly, but those who intend to try this fragrant shrub in the open should remember that the best results are obtained from planting in a light, sunny position, so that the growth can be well ripened up before winter commences. Plants with well-ripened and hardened wood never get cut back in the same way as those in a green and ill-ripened condition. *Choisya ternata* was introduced about the year 1825 from Mexico, where

here and there was divested of its berries as soon as the hard weather set in. This leads me to ask another question, viz., is there degrees of quality and sweetness in Holly berries as in most other fruits?—J. R.

THE PLANTING SEASON.

A NURSERYMAN, probably fearful lest intending shrub and tree planters would regard the planting season as practically over already, drew attention to the fact that because of the long spell of severe weather through which we have passed, trees and shrubs were for the time of the year in an unusual state of rest, which would probably be prolonged. That is, without doubt, the case, although we all know that sometimes after a period of great depression—such as exceeding cold produces in Nature—the rebound is both great and early. That may not be so now, because we have still several weeks to pass by ere Nature begins to move, and further cold weather is very possible. For that reason it is well to regard the nurseryman's intimation that planting may be done with special safety and advantage now that the weather is open, at least until the end of March. We have thus a period of two months during which with diligence very much may be done to make up for lost time, whilst it is very possible that trees and shrubs transplanted now will be in better case than those transplanted last November. Notoriously the hardest of things suffer less from severe weather when well established than when the roots have no hold upon the soil, and even when some protection is given to the roots it often happens that the tops suffer appreciably. Still we must never neglect the season for the doing of needful work when it comes, as procrastination often finds its reward in the loss of a whole year. No one, therefore, would advise that all planting should of necessity be left over from November till February or March, for these months may prove to be exceedingly unpropitious for the work. In the present case the choice between planting now or not at all is our enforced choice, as for a period of some seven or eight weeks planters had no option but to remain inactive. What remains now is to make up for lost time with all possible rapidity, and to do that, work must be set about at the greatest possible speed. It may be that some readers of THE GARDEN who planted perhaps largely of trees and shrubs in November have also begun planting again since the thaw. It would be, therefore, specially interesting did they take special note of the general results of the diverse plantings and record the same in these pages next autumn. Perhaps some would have to declare that they found no difference; others would perhaps favour the late or the earlier planting, according to soil and situation. What would really be important to know, arising as it does out of enforced conditions, is whether February, if the weather be open, may or may not be as good a planting month as is November. Perhaps at the same time some reference may be made as to the results of severe weather upon newly-planted trees and shrubs as compared with the effects of the same weather upon established vegetation.

A. D.



The Mexican Orange Flower (*Choisya ternata*) outdoors in a Devonshire garden.

its present position over twenty years. It occupies a corner between east and south aspects, and is of luxuriant growth, at the same time perfectly hardy. Those who are fortunate enough to have a bush near the house must know the pleasure of an atmosphere laden with the strong, but not too powerful Hawthorn-like fragrance. Of course, bushes like this can only be expected in the southern counties, and outside these it should be planted against a wall, not as a single bush exposed on every side, and receive protection during winter. We fear that many choice trees and shrubs not accounted exactly tender, but yet apt to be nipped in very hard seasons, have suffered considerably during

it grows freely on the hillsides, presenting a delightful picture during the flowering season.

Birds and Holly berries.—It is not often we have such severe weather so early in the winter. In most years there is a good crop of Holly berries here, but they are usually all eaten up by the birds long ere this in even phenomenal mild winters. This year, although every Holly tree carries its load of lovely coral berries, they are even now, with few exceptions, quite untouched either by wood pigeons, thrushes, or blackbirds, of which there are immense numbers. Is this on account of the wet, cold, sunless summer, leaving the berries in an unripe state, therefore unpalatable to the various birds which usually devour them? I think so. A tree

Tree and shrub notes.—Remarkably striking amidst the more prevalent greenery of Laurels, Rhododendrons, green Hollies, &c., in this wintry season are the following: *Abies Alcoquiana*, a vigorous grower, the colour on the undersides of the branches being a kind of amethystine blue, which produces a distinct and peculiar, though most pleasing effect. It forms a handsome tree. Quite different to the above in all points is *Abies polita*, a dwarf grower, and thickly studded with branches and branchlets, and as prickly as the top of a Gorze bush. The whole plant—stem, branches and leaves—is a very pale yellowish green. I fear the above two varieties of *Abies* are not seen so often as their effectiveness entitle them to. Better known are *Cupressus Lawsoniana aurea* and *glauca*, two varieties that retain their delicate colours throughout the year. *Cryptomeria japonica*, although its formality is objected to by some, is, nevertheless, conspicuous among the more sombre greens, its feathery branchlets making amends for

its strictly, if faulty, tapering growth, and where many seedlings of it are grown, the gradation of shades in different plants from dark to very pale green is very marked. Good specimens of the lighter shades well furnished from bottom to top are the most attractive at the present time. Unfortunately, I fail to see great beauty in the much-lauded *C. elegans*. Viewed on a dull wintry day, one is not enraptured of its sickly and scorched-looking garb. The exquisite beauty of *Pinus insignis* always attracts attention, its delicate grassy-green, so rare in our hardy evergreen trees, being exceptionally effective wherever planted. Merely to name such well-known trees as the Scotch Fir, *Pinus excelsa*, *Abies Douglasi*, many of the *Piceas*, *Cedrus Deodara* and *C. atlantica*, *Retinosporas* in great variety, &c., show the wealth of suitable subjects we have at command to relieve the sombreness of the heavier greens in the winter scenery, and which, planted judiciously and in keeping with the extent of the place, its various aspects, &c., will prove effective and a source of pleasure during even the dullest season of the year.—J. R.

FASTIGIATE TREES.

THESE have a value of their own when well placed. A line of fastigate trees is incongruous with almost any surroundings; so, too, are single specimens planted, be they ever so wisely, amongst our ordinary habited trees. To see Lombardy Poplars covering a knoll in some low-lying district, or grouped irregularly in the valley where they can be viewed from a bridge or eminence, the effect is surprising. This applies not to the Lombardy only, but also to the Upright Cypress; indeed, fastigate trees generally. These two, the Lombardy Poplar (*Populus fastigiata*) and the Upright Cypress (*Cupressus sempervirens*), may be taken as good examples of deciduous and evergreen upright-habited trees, both being prim and even as if the pruning shears had annually been applied.

THE LOMBARDY POPLAR is perhaps the most effective of tapering trees, simply because it grows to a great height in comparison with other fastigate subjects. It is a valuable tree, too, succeeding well almost anywhere.

THE EVERGREEN CYPRESS (*Cupressus sempervirens*), too, attains to a great height, and is very beautiful where nearing maturity. There are two well defined forms, one with horizontal branches and the other of decidedly upright growth; indeed almost as much so as the Lombardy Poplar. The latter is that which we will now consider. In some of the specimens of this tree grown in England the height and branch-spread bear no near proportion, a 40 feet high specimen rarely exceeding 6 feet in spread at the widest part. There is a noble clump of these at Penrhyn Castle, in Wales.

C. LAWSONIANA PERFECTA VIRIDIS is a neat, small growing and beautifully green-foliaged plant. It is of great value where space is limited. It is largely propagated and meets with a ready sale.

THE CYPRESS OR PYRAMIDAL OAK is but a form of our native tree, but a most distinct and fairly reliable one, it not uncommonly rising quite as fastigate as does the Lombardy Poplar. At Fulham Palace there is a fine example of the tree, and in which the upright habit is well set forth. It is increased by grafting, and is a desirable tree for park or lawn planting.

THE CORNISH ELM (*Ulmus cornubiensis*) is another semi-upright-growing tree; indeed the little departure from the stiff shorn line of the trees already noticed is pleasant in the Cornish Elm, rendering it of great value for park planting, and that, too, without having to take into account the general surroundings, as must be done with strictly pyramidal specimens. This Elm is gradually rising in public opinion, and so well it may, for it is one of the best of its tribe, though at present it must be classed amongst the neglected trees. It rises 80 feet in height, and with a branch-spread rarely exceeding 12 feet. For planting at the angle where two roads meet, or in fact anywhere that ground space is confined, the Cornish Elm is a valuable tree, its not too stiff and set appearance causing it to be suitable almost wherever it may be placed.

THE COMMON YEW (*Taxus baccata*).—Of this there are fully half a dozen upright-growing forms, the commonest and best known being the Florence Court or Irish Yew (*T. b. fastigiata*), a stately rigid tree with dark green leaves. *T. b. stricta* resembles the former

in general appearance, but the leaves are smaller and of a fresher green. The Cheshunt variety (*T. b. cheshuntensis*) is a most desirable plant of columnar habit, but with small, closely set leaves, these being dark and glossy. Then we have the Nidpath Yew (*T. b. nidpathensis*), a handsome form of strict growth, with a disposition to spread at the top. These are all useful, and for the greater part well known trees or large growing shrubs.

THE PYRAMIDAL LOCUST TREE (*Robinia pseud-acacia pyramidalis*), though rarely seen, is a most distinct tree, somewhat after the style of the Lombardy Poplar, but never attaining to such a height. Flowering freely, and being of neat strict growth and well furnished with the freshest of pea-green foliage, it may readily be imagined how interesting a tree this Locust is during the summer months, but particularly when in full bloom. I have never seen a large specimen of the tree, but judging from nursery plants fully developed specimens must be of great interest.

THE UPRIGHT BIRCH (*Betula alba fastigiata*) cannot otherwise be referred to than as one of the most graceful of strict growing trees. It may seem somewhat out of place to speak of an upright-growing Birch, considering the graceful semi-weeping habit of the parent, but such there is, and the part reversion or rather combination of weeping and upright habit is just what adds the greatest charm to this unfortunately little known tree. With the distinct and characteristic appearance of the tree everyone seems taken, the light haunting habit and perfect upward inclination being two extremes that, save in this Birch, are rarely well combined.

THE COMMON BOX (*Buxus vulgaris*) has a most persistent upright habited form in that known under the name of *B. v. pyramidalis*. The leaves are bright and big, while the plant is not dwarf, and of as upright a habit as the Florence Court Yew.

The above include a few of the upright-growing forms of our woodland and park trees, but there are many others equally deserving of notice. Amongst such trees as are not, in the true sense of the word, fastigate, we have such choice subjects as the deciduous and Mexican Cypresses (*Cupressus* or *Taxodium distichum* and *T. Montezuma*), the latter a half hardy, but valuable tree where space is limited. Then we have the Swiss Stone Pine (*Pinus Cembra*), a tree of unusual narrow branch-spread in proportion to its height, and one that is of great value for ornamental planting.

A. D. W.

The Honey Locust (*Gleditschia triacanthos*).

—The spines with which the branches of this *Gleditschia* are armed are conspicuous at all seasons, but especially during the winter when the tree is devoid of foliage. Many of these spines are as much as 3 inches in length and usually of a branched character; they are produced not only on the young wood, but also from the main trunk and principal branches of the tree. The Honey Locust is, comparatively speaking, rare in this country, for though introduced as long ago as 1700, it is very seldom seen unless in a few old-fashioned places. It is like the common False Acacia in growth, but altogether more open. The pinnate foliage is very beautiful, being of a light shining green, but the flowers are not conspicuous. It is amongst the latest of our hardy trees to push forth its foliage, and what is more it is not retained till a corresponding period in the autumn. While many of the Leguminosæ with their deep descending roots will succeed at least fairly well even on dry sandy soils, it is useless to expect the Honey Locust to flourish under such conditions, for a good, deep, moderately moist soil is necessary to its well-doing, and in its native country—the Southern States of North America—it is said to be found principally in fertile valleys. The wood of the *Gleditschia* is very hard, yet splits easily, and is available for many purposes, but in this country its merits as a timber tree may be passed over, and they must be considered only from an ornamental point of view. It has been at times recommended as a hedge plant, but is of too vigorous a growth to give satisfaction when used in this way. True, the spines are formidable enough to present an almost impenetrable barrier, but the cutting necessary to keep it within bounds causes it to become bare at the bottom, and, generally speaking, unsatisfactory. The autumn

tints of the Honey Locust are yellow, but, as a rule, the leaves drop very quickly after changing colour. There are many recognised varieties of this *Gleditschia*, but it is somewhat variable when raised from seed, so that where there are a number of young plants it is often possible to pick out a few that differ widely from the others. One variety—inermis—is almost without the large and showy spines which are conspicuous in the ordinary kind.—T.

SHORT NOTES.—TREES AND SHRUBS.

Andromeda speciosa pulverulenta.—This is a plant which I recently found in an old garden, where it is said to flower very freely every season. It makes a neat twiggy shrub some 3 feet or more high; its leaves are roundish and covered with a white powder. The plant is a native of Carolina in swampy places, and is really a pretty object when in bloom. It was figured in *THE GARDEN*, Dec. 29, 1883, under the name of *Zenobia*.—W. H. G.

The Mexican Snowberry (*Symphoricarpos microphyllus*).—This is a very handsome twiggy bush, with small opposite leaves, and belongs to the Honey-suckle family. The flowers are tubular, not much longer than the leaves, pinkish, but not showy, as they are much hidden by the leaves. They are followed by medium-sized rose-coloured berries, which, from their abundance, are very showy in late autumn and winter. It is said to be very common in Mexico, found at 8000 feet and 9000 feet elevation, and is quite hardy in this country.—W. H. G.

Street trees in Manchester.—I have not heard Mr. Neild's name (p. 74) mentioned in this matter, but my authority for stating that "some of the best horticulturists" about Manchester had been asked to join the Town Gardening Committee and lend their assistance and had declined was a distinct statement to that effect in a lecture given not long since before the Manchester Horticultural Improvement Society, and probably also in Mr. Neild's own hearing. This statement was also printed in one or more of the Manchester daily papers. Mr. Neild is also wrong in supposing the plants came from the "north of Scotland." I believe not one plant came from that quarter; whereas some at least came from a nursery in a black district not far from Manchester.—LOOKER-ON.

THE WEEK'S WORK.

PLANT HOUSES.

GREENHOUSE VENTILATION.—With the favourable change in the weather it will now be possible to ventilate more freely. Every advantage should therefore be taken of fine weather for this purpose, particularly when the air is fairly dry or the sun shining brightly. At such times the plants are much benefited by having a free circulation amongst them, especially after a period in which but little fresh air could with safety be admitted. Should the wind be in the east, then ventilation in that direction must be given with caution. Front lights facing that quarter should only be opened slightly with rather more top air. In the case of span-roofed houses most of the ventilation should be given on the protected side. During mild weather when there is no prospect of a fall below freezing point towards morning, a little top air left on all night will be an advantage in a cool greenhouse. This can be better effected with lights that lift by gearing than by the old-fashioned sliding lights, which admit the slightest downfall of rain. When there is a tendency to frost towards nightfall, then close up in good time. I would rather do this than use too much fire-heat at night. During the daytime when the weather is dull and the outer atmosphere charged with moisture, then a slight warmth in the pipes is always beneficial early in the day. In this way the atmosphere of the house is better set in motion without opening the lights very wide to obtain it, and any excess of moisture is readily dried up before nightfall. Greenhouses are better kept on the dry side at night during the dull season of the year.

WATERING THE PLANTS.—This indispensable work should be seen to early in the day for the present. A close examination is not necessary every day in dull weather. In watering choice

greenhouse hard-wooded plants, great care is needed. Choice specimens of *Ericas* and New Holland plants must be looked to very carefully, as any excess of water, now that they are making but little growth, will ultimately result in an unhealthy condition at the roots. Particular care is needed with any that may not be in the best of condition. With such it is far better to err on the dry side. It does not do to rely too much upon the hollow sound produced by rapping the pots. This is in most cases an indication of a want of water, but not always so, for upon feeling the surface of the ball with the fingers it may be found to be tolerably moist. In the case of hard-wooded plants in general, the finer the roots the greater the need of caution in watering. See that sufficient is given to thoroughly soak the ball. To do this properly a second dose will in most cases be necessary when the plants are in good health. When there is an oversight in this respect it may happen that the central portion of the ball is dry, whilst that near the pot is moist, or *vice versa*. The great point to aim at is to give a happy medium gained only by close observation. Epacris of those kinds which flower early, and many of which will soon be in bloom, need rather more water until the flowering season is past.

PRIMULAS, CHINESE.—Where the plants are large in proportion to the pots, some weak liquid manure will assist them and strengthen the flower-spikes. The later batches which may still be in small pots (probably 4-inch or so) should be allowed to stand over without another shift. These will now be putting up their flower-spikes and where home-saved seed is wanted they will be the best from which to obtain it. Give them, therefore, all the light possible and do not allow any that are of superior quality to be cut. A few weeks later, when in full bloom, artificial fertilisation should be resorted to, so that a good set may be had from the finest flowers. This operation is best done from day to day with a fair-sized camel's-hair brush kept for the purpose. Double Chinese Primulas will now be at about their best; as soon, therefore, as they can be spared, all the spikes should be removed and the plants set aside for propagation. The first thing is to induce fresh growth by placing them in a slightly warmer house or by increasing the temperature of that in which they still remain. In the case of all Primulas remove the faded flowers to guard against any injury from decay, which will often run downwards through the seed vessel and footstalk into the stem and so spoil the entire spike.

CINERARIAS, now coming into flower or with spikes advancing, should also be fed with weak manure water. Those for later use, still in small pots, may receive another slight shift. These making a useful lot of plants to flower after the main part of the bulbs and forcing material are past their best, yet come in before the mass of Pelargoniums, Azaleas and Calceolarias are in full bloom. In potting these at this time of the year use nearly all loam and nothing whatever that will promote a vigorous growth.

SHRUBBY CALCEOLARIAS for pot culture should soon have a shift. If they have been so far wintered in a cold frame, it will be as well when potted to place them in the greenhouse upon a shelf if possible, or on the shaded side of a span-roof. A small shift for the present will be sufficient, loam, leaf soil, and road scrapings suiting them. Herbaceous Calceolarias, where fairly well rooted, should also be potted. They should never be left until pot-bound, or premature flowering may result therefrom. If now good-sized plants in 4-inch or 5-inch pots, they may be safely shifted into those up to 6 inches. The soil should be a light loam with leaf soil or a little peat and plenty of sand. Potting should be done carefully to preserve the lower and finest leaves intact and in a moderately firm manner, with the hands only. Afterwards keep them in a moist place; the dampest and coolest part of a greenhouse, or a pit from which the frost can just be excluded, will suit them well. Keep a close watch for any symptoms of green-fly both upon Calceolarias and Cinerarias. A moderate fumigation in good time is far better than repeated doses in extreme cases.

FUCHSIAS.—Some of the old stools should now be placed in heat to yield a supply of cuttings. The potting of such need not be done yet, as it would tend to check the growth for a week or two. The entire stock of Fuchsias should be looked over as soon as possible for pruning. It is as well to get this done in good time and before the potting is seen to. Where they are too dry, watering will do good. It is as well to bear in mind that Fuchsias make splendid plants for training up the rafters of a cool house; any, therefore, that can be treated for this purpose should be specially looked after. Others make good basket plants for the conservatory during the summer months, and these might be set aside for the present without pruning. Those of the Mrs. Marshall type are the best to choose for this purpose.

CAMELIAS.—Now that these are swelling their buds, and some in many cases already in flower, see that they do not suffer for want of water at the roots. They will, on the whole, take more water than is usually given them, being moisture-loving plants. During the recent prolonged frost ours were well syringed daily; this was to guard against the counteracting influences of fire heat as far as possible, the temperature having to be maintained rather higher than was needful for the Camellias alone. I strongly advise this syringing, having repeatedly noted its good effects in the saving of many buds, as compared with instances in which an opposite course had been adopted. It also helps to keep the plants clean. The leaves with me are as glossy as possible, giving the impression that they had been sponged. Those that are planted out in borders may need a top dressing; if so, this is a very good time to see to it. For this purpose good soil should be selected. I prefer nearly all loam, but use some peat, perhaps one-third, with either road-scrappings or sand also added. A few half-inch bones or some coarse bone-meal and some charcoal will, if used, assist to keep the border in better condition for a greater length of time. The loam and peat should be as rough as possible consistent with its being well incorporated and left fairly even upon the surface. Where any scale, particularly the white, is found upon Camellias no opportunity should be lost in trying to get rid of it. A solution of a well-proved insecticide will generally move it. When this is not found sufficient for the white scale, it should be applied stronger if no previous injury was noticed. This will generally have to be done by sponging at this season of the year.

BULBS.—The main stock of these should by this time be free from any covering of ashes or other material. In case it has been postponed thus far, no more time ought to be lost now the frost is out of the ground. Growth will advance more quickly and that now made in darkness will result in elongated leaves and flower-stems. Those who fortunately make it a point to place their bulbs in a frame at the time of potting, and then cover them, but not so thickly, will have discovered the benefit of the practice. Out of doors for weeks it was impossible to break up the covering to reach any for early blooming, unless a thick covering of litter had been put upon the top when the frost first set in. A selection of the earliest Hyacinths should be made as soon as possible. These now being well rooted will bear forcing rather more briskly, but should not be kept in either too close or too moist an atmosphere, or the leaves will grow freely at the expense of the flower-spikes. For the earliest of reds, *L'Ami du Cœur* and *Homerus* are the best; of whites, *Grande Vedette* and *Princess Beatrice*; of blues, *Argus* and *William I.*; all singles, of course. *La Tour d'Auvergne* is a good double white. Of Tulips, *Vermilion Brilliant* forces well, so do *Le Matelas* and *Keizer Kroon*, besides the *Duc Van Thol* and *Tournesols*. Narcissi should be brought along steadily. Lilies of the Valley from single crowns are best for cutting, but clumps should be forced for decoration as grown.

JAMES HUDSON.

Carpeting plants.—In my notes in THE GARDEN Jan. 31 (p. 95) I referred more than once to plants suitable for carpeting beds, but I had no intention of advocating thereby a system of gardening of

scrolls, and patterns, and elaborate designs, but to call attention to the value of many hardy plants for covering a large surface of ground, and that used in conjunction with other things of larger growth (the latter sparingly) would present a pleasing and natural combination.—E. B., *Claremont*.

ORCHIDS.

Now that we are in the month of February, it is to be hoped that no more dense fogs will trouble us, as it is very annoying to lose our Orchid flowers, either in the bud state or when they are fully open. Orchid flowers have died off in the bud state many miles from the metropolitan area, and away from the smoke of any town. One amateur wrote me last week to say his flower-buds of *Phalenopsis* had turned yellow and dropped off, and he was afraid it was his own fault. Now this is not likely to be so. I would be very slow indeed to blame the cultivator who failed to bring his Orchid blooms up to a high state of development, or was so unfortunate as to lose buds of *Phalenopsis* during the intense cold of such a winter as I trust we have now left behind us. The blooms of the Moth Orchids are very sensitive to alternations of temperature, and I do not quite see how we are to avoid these atmospheric changes when the heating apparatus is taxed to the utmost night after night to keep up the temperature. Some growers cover the glass at night with some shading material, which assists the hot-water pipes, but with all our care we must not expect the flowers to develop in winter so freely or so well as they do in summer, and if some few buds fail to open at all we must take it as an incident scarcely possible to be avoided, even by the incessant attention of the cultivator. The most useful Orchid now is *Lælia anceps*, and the most beautiful varieties of the species are, I need not say, the pure white forms. I fancy we do not grow ours in such a high temperature as some people do, for they are amongst the latest to flower. The coloured varieties, including the one with the deepest colour, viz., *L. anceps Barkeri*, did not produce their flowers until quite the last days in January, and the white varieties are now opening. The flowers are of better quality with more sunlight. They are grown in the Cattleya house all the summer, but I believe in the lowest temperatures recommended for this house. The *Lælias* in question are placed in the lightest part of it; they scarcely need any shading when making their growth. I find it answers very well to repot these *Lælias* as soon as they pass out of bloom, that is if they need it, for it may be better not to disturb them. The white varieties are very much more shy in producing flowers than the coloured ones, but they seem to do better in this respect when suspended near the glass roof in baskets of teak wood. In repotting, it may be worth consideration whether a few of the plants may be put into baskets and others repotted. The best material is good fibrous Orchid peat, with which may be mixed a small proportion of clean chopped Sphagnum, also clean crocks and a few nodules of charcoal. I must also advise here, as always, that none of the plants be overpotted; this is an error that young growers are apt to commit. Better foresee the evil than be forced to remedy it when it is too late. It may be as well to remark here upon two shy-flowering Cattleyas, *C. Dowiana* and *C. gigas*. I can do nothing with either of them when they are planted in pots and flowered on the side stages; but grown in baskets with leaves almost touching the roof-glass, they usually form good flower sheaths. They are taken into the Cattleya house when the flowers appear in the autumn, and there they remain, being kept very dry at the roots, although they must not be allowed to suffer from excessive drought. Now they are starting to grow and must be placed near the glass in the warmest house, a long rest in winter with moderate heat and dryness, and a moist growing atmosphere in spring, suiting these best. The plants of the pretty white *Masdevallia tovarensis* are still in the Cattleya house. They are still in flower, but as soon as the blooms fade or are gathered the plants will be repotted. They seem

to do best with annual repotting, a mass of fine fibrous roots penetrating every portion of the compost in a season. The larger plants may be divided into several smaller ones, and it is best to part them carefully by hand. If a knife is used, the roots are cut and the plants do not thrive. We use for nearly all the *Masdevallias* about equal portions of good peat and clean live *Sphagnum Moss*. If the plants are well furnished with roots they can be repotted firmly, and care must be taken not to injure the last formed leaves. It is also important that the plant should not be set too deeply in the compost. There are so many minor details to be carefully considered, and unless they are all well carried out, successful results cannot be expected. Take, for instance, *Masdevallia ignea superba*; the true variety persists in forming roots quite out of the potting material, and as new growths are formed, instead of being close to the surface they are always well above it, and I find this variety must be repotted much deeper than it was previously in order to obtain the best flowers. All the *Masdevallias* seem to thrive with the *Sphagnum Moss*, which grows as freely on the surface as it does on the moist heaths where it has its home. The *Chamæroid* section should be grown with the *Cattleyas* some time longer, and they do best in teak baskets on the shady side of the house. Surface-dress the baskets if it is seen that they need this attention. The object of growing such species as *M. Chimera*, *M. Backhousiana*, &c., in baskets is to give the flowers a chance to push through. The change in the weather will to a considerable extent regulate the treatment of the plants. We have been able to keep the side ventilators open night and day again. There are openings in the brickwork very near the hot-water pipes. Indeed, the air comes in directly upon the pipes, and it naturally does not rise amongst the plants until it is heated. The top ventilators have been open a little daily, the temperature in the warmest house ranging from 65° to 70° by day unless the sun breaks out, when it rises rapidly. The minimum temperatures have been 45° to 50° in the cool house, 55° in the *Cattleya* house, and 65° in the warmest. Our houses are very much exposed to the north and east, and it is difficult to keep them up to these temperatures when a fresh wind is blowing from the north, and we rather let them fall a few degrees in preference to overheating the pipes. When there is a choice between two evils, choose the less, and low night temperatures are the natural conditions of many, even of East Indian Orchids. J. DOUGLAS.

THE KITCHEN GARDEN.

SPRING CABBAGE.—The change to milder weather shows how hard these have been cut in places, especially where the plants were unduly forward in the autumn. They will also be considerably later in turning in this season, and as it is the earliest spring Cabbages which are the most appreciated, every means must be taken in a season like the present to promote free growth. For this there is nothing better than frequent hoeings when the ground is in condition for this work. Where the plants are set in drills and as soon as growth has fairly started, give a dusting of soot and guano about the surface and draw the soil to the stems. When planted on the level the plants must be moulded up by drawing the soil well up to the stems. A dressing of nitrate of soda later on will also cause them to heart more quickly. Where they are crippled past recovery, seed should now be sown very thinly in a box of fine soil and placed in gentle heat on a gentle hot-bed of leaves, covered over with 5 inches or 6 inches of fine soil. It should be sown thinly in drills, and the plants will grow much more rapidly than when sown in a box and pricked out afterwards. When sown in a box the seedlings are apt to become crowded and drawn up, or the stems damp off at the surface of the ground through careless watering.

EARLY TURNIPS.—It is now becoming a favourite practice to make a sowing of early Turnips on a very gentle hotbed any time during this month. When sown thus early under glass they are not so liable to bolt as when sown early in March on a

warm border in the open air. These early dishes are highly prized, and where a two or three-light frame can be spared, or even a ground vinery light, they could not be put to better advantage. For sowing under glass Early Milan and Extra Early Paris Market are the best. The seed should be sown in drills 9 inches apart, and as soon as the seedlings appear ventilate freely, but carefully, so as to guard against a check. During fine days when the weather is genial, the lights may be drawn off for a few hours, as if too much coddling is practised there will be a superabundance of top at the expense of the bulb. The soil must be kept moist, in order to have the bulbs tender and juicy. Not only under glass can a supply be forwarded, but on gentle hotbeds formed in the open air. A space should be marked out 4 feet or 5 feet in width, and the soil taken out to the depth of 12 inches and placed on the sides, which would increase the depth of the pit to 2 feet. In this space form a hotbed, treading the material down very firmly so as to retain the heat, and cover over with a depth of 6 inches of light and rich soil. The seed must now be sown, and over the surface spread a thin layer of long stable litter. As soon as the seedlings can be seen, the litter must be removed carefully during fine days and replaced at night, according to the weather.

GLOBE ARTICHOKE.—It is early yet to interfere with the main plantation of Globe Artichokes, and where sufficient protection was afforded the plants will have wintered safely. But where this precaution has been neglected, I fear they will be killed, especially on cold soils. In most establishments Globe Artichokes are a very important crop, and where the stools are killed and if there are no means of securing a fresh supply from suckers, and which is much to be preferred, seed must be resorted to. The heads will not form so early as on established roots, but will prove acceptable later on in the season. The seed should be sown thinly in a box of rich soil and placed in gentle heat, when the seedlings will not be long in appearing. Grow on in a light position, and as soon as large enough pot off singly into 5-inch pots, using rich soil in a rather lumpy state. The plants will be fit for turning out in deeply dug and heavily manured soil early in April.

JERUSALEM ARTICHOKE.—These are allowed to remain in the ground as long as possible, as the flavour is much better than if they are dug up in the early winter and stored. The tubers should now be dug up, placing those for planting on one side and storing the remainder for future use. Some people do not go to the trouble of making a fresh plantation annually, but where such is the case the stems are crowded and the tubers small and poor in quality. It is not at all necessary to plant in the open, as they thrive quite as well in the shade, if not placed directly under the drip of trees, and very often they are planted to screen some unsightly corner or rubbish heap. The tubers should be planted in rows 4 feet apart and 2 feet in the rows, the only manure required being any old leaf soil, or, better still, open tan, into which the roots ramify.

EARLY CELERY.—Unless for exhibition, it is rather early to sow the main supply of early Celery seed. Celery for exhibition requires a very generous treatment, as upon the least check the plants would "bolt" instead of forming solid hearts. The seed must be sown very thinly in a box of fine soil and placed in a gentle heat to germinate. Thin sowing is very essential. Grow on steadily near the light, and when large enough prick out into a frame. Two inches of rotten manure must be placed over the bottom on a level and hard surface, and over this the same depth of soil, into which dibble the seedlings. Growers generally have their favourite varieties, especially for exhibition, but white varieties are usually sown at this date.

EARLY LEEKS.—Leeks are a good wholesome vegetable, and if those of a monstrous size are required, such as are seen at the autumn exhibitions, other than ordinary culture is needed. It is rather early yet to sow for ordinary winter use, though the time has now arrived for sowing if

Leeks are required for exhibition. The seed must be sown very thinly in a box of fine rich soil. Place in a gentle warmth such as a vinery just started. As soon as large enough the seedlings should be potted off singly into 3-inch pots, and as soon as fairly rooted, repotted into 6-inch pots, using the same kind of soil, but in a more lumpy state. When rooted sufficiently feed with liquid manure. The plants must be kept growing in a gentle heat, there being nothing better for the purpose than a mild hotbed into which the pots must be plunged. Gradually harden off, and by the first or second week in May the Leeks must be planted out in a previously prepared and deep heavily manured soil. When planted out from the pots the balls of soil must not be level with the soil, but a trench should be taken out to the depth of 15 inches, in which place a layer of well-rotted manure. The plants must now be arranged along the trench 15 inches apart, and the soil filled in carefully to the depth of 12 inches or so above the balls of soil. Frequent waterings of liquid manure must be poured along the trench in sufficient quantity to soak the roots.

OLD LEEKS.—Leeks that still remain in the ground will soon commence to run to seed if means are not taken to prevent it. Towards the middle of the month take them all up, and lay in by the roots behind a north wall. Ayton Castle Giant and the Lyon are the types selected for growing to a large size, the Musselburgh being the most useful for general use.

WALCHEREN CAULIFLOWER.—A sowing on a gentle hotbed of this excellent summer Cauliflower should now be made, afterwards pricking off the seedlings into a frame. Take particular care that the soil used is sufficiently holding with a layer of rotten manure on a hard surface, so that when planting time arrives each may be lifted with a good ball of soil. Plant on heavily manured soil in deep drills, which will enable water and liquid manure to reach the roots when applied. The least check will ensure premature heading. The Walcheren will succeed the earliest sowings, and prove very acceptable during July and August. A. Y. A.

HARDY FRUIT GARDEN.

IN all probability considerable progress has been made with pruning generally in most large gardens, but judging from what is to be seen in numerous medium-sized and small places very little of it has been done in these. If much longer deferred such operations will greatly interfere with other important work, and a start ought, therefore, to be made directly the state of the ground permits.

PEARS.—Wall trees of these are usually first taken in hand, the tying or nailing being done at the same time, or as soon as the weather permits. Neglect either the pruning or the training, and more harm will result than can be rectified in after years without much waste of time and labour. In each and every case it should be borne in mind that only those trees that are kept with their lateral growths somewhat closely spurred back derive the full benefit of the warmth radiated by walls, and in a less degree by fences, and long, old spurs are therefore unprofitable, as well as unsightly. Nor is there anything gained by leaving long spurs in the first instance. At the summer or early autumn stopping, all young growths reserved—for some might often with advantage be altogether removed—ought to be shortened to about 4 inches, and still further reduced to a length of 1 inch, cutting to a joint at the winter pruning. It is the neglect of the winter shortening that has led to the formation of so many long ugly spurs. A cluster of wood and fruit buds eventually forms round the spur first formed by this shortening of the first well-placed lateral growths on young branches, and a continuation of this shortening process keeps all within bounds. Where from neglect or other causes spurs from 6 inches to 12 inches in length abound on the branches, these, supposing the trees are in moderately good health and worth preserving and improving, may be gradually got into a better state by sawing off a portion of them every winter. A stump about 1 inch in length being left, and

the edges neatly rounded off with a sharp knife or chisel, from about this will most probably spring a number of young growths, and the latter being duly thinned out and shortened at the summer and winter prunings, fruit buds on short spurs will appear in due course. Three or four years may have to be expended in thus gradually replacing worthless spurs with others close to the main branches and superior in every respect, but this treatment, coupled with the renovation of the borders, has been the means of causing previously useless trees to produce exceptionally valuable crops. I would not advise taking all this trouble with old trees of inferior varieties, the wiser plan being to either regraft these with superior forms, or to completely replace with young trees.

TREATMENT OF YOUNGER TREES.—The foregoing applies to any kind of wall tree, the main branches in all cases requiring much the same

ductiveness, but, on the other hand, if little or no pruning is done, thickets of growth will be equally as prejudicial to the production of good fruit. Where healthy vigorous trees are annually hard pruned few or no fruit-buds are formed, a superabundance of fresh shoots being the result. Instead, therefore, of spurring all these hard back to the main branches, leave both the leading shoots and a considerable number of the best placed lateral growths their full length. During the coming summer these will most probably become clothed with fruit-buds, and the character of the trees altered for the better accordingly. Any so treated last winter may have a few more growths left wherever there are good openings for them, those left last winter if becoming too long having their points shortened freely back. Well formed fruitful trees should have nearly or quite all their growths spurred well back to the main branches, or be

ing, being content to place a good stake to each the main stem and leader being kept fastened to this and the rest of the tree allowed to develop unrestricted in any way beyond, perhaps, cutting back any branch taking a too strong lead. This is really the quickest way of bringing the trees into full bearing order, and I have seen remarkably fine specimens formed in that way. All are not in a position to devote much time to the staking out, pegging down, and other details incidental to the formation of perfectly outlined trees, and the latter are not often the most profitable or satisfactory after they are formed. Those who prefer to prune their young pyramids, with the view of increasing their size as well as maintaining a nearly or quite perfect form, ought to shorten the leader or central shoot to about half its length, and in this manner secure another tier of side branches and another leader. The young uppermost side shoots should be also quite as freely shortened, and the young shoots on the lower branches to half their length or thereabouts, some regard being paid to the form of the tree. In the next and following winters this treatment must be continued, and, in addition, numerous superfluous lateral growths be spurred back, only those being left that are needed for furnishing the trees. If the branches are disposed to grow too erect these may be given a more horizontal position by means of stout pegs in the ground and lengths of tar twine, and branches can also be trained to where they are needed for furnishing. It may eventually become necessary to either stop close pruning or to lift and root-prune, in order to cause the trees to become fruitful. Excellent pyramids can be grown from maidens in about five years, and trees thus raised on the place not unfrequently greatly surpass those much older when obtained from the nurseries. These maidens or trees that have had one clear season's growth only from the graft should be cut down to within 15 inches of the ground, and this would be followed by the production of several strong shoots, the best placed of the latter being selected for a leader and the rest reduced to five or six in number, so as to have them evenly distributed round the stem. At the next winter pruning the central branch must be shortened to rather less than half its length and the side branches be similarly treated. Much the same tactics have to be pursued in after years, thinning out also being necessary where the shoots crowd, cross, or interlace each other, and the leader ought always to be kept upright. I. M. H.

STOVE AND GREENHOUSE.

CALADIUMS.

As it is almost time to start these fine-leaved stove bulbous plants, a few remarks upon their cultivation, with a list of some of the best kinds, will not be out of place. For the decoration of the warm stove during the summer months they are most valuable, and when well established in moderate-sized pots may be advantageously used for vases in the house. *C. argyrites*, besides being valuable as a plant, also supplies a quantity of useful cut material. More often than not the failures in *Caladium* culture occur through many growers allowing the tubers whilst at rest, or when late in the summer the leaves are getting shabby, to be in too low a temperature. This is fatal to them in many cases, whole collections very often being lost. The species from which the fine hybrids now chiefly grown were raised are natives of Para, in Brazil, and close upon the Equator, being found around the river Amazon and its tributaries. Thus it is at once seen that to grow them successfully considerable heat is necessary, and at no time should they be in a lower temperature than that of the stove itself. I have found the stronger growing kinds keep best when shaken out of the soil after the foliage has died down. Then I placed them in pans with sand only as a covering, after-



Caladium Max Kolb.

treatment. Where there is wall or fence space yet to be covered, the leader in the case of those horizontally trained should be shortened to a length of 12 inches, or three courses of bricks, and from this it ought to be possible next summer to select three well-placed shoots, one for a leader and the others as side branches. Where more branches are required on fan-shaped or irregularly trained trees, cut back the leading young shoots to about half their length, and this should lead to the ultimate formation of as many shoots as are required. The leading shoots on any of the main branches, including those of cordons, should be laid in to their full length. If, however, there is not sufficient space for this, shorten them back freely, or to not less than half their length, or otherwise the back buds may fail to break and blank spaces be the result.

PYRAMIDS AND BUSHES next claim attention. A too free use of the knife is undesirable, this favouring a strong growth at the expense of pro-

ductiveness, but, on the other hand, if little or no pruning is done, thickets of growth will be equally as prejudicial to the production of good fruit. Where healthy vigorous trees are annually hard pruned few or no fruit-buds are formed, a superabundance of fresh shoots being the result. Instead, therefore, of spurring all these hard back to the main branches, leave both the leading shoots and a considerable number of the best placed lateral growths their full length. During the coming summer these will most probably become clothed with fruit-buds, and the character of the trees altered for the better accordingly. Any so treated last winter may have a few more growths left wherever there are good openings for them, those left last winter if becoming too long having their points shortened freely back. Well formed fruitful trees should have nearly or quite all their growths spurred well back to the main branches, or be

treated much as advised in the case of wall trees. The best pyramids are principally growing on the Pear stock, and any attempt to unduly restrict these ought to be avoided. Let them extend freely, even if this necessitates propping up, and bushels instead of a few dozen fruit will be obtained from them in favourable seasons. Trees on the Quince stock are easily confined to comparatively small compass; in fact, it is these only that should be grown where miniature pyramids and bushes are desired. They seldom form much superfluous growth, but a little thinning out and spurring back are sometimes needed either to maintain a well-balanced head, or to cause the formation of more main branches.

FORMING SPECIMENS.—Pears are naturally of a pyramidal habit, and fairly handsome productive trees can sometimes be had on the "let-alone" principle. That is to say, the nurseryman lays the foundation, and those who purchase and plant the trees do not attempt anything in the way of prun-

wards putting them in the warmest part of the stove where they would be safe against any accidental watering. It is not well to keep them too dry, an occasional watering being beneficial, but constant moisture must be guarded against. When kept in a mass of soil I have at times found the under sides of the bulbs to be decayed. This weakens them considerably, for upon keeping the bulbs intact and plump depends their future success. *C. argyrites* may be kept in the same way, but as the tubers are not grown in such a quantity of soil it is not so essential. I generally turn the pots of this kind upon their sides in a warm place. A temperature of about 60° is safe for keeping the bulbs. Nothing, however, below 55° should be allowed.

Any needful increase is best done by division of the tubers at the time of their starting into growth. In the case of *C. argyrites* a good stock is valuable. This kind should be started in quite small pots, 2½ inches in many cases being quite large enough. I have seen them started in shallow pans and succeed very well, afterwards being potted when fairly advanced. One shift eventually when well rooted is sufficient, and nothing larger than a 6-inch pot is advisable. The larger growing kinds must be treated according to the size of the bulbs, but even the largest should not be put into big pots. It is best always to start them in a moderate amount of soil and pot on when needful. At the time of starting and until fit for the first shift, a steady bottom-heat is a great help and incentive to early root action. When shifted into larger pots the ball of roots should be kept well down, so that a good addition of soil can be made upon the surface, from whence the majority of roots issue. If plants of extra size are required, three from 6-inch pots could be placed together; but, in such a case, crock the pot, if of ordinary shape, at least one-third its depth. Shallow pots are, however, the best for large plants. Whilst the specimens are in active growth they require a good amount of water, never being allowed to get sufficiently dry at the root to suffer. When the pots are well filled with roots, then stimulants in the way of liquid manure will greatly assist them. For this I prefer that from the farmyard, or a weak solution of Peruvian guano, about the colour of sherry wine. I have used both with good results. Any artificial manure with a tendency to burn the roots should be avoided, as the latter are quickly affected in this respect. When a good quantity of roots is observed upon the surface, a top-dressing of light rich soil will be an assistance. This will be better than giving another shift, and answer quite as well.

For soil, I prefer a rather light loam with plenty of fibre in it. To this I would add a proportion of leaf soil, according to the character of the loam. If this is disposed to be close and heavy, use more leaf soil to keep it open, and also a good proportion of sand. Horse manure worked through a half-inch sieve is also a good addition. In potting, only a moderately firm soil need be aimed at, anything beyond what can be easily accomplished with the hands not being needed for Caladiums. Gradually withdraw the supply of water as the growth diminishes, but do not let the soil get absolutely dry, so that the bulbs suffer. In order to bring out the delicate colours of Caladiums, I have found a rather thick shading essential. The best I ever grew were in a stove glazed with rough plate glass, and also shaded with tiffany. Syringing overhead should be carefully avoided unless rain water is used, and then even I would rather dispense with it.

Green-fly is about the only insect that I have found to trouble them, but when watered with the guano water, I noticed that these were soon dispersed.

The following are twelve first-rate kinds: *C. argyrites* and *C. minus erubescens*—the last-named has crimson leaves with a green margin, and is a fitting companion for the first; *Belley-me*, still one of the best of tall-growing, white and green-leaved varieties; *bicolor splendens*, a fine old red-leaved kind; *Chantini*, reddish ground, spotted white; *candidum*, a grand kind, white and green, large leaves; *Ibis Rose*, rose colour, heart-shaped leaf; *Mme. Margolin Scheffer*, white, with rosy ribs and green veins; *Comte de Germiny*, red and greyish-white, dwarf; *Raymond Lemoine*, creamy-white and carmine-red; *Souvenir de Dr. Bleu*, red centre, pale green border; and *Max Kolb* (the subject of the illustration), a light-coloured variety with red spots. JAMES HUDSON.

Passiflora edulis.—I have long known that the edible Passion Flower grows and bears freely under cool treatment, having grown it in a large conservatory for a number of years, but the fruits were always so thick in the rind and so lacking in flavour, that no one who had once tasted fruits ripened in the warm house cared to eat them. In my experience there is just about the same difference between Passion fruit ripened in an ordinary greenhouse temperature and those matured where more warmth is given as there is between the Oranges gathered from the trees in the conservatory and the fruits taken from trees cultivated where the temperature is high enough to push them on with sufficient rapidity to make the rinds thin and the flavour superior. The plant being a native of Brazil may, no doubt, be successfully grown in the Southern States of America, especially in warm spots in Florida, and possibly may yet become an article of commerce; at any rate there is no reason why it should not, as the fruit makes a delicious preserve when done whole just as it begins to colour and before the rind gets hard. I have never had any difficulty in setting the blossom through the spring in a night temperature of 58° to 60°. One advantage in growing in heat is that there is a longer season, as if the plants are well supported they will continue to grow well through the summer and well into the autumn, and every new growth will produce blossoms.—E. H.

Vriesia brachystachys.—Despite the trying winter we have just experienced, the brightly coloured flowers of this bromeliaceous plant are just opening. This is certainly one of the most useful of its class, as it is of a neat, yet elegant habit of growth, the leaves, which are arranged in a vaseform manner, being of a pleasing shade of light green, while the flower-stems are about a foot in height, having the blossoms arranged in two opposite rows on the upper part. The flowers are of a clear yellow colour, but the bracts which subtend them form the most conspicuous feature of the inflorescence, being at the base of a deep bright crimson colour, shaded with purple, which gradually merges into the orange of the upper part. Although better known by its above mentioned name, the genus *Vriesia* is now included with that of *Tillandsia*, and by the latest authorities it is given as *Tillandsia carinata*, the allied plant, *Vriesia psittacina* being also classed as a variety of the same species. Both are of very easy culture, needing only small or medium-sized pots, which must be well drained, and in which if the plants are potted in good fibrous peat they will need but little attention other than that of watering when necessary. Insect pests rarely give any trouble with this class, while the length of time that the blossoms retain their beauty is also another great point in their favour.—T.

Narcissus bulbs failing to bloom.—I send you herewith four bulbs of *Tazetta* or *Paper-white* *Narcissus*, and shall be glad if you can inform me the cause of their failing to bloom. They form

part of a dozen bulbs which I tried to grow in small bowls filled with pebbles and water, as I have often seen the Chinese do when I was resident at Canton. Early in November I placed six bulbs in a bowl 6½ inches in diameter and 2 inches deep, and three bulbs each in bowls 5 inches in diameter by 1½ inches deep, and placed them in my sitting-room, where the temperature has ranged from about 50° to 60° during the day, but falling perhaps to 45° during the night and early morning before the fire was lighted. For about a month they did well and threw up strong flowering stems, but shortly after some very foggy and cold days I noticed the points of the leaves in many cases were turning yellow. The flower-spikes, however, continued to swell, and appeared all right until just ready to burst, when they also turned yellow, and either rotted or fogged off. You will notice they have made plenty of strong roots, and it has struck me that perhaps I put too many bulbs in each saucer or bowl.—FREDK. C. ADAMS.

** The most probable causes of failure were the unevenness of temperature and dulness of atmosphere. The *Narcissi* imported from China and sold in shops under the name *Sacred Lilies* or *Good Luck Lilies* do the same when the surroundings are unfavourable. Our climate and that of the Chinese are quite different, and we must not lose sight of this.—ED.

MUSSENDAS.

THE arrival of some flowers of the old and well-known species *Mussaenda frondosa* reminds me about this family, and to suggest that research in the Congo and other districts of Africa might lead to the discovery of some pretty plants for our stoves. *Mussendas* are not of large growth, bear cutting well, and the flowers last a long time when gathered for decoration. They are members of the family *Cinchonaceae*, and require the accommodation of the stove all the year round, their chief attraction being in the coloured bracts or enlarged segments of the calyx. After flowering the plants should be cut back almost to the old wood, and when they begin to show signs of breaking, they may be turned out of the old soil, the roots pruned, and repotted into pots of a smaller size. These should be well drained, and the soil should consist of turfy loam, peat, leaf-mould, and manure with a little sharp sand added. During the growing season the shoots may be thinned out to suit the taste of the cultivator, and occasionally a shoot inclining to grow away from the others may be stopped, but nothing more is necessary. They like abundance of water and an occasional sprinkle from the syringe; the latter, however, had best be discontinued from the time flowers show.

M. ERYTHROPHYLLA is a plant now in commerce, but I had specimens of it for years before it was introduced by Mr. Bull, of Chelsea. It is the finest species we have yet introduced of the genus, being a fine shrubby plant with oblong ovate leaves of a rich bright green, and on the apex of each shoot it produces a head of flowers and four or five of its bracts, which are nearly the size of the leaves and of good substance, the colour bright crimson-scarlet. The flowers are small and pale yellow. The bracts retain their beauty for a long time, and a well-grown plant produces a very striking appearance. It is a native of the West African coast.

M. FRONDOSA is the oldest species I know, and is a much smaller plant than the preceding. It is neat and compact in growth, with ovate, slightly pubescent dark green leaves and terminal racemes of bright yellow flowers, which are further enriched with white ovate bracts. These are produced during the autumn and winter, and render the plant very serviceable. It comes from Ceylon.

M. LUTEOLA.—This is a very pretty plant and stronger in growth than the last species, bearing also larger and stouter flowers. These are yellow, and the enlarged portion of the calyx is oblong and pure white. This plant I raised from seed brought home by Capt. Grant, and plants of it flowered for the first time in this country in the autumn of 1863. W. H. G.

Asparagus plumosus nanus.—I am surprised that the market plant growers have not taken up this beautiful dwarf *Asparagus* as a market plant. "J. H." makes reference to it somewhat en-

thusiastically as grown in warmth. I made, I think, last year reference to it also as a room plant, one given me in July, 1889, having stood wonderfully well in a living room from that time for fully six months. Last spring the old shoots were cut away, the plant repotted and kept in a cool house until it had made new growths, and become well furnished at a height of about 14 inches. Again it was taken indoors and has been a room plant where we live. A fire has been burning all the winter and gas burnt also freely, and it is now nice and green and a pleasing ornament, often evoking the praise of visitors. This fact shows what a first-rate house plant this Asparagus is if subject to cool treatment before being introduced into the house, so that the growths are fairly well hardened. I have had to cut away some shoots of the earliest growth, the leafage on which had become brown. Still I doubt whether any other green-foliaged plant would have stood so long the air of a living room, especially where gas is nightly liberally burnt. The foliage is so fine that it does not, perhaps, harbour dust as broader foliage does, whilst a good sprinkling overhead at times seems to give all the cleaning needed. The plant is in a 4½-inch pot, and stands in a china vase. Will some others obtain plants if they do not possess this dwarf Asparagus, and give it similar treatment for the purpose of seeing how far their experience of it as a room plant coincides with my own?—A. D.

FLORISTS' FLOWERS AT FARNHAM ROYAL.

ABOUT five miles from Slough, and near to the celebrated Burnham Beeches, placed amidst lovely woodland scenery, the late Mr. James, whose death we recorded last autumn, established a nursery, now carried on by his son, devoted principally to four leading florists' flowers, the Persian Cyclamen, Chinese Primula, Cineraria, and herbaceous Calceolaria. The chief features of interest now are the Persian Cyclamen and Chinese Primula, which are in full vigour, to be followed shortly by the Cinerarias that are already bursting into flower. Nearly everything is grown solely for seed, and we, therefore, obtain a fine show of each individual flower in its best possible phase. Where everything is for seed, it is more necessary than when plants are raised for the market to keep the strain as pure and fine as possible; hence the Cyclamens at Farnham Royal are evidence of the great strides that have been made by raisers and growers of the plants during recent years. The old type of ten years ago that occasionally greets us in gardens that do not reflect the progress of the age in horticulture is a poor thing compared with the splendid productions to be seen in nurseries and at exhibitions in the present age. The Cyclamen of old days had small flowers on a long, thin, lanky stem, and a growth very different from the compact plant that is now held in admiration. The colours also are more varied and of a richer depth of shade, some almost approaching black in their intensity of tone, others the opposite extreme—pure white. We get all these delightful phases of the Cyclamen at Farnham Royal, and after seeing such specimens the wonder is that this greenhouse flower is still what may be properly called uncommon. It is true that it is frequently exhibited, but in eight out of ten English gardens only a few plants are cultivated, and that too often very indifferently. One reason is that it is not the easiest thing to grow with success. Close attention is requisite to ward off insect pests, which are very partial to the leafage, and unless the houses are well lighted, ventilated, and the stages near the glass, so as to produce compact sturdy specimens, the results are very poor. But troubles like these can be fought against, and, considering

the flowers are the least affected of any by fogs, its cultivation should be more generally undertaken by gardeners. One place we know of this season near the metropolis would have fared badly but for the Cyclamen. The Orchids and greenhouse flowers were cut off wholesale by the thick sulphurous fogs that trouble Londoners from November to January, but the Cyclamens, although they did not open as freely as usual, provided acceptable material for decorations. Some time ago it used to take three years to obtain a good healthy flowering plant; now fifteen or at the most eighteen months will suffice, so that great praise is due to hybridisers and growers for its present perfection. The flowers at Farnham Royal are splendidly coloured, especially the deep crimson and allied shades, which are dead and uninteresting in the Royal Aquarium or the Drill Hall, but rich and effective in the pure sunlight. Their beauty is best seen in the evening when the sun is setting, as the lurid glow of colour gives brilliancy and depth to the intense shades. There are also various degrees of rose. Some varieties are of the clear bright colour as in the La France Rose, others deeper; and then we have intermediate tints. Red and white with a crimson base and the pure white are delightful, especially the last mentioned, of which there is a large batch in one of the houses, one solid mass of white, varying slightly as regards the shade, some flowers being self ivory-white, others with just the suspicion of rose in the broad massive segments. All the plants have a close strong habit, the leafage compact, though showing an interesting variation in the veining and shades of green to almost bright silver; the flowers large, massive, and each borne on a short strong stem. They are produced in profusion, some plants being one dense mass of bloom that almost hides the leafage. One variety in the collection is a true double. The acquisition of a double Cyclamen may shock those who conjure up a grotesque shape and entirely wanting in graceful form. But it is otherwise, and though the plant, of course, has had sufficient trial, we are not sure that a double Cyclamen, if possessing all the good qualities of the single varieties, would not be a distinct gain.

We may also make a few remarks on the Chinese Primula, which will soon make a good show in this nursery. The plants are just coming into full flower, and show an interesting range of varieties, besides excellent culture. Some are of Mr. James's own raising, others those of leading firms. A very free and graceful kind is Purity, the flower pure white, well shaped, and very pretty against the light green-coloured leafage. Of a different style, but even finer than this is White Perfection, which is flowering better this year at Farnham than we remember to have seen it before. The flowers are bold, well displayed, and very pure, the deep green-coloured stem and leaves assisting to bring out the purity of tone. This should be grown largely. Reading Pink, Ruby King, Pearl, very free, white tinged with pink; Snowflake, and Improvement, brilliant red, a very showy, useful and distinct kind, are a few of the best, but then we have blue colours, or at least those that are called blue. We do not wish to decry the so-called blue Primula, but must say that the colour thus described is not blue, if we take the Gentian as typical of blue. The plants are all grown well, and create a warm display of colour.

From the collections of the plants named grown here, one can obtain an idea of the love for Primulas and Cyclamens, to say nothing of herbaceous Calceolarias and Cinerarias, that exists at the present day. All are in a sense

modern creations, but the progress made by the hybridiser has been rapid. Improvement still goes on, and even if we have reached the zenith of perfection, a great ideal will have been attained. Each season, however, brings to light some variety that is a distinct advance in colour, possesses a new shade, or is better in habit and strength of constitution than foregoing types, so that it seems we shall yet have long to wait before the hybridiser has finished his useful work.

CHRYSANTHEMUMS.

CHRYSANTHEMUM CLASSES IN SCHEDULES.

COMMITTEES of Chrysanthemum societies will soon be making their arrangements for the next season's autumn exhibitions. It is advisable for all prize schedules to be issued as early as possible after this date, so that intending exhibitors may prepare their plants according to the various stipulations of the different societies. It very often occurs that committees are wholly to blame for the poor competitions which some societies obtain in certain of their classes, owing to the fact of insufficient time being allowed after the issuing of the schedule to cultivate the plants in accordance with the published conditions. To those well acquainted with flower show management this will be old news, but now that Chrysanthemum societies are increasing so fast, there are plenty of persons connected with the new societies who do not know why it is an advantage to issue their prize lists early in the year. Over 100 exhibitions were held last year, which is great testimony to the increasing interest taken in the flower. Those societies who have followed the beaten track so long without any change in the constitution of their classes would do well to endeavour to insert something new in the shape of a class or classes quite distinct from any previously required. Those who are not exhibitors would prefer to add something new to the monotonous way year after year of exhibiting Chrysanthemums, not only in a cut state, but as plants also. For the last two or three years there has been a great outcry at the want of variety in the methods adopted by the leading societies of staging the cut blooms, and in not providing any other style for those who object to the stereotyped green boxes in which the flowers are formally arranged.

In this article I purpose offering a few suggestions in the way of new classes, and at the outset would say that no other method of staging the incurved blooms suggests itself to me which would give such satisfactory results with this section as that now universally adopted. It is not possible to stage the blooms in their present high state of culture except under the usual method of supporting them with cups and tubes, for the reason that the petals cannot of themselves without support form the ball-like shape so much admired. Therefore the only way out of the difficulty that I can suggest to those who object to this form of staging is to ignore these kinds, and be content with other sections which can be dealt with differently. At the late centenary exhibition of the National Chrysanthemum Society, held in the Royal Aquarium, prizes were offered for incurved blooms with foliage and a length of stem attached. The result, I am afraid, was not sufficient to warrant a further trial in the same direction. At an exhibition later I saw an attempt to introduce another method of staging blooms in this section. They were dressed in the ordinary way, supported in tubes, but raised at least 8

inches above the boards in the back row, and as they were without leaves the effect was poor. It is in the Japanese section where scope is to be found for displaying something new in the staging of Chrysanthemums. An interesting class might be made in the following manner: Twenty-four Japanese blooms to be staged without cups, tubes, or show boards, each bloom to be shown with its own foliage attached—a dressing of Fern fronds allowed if desirable. If substantial prizes were offered, say, equal to those in classes in the ordinary way now given, I doubt not that some interesting stands would be seen. The judges should be instructed to award the prizes according to the merit displayed in “setting up” the blooms, in conjunction, of course, with individual quality in the flowers. In a class of this kind with stipulations something after those suggested above, opportunities would be given to use different kinds of vases in which to place the flowers. Much the best, in my opinion, is the form of Munstead glass such as used for Daffodils. They contain abundance of water, to last three days if necessary, are shaped in such a manner that they stand firmly on a table, are not obtrusive, and being made of clear glass are better suited for any coloured flower than the brown-coloured tins used by some persons. Ample space could be given so that each bloom could stand well by itself showing its full beauty; whereas, now when staged on the ordinary and regulation show board many of the blooms are so crushed as not to be fully seen. With the introduction of some Fern fronds to act as a foil, a neat effect might be produced. No Fern is better for this purpose than *Pteris cretica*, its deep green colour making such a decided contrast. The sprays of single, pompon, and Anemone-pompon varieties which I exhibited at the National Chrysanthemum Society's centenary meeting I thought made such a pretty effect, that I think something similar would be well worth repeating. So many sprays or bunches of each variety should be stipulated for. But as the words spray and bunch are not well understood, a true definition should be made of what is intended and required. According to some, the word spray may mean a whole branch, or a shoot only; therefore, a limitation should be put upon the size in some form or other. It would be a matter for committees to decide whether it should be a mixed class of those already named with Japanese added, and cultivated in the same manner with a view to exhibit the flowers as grown in a more natural manner, commonly called “bush” fashion, where a number of smaller flowers are preferred to a few larger ones.

I like the single kinds kept separate, as there are now upwards of fifty varieties to choose from, embracing a great range of form and colouring, certainly ample to enable anyone to set up a pleasing group of these flowers alone. I would suggest that this class be made in a similar manner to the Japanese class, the same arrangement of Fern and vases to hold good. The present style of staging these sections shuts out such exquisite kinds as Snowdrop, Primrose League, Model of Perfection, the new variety Marion, and the highly coloured Dick Turpin. Single varieties in any form have not had the amount of encouragement their merits deserve as decorative subjects either as plants or in a cut state. One would think that the National Chrysanthemum Society, who issue a schedule containing no less than fifty classes, besides those of the early autumn and mid-winter exhibitions, would make one class for this section, but so little do those who are responsible for the schedule arrangements care for this section, that they are ignored with the

exception of a note, signifying that “exhibits of this section specially invited”—scant encouragement certainly. Other classes for cut blooms might be suggested, but perhaps I have said enough to give societies a hint as to the ideas of outsiders upon the subject.

Much has been written about the enlarging of the show boards for the Japanese varieties, but it is useless for one society to stipulate for the enlargement unless all do the same. The reason is obvious. Such an alteration would entail a great expense to the exhibitors, necessitating their having two sets of boards, one for the Japanese and another for the incurved and other classes. It is not at the boards where the expense would stop, but it would be necessary to obtain travelling boxes of increased size also, this adding to the expense of carriage also. These objections to a change I fancy have not been appreciated by the would-be reformers so much as if they were exhibitors, which I fancy they are not; therefore have no occasion to trouble themselves about the expense, which has to be borne in a great many instances by the gardener himself. Until there is a co-operation of societies upon this point I do not think that it will come to pass.

A good many complaints are heard from time to time about the exclusion of such sections as the reflexed and Anemone from the large classes, and the restricting of them to the incurved and Japanese only, but in my opinion by so doing competition is considerably increased, as so few persons care about the reflexed type of flower, especially as compared with the numbers who choose the two former kinds. The inclusion of reflexed flowers is likely to limit competition in large classes for the reasons stated, as some who would like to cannot compete simply because they do not grow this section. Any society issuing their schedule at a late date and including the reflexed in the large class as an innovation must not be surprised if they find hardly any competition, even if the prizes are substantial. Such management must not blame exhibitors for lack of enthusiasm, but rather themselves for delaying the schedule.

In the plant classes a more general method of staging might be adopted than is the case at present. More encouragement might be given to plants remarkable for their freedom of flowering and less formal training than at present in vogue. Prizes, I know, were offered by several societies last year for bush-grown plants, which in several instances that came under my notice produced a capital effect. At Ascot there were some freely grown and flowered pompon varieties; also at Portsmouth some magnificent plants of this section were staged, one mass of bloom and good foliage, not at all spoilt by too formal training. Single varieties would do well for this style, as they bloom very freely, at the same time having an upright habit of growth. At the Swansea exhibition in November last a capital lot of bush-grown plants were staged, and well they looked. Japanese varieties can be highly recommended for this form of growth, as many of them are so free. A few groups of plants of this class or single specimens scattered throughout an exhibition would give a much needed variety. In Ghent there are classes for plants in 5-inch pots, the plants averaging from 1 foot to 2 feet high, and furnished with about eight stems and as many blooms. These being of good quality make handy little plants for decoration, especially when the foliage is kept in good condition, as is the case in Belgium. Groups form by far the greater part of a Belgian Chrysanthemum show,

no less than 29 having been scattered about the exhibition at Ghent. The plants were what might be called naturally grown; they were allowed to grow with a single stem until they made their first natural break, being afterwards allowed to grow away at will. The number of shoots to each plant ranged from thirty to sixty, each one being restricted to a bloom each. As they varied in height from 3 feet to double that, they formed an interesting group.

More variety might be added to our autumn exhibitions by having mixed groups of Chrysanthemums and other plants. At the late Birmingham show some pretty arrangements were to be seen, the only fault of those being that they were not large enough. Ample space is necessary to create a good effect. Chrysanthemums need space to show to the best advantage, especially when associated with other things—Palms, for instance.

Another interesting class would be that for so many plants, each having a single stem carrying but one bloom and growing in a 3-inch or 4-inch pot. Around Liverpool they used to be grown better than I have seen them anywhere since. E. MOLYNEUX.

Chrysanthemum W. G. Drover.—This large-flowered variety is seen to advantage late in the season, for the blooms are not so coarse as they often are in November, while they are without the irregularly splashed florets which frequently occur earlier. At this season they are almost white in the centre, while the outside petals are flushed with lilac.—T.

GARDEN FLORA.

PLATE 791.

HARDY CHRYSANTHEMUMS.

(WITH COLOURED PLATE.*)

THE accompanying plate depicts two hardy Chrysanthemums, one of which is the famous Julie Lagravère, that gives handfuls of its rich crimson flowers in either good or bad seasons. The word “hardy,” as applied to the Chrysanthemum, has been objected to by growers of the plant, for the reason, they urge, that it is naturally “hardy”; but the term is used to distinguish the outdoor section from the indoor specimens, fed with rich foods and placed under glass to the injury of their hardy constitutions. It is evident that there are degrees of hardiness in the Chrysanthemum, and these are in proportion to the treatment of the plant, i.e., the one grown out of doors the whole year round is necessarily far more robust than the one cultivated for some months of the year under glass covering. In THE GARDEN of October 25, 1890, we illustrated an outdoor Chrysanthemum, possibly the old Cottage Pink or Emperor of China, as under both names it is known in cottage gardens. This is a good type of an outdoor flower, resisting winds, storms, and mild frosts, and sending up a profusion of blooms distinct in colour, free, and graceful. At no period in its history has the Chrysanthemum risen to the same proud position it now holds, and its value for the garden from September until October justifies a coloured plate to draw attraction to one group of the great family. Hundreds, we might say without fear of contradiction, of varieties called new are sent over from the Continent and America each season, but they are intended either for the show board or the conservatory, whilst no thought is given to the flower garden proper.

* DRAWN FOR THE GARDEN by H. G. Moon at Munstead, Godalming. Lithographed and printed by Vincent Brooks, London.



Two hardy Chrysanthemums.

Those who therefore protest against this undue partiality for one class have reason for their complaints, as the bed and border should be considered as much as the glasshouse. No progress has been made with the truly hardy varieties—those that live through the winter unharmed, and rise fresh and fair under the quickening influence of spring. There are very few kinds at disposal, one of the best being Julie Lagravère amongst the later blooming types, and Mme. Desgrange and its varieties in the earlier flowering section. Each season the plants of the crimson Julie Lagravère in the Embankment Gardens at Charing Cross and other places give a welcome show of colour, in conjunction with a few other varieties, to what would be without their aid a flowerless collection of broad borders and big beds. Varieties are wanted that have reflexed or imbricated petals to throw off the moisture that collects from heavy rains. The big-bloomed Japanese and incurved forms to be seen at the exhibition are not the best, as they are soon destroyed by wind, rain, and frost, but with varieties of the same type as Julie Lagravère and Cottage Pink it is otherwise.

Of course there must be good culture, and one reason for the failure of the plants when outside is the exhausted condition of the soil in which they are growing. When it is seen the growth is weak and the flowers few, substantial staple should be added after the tufts have been lifted, divided, and stock derived from the offsets that cluster round the centre. The Chrysanthemum quickly becomes established. Few things are more readily grown, and strong offsets taken off in the autumn or even in spring will make presentable plants the same season if a little timely attention be given to the soil by way of adding fresh loam and rotten manure. Very rich soil is not wanted; it is hurtful, for the reason that it promotes a sappy growth, which is the thing to be most guarded against. Badly ripened shoots soon suffer from frost, and to obtain a wiry growth it is a good plan to thin the stems in the spring, so as to throw more vigour into those that remain. There is yet much to learn with regard to the capabilities of the Chrysanthemum purely as a garden flower, as attention has been directed until now almost exclusively to the exhibition blooms. But an awakening in a desirable direction has come, and from what we know is the case, a greater interest is now evinced in the flower for the adornment of the garden. Everyone knows the value of Mme. Desgrange and its varieties, which either by themselves in a single bed or associated with the early blooming Michaelmas Daisies produce as rich an effect as can be got in late summer. Some beds were filled in this way last season at Kew, and though the plants were somewhat crowded a striking display was the result, the Aster being *A. acris*.

What is wanted now is greater variety in the "hardy" varieties. Pure white flowers, especially near or in London, are of little value, as their purity is quickly dimmed by smoke and dust; nor are washy pinks of any avail. It is the deep crimson, lilac-purple, bronze, and strong yellow shades that are desired, as these are the least likely to suffer from rains and frosts. If one takes Julie Lagravère as a type, no error of judgment will have been made. This is of strong growth, free, and produces its charming profusion of flowers when we are looking for and expecting the annual display of Chrysanthemums under glass. Here are a few kinds that do well: La Vierge, Mrs. Cullingford, Piercey's Seedling, Lyon, Alice Butcher, Martinus, Alexandre Dufour, and those

named above. It is a mistake to grow the ordinary November flowering varieties, as the buds are still unexpanded in October when we wish for fully open flowers. Sometimes, of course, the weather remains almost summer-like until the dark months, and then a display can be anticipated out of doors even from those kinds that usually do well only under glass, but such seasons are scarce, at any rate unreliable.

It may be of interest to append the remarks of Mr. Burrell, who grows Chrysanthemums outdoors well:—

It is impossible in one article to do justice to the Chrysanthemum as an outdoor flower, as we have now a large number of varieties. For the sake of convenience I may divide the outdoor class in these few notes into three sections, viz., the early pompons, the early flowering varieties, as represented by Mme. Desgrange, and those of the general collection most adapted for outdoors. The fact that many varieties of the early flowering pompon section are now to be found in cottage gardens is proof that this particular class is more easily cultivated than any other—that is, the many varieties which constitute it will do fairly well, and give a good display of bloom in soils and under conditions that would be highly objectionable to their more fastidious allies. I do not grow many of this section, for the simple reason that other outdoor flowers are plentiful at the time they are in bloom, and I have not much room for them. A few clumps, however, here and there in the herbaceous border make a good feature, and a few dozen pots of cuttings are therefore taken annually, the young plants being put out in batches of eight or nine some time in April. Anastasio, Blushing Bride, Flora, L'Admirable, La Vierge, Mrs. Cullingford, and Toreador are a few good varieties in this class. Of the early flowering section proper, which now make such a beautiful annual display in our public gardens, either alone, in masses, or associated with other things, it is almost needless to write. They are rapidly growing in favour, and a few years hence will doubtless find them increased in number, with a greater variety in the colours of the flowers. The ground should be deeply dug and well manured, as they pay as well for good feeding as the general collection. In addition to Mme. Desgrange and G. Wermig, Hermine, La Petite Marie (white and yellow), and Mrs. J. R. Pitcher are useful and free varieties.

From a purely garden point of view, the Japanese incurved and Anemone sections can never become very popular, as it is useless to plant them on borders as any ordinary herbaceous plant and leave them to the mercy of autumn frost. In nineteen seasons out of twenty very few flowers will expand. As, however, it is possible under certain conditions to avert such a catastrophe, and thereby secure a plentiful and prolonged supply of cut bloom, it is hardly necessary to mention that any little extra labour bestowed on them is amply repaid, especially when it is considered that such a supply comes at a time when all or nearly all other outdoor flowers have been destroyed. I set aside each year a certain number of old plants after cuttings have been taken, choosing those in good health and that are throwing up stout vigorous shoots. A piece of ground some 20 yards square is prepared for their reception by bastard-trenching and working in a liberal supply of rough manure between the spits. The plants are 1 yard apart in beds 6 feet wide, with a 4-foot alley between the beds. The shoots are reduced to four or five of the strongest at planting time, which is in March, and these again are pinched about the latter end of April, as I find many varieties if allowed to go clean away get so high that it is almost impossible to protect them. A few are disbudded to get a small percentage of larger flowers, but the majority are allowed to carry all the blooms. They get as much attention as can be afforded them during the summer, one good stake or three if the plant is unusually strong being put to each. A mulching of half-rotten manure is given as the summer advances, and an occasional

dose with the hose if the weather is very hot and dry. Protection from frost is the most important point in their cultivation, and is done by canvas coverings or thick tiffany resting on a skeleton frame. This latter is made of Fir pole uprights planted at intervals along the sides of the beds with cross pieces on which the coverings may rest, taking care that these are sufficiently high to swing clear of the plants. This is not always a thorough protection, as a late October frost last year destroyed the expanded blooms, but I secured the greater part of the bloom and had outdoor flowers until the early days of December. Vacant spaces on walls or fences can be used for Chrysanthemums, but I do not know that such sites are preferable to the open ground, as in all cases there is the same amount of care and attention required in training and tying, and in providing for autumn and early winter protection. The Japanese varieties are the most suitable for cutting, and I have found the following do well: Maiden's Blush, La Nympe, Hiver Fleuri, Val d'Andorre, L'Admirable, Tokio, Elaine, La Triomphante, Soleil Levant, and Peter the Great. The Anemone-flowered Fleur de Marie and Prince of Anemones also do well, and of the incurved kinds the most suitable are Beauty, Abbé Passaglia, Lord Wolsley, Mrs. Haliburton, and Incognito. I may add that there are doubtless many other varieties that would be found equally serviceable for outdoor work.

FLOWER GARDEN.

WINTERING DELICATE ALPINES.

MR. WILLIAMSON'S letter (p. 67) is most seasonable, and no doubt many of us will just now be finding out that the choice alpine plants do require some such special care and means as Mr. Williamson is seeking to devise. The treatment of alpine—especially during the winter—should be adapted pre-eminently to local conditions, and in doing so it may be found by those who have experience that many alpine plants would not have much chance of ever doing really well, even with the utmost amount of care. For instance, ericaceous subjects in a general way fail in lime districts; succulents on sticky loams and clays; and pubescent or glandular species where the district has a great rainfall. I am not forgetting what may be done in the way of preparing special soils by drainage and forming inclined surfaces, and so getting rid of the superabundance of wet, and also by sheltering and selecting or forming overhanging ledges for hairy and damp-hating plants. All these are well known to be most helpful, though highly artificial schemes, and yet they can only be said to lead to comparative success. Sooner or later the strong forces of the natural conditions will tell either for or against certain plants, as the case may be, and many of us might profitably recall the fact that our careful plans led to greater successes for two or three years with some plants than we were afterwards able to obtain at the same place, even by the aid of increased experience and well-sustained loving care. The long and short of this is that we should select for culture such kinds as are helped rather than opposed by natural conditions. It is not a fact, even in alpine plants alone, that there is generally an abundance specially suited to any local forces, to say nothing of the vast quantity of plants that will thrive almost anywhere. I have mentioned the appropriate selection of plants in the above way for two reasons: First, Mr. Williamson's letter does not, I think, imply due consideration on this point, and next I think his surroundings or the capabilities of the climate are not the best for alpine plant culture. I know a little of the district, not so much I am

sure (from what his carefully written letter implies) as Mr. Williamson must know; but I have been in gardens in the district, and, what is more, in my humble way I have studied them from the alpine culture point of view, and though many alpine flowers do exceptionally well, there are others that can only be kept going by special means. There are natural conditions of an exceptional character to my mind; for instance, the stiff loam is of an extremely heavy character, very retentive of moisture and sticky. The rainfall, I believe, too, of Manchester and neighbourhood is in excess of that of neighbouring districts. Under these circumstances the condition of the land may be considered very heavy and wet; so much so that I know several people who do not care to attempt much, if any, gardening after the autumnal rains and until the drying spring winds come. In a dry summer such land becomes very hard and cracks, and in winter it is very sticky. These are important facts needing to be kept in mind when selecting and planting alpenes, for such ground moisture is sure to be an important factor in the formation and continuance of fogs. I fully agree with Mr. Williamson that the damp or mugginess of our winters is the most serious of all immediate causes of the loss of alpine plants; it acts directly on the exposed surfaces, and where they happen to be of such a character as to catch and absorb the particles of moisture when the growth is not active and so offering a resisting force, injury is pretty certain. The two worst forms of foliage to catch fog injury are those of a downy nature and those which, though dead, remain about the collar or sleeping crown buds. This fact may be proved by the distinct difference between the pubescent and lucid-foliaged *Androsaces*. How beautifully the latter set may be made to flourish, whilst the former can hardly be coaxed to live, or only with the greatest care. Instances of the deadly effects of fogs are to be seen in such species as the charming little *Aster Stracheyi*, *Statice tatarica*, and *Acantholimon venustum*, though otherwise hardy enough and comparatively hairless. I doubt if Mr. Williamson's garden is really favourably placed for alpine plant culture, i.e., such rare and delicate kinds as indicated by some he names, when only six miles from the centre of Manchester, which might mean, say, only four or less miles from the boundary, and when it is a question of winter wet and fogs, would the south side, to which the winter north winds would bring more or less of the foul atmosphere of so large a city, be the most favoured side? I think not; and judge so from my experience here compared with what my friends can do in the southern suburbs of Leeds. I am on the north-west side, and it is well proved to be the cleaner (atmospherically) side in winter. Of course, much depends on what Mr. Williamson's garden would have to encounter from another reeky town were he pitched on the north side of Manchester, but I hope my meaning is clear. A gravel subsoil should somewhat redeem the conditions of a "sloppy" climate and retentive surface soil. Still there must be an excessive dampness, and if anything would, surely *Androsaces* would resent it. I should scarcely think of draining so much for these as the use of brickbats implies, for the genus is well known to love a deep and damp root-run. The difficulty is more with the exposed parts of the plants, which are all but verdant throughout the winter. Grit, according to my experience, mixed, say, with loam and peaty stuff, is the best compost they could have. I should not, however, under any circumstances think of lifting them in winter, even to place them in a cold

frame; this, though done with the utmost care, would, I think, more or less mutilate their very long hair-like roots, and so deprive them of some of the much-needed energy to carry them through their most trying period. Bell-glasses would, no doubt, be better if they were at no period kept too close. I think air should never be totally excluded, certainly not on merely wet days, but during an exceptional fog to entirely shut out air might be the best course—on the earliest chance, however, admitting it again. A favourite way of mine of keeping plants dry in winter is to shelter with panes of glass or lights with air freely admitted at all sides. If plants that should be sleeping are too closely confined, they start into unhealthy action. So long as we know we are dealing with perfectly hardy plants, so far as mere cold is concerned, to seek to keep them from low temperatures might do more harm than good, and in the case of alpine *Primulas* and *Androsaces*, in which the flower-buds are developed and enfolded in the inner leaves, abnormal flowering could soon be induced by coddling. I feel sure that Mr. Williamson's opinion is correct when he says that the result of the use of a bell-glass over the plant has given better results than taking it up and potting it in order to winter it otherwise. I feel sure that a better plan than either would be to merely use a glass shelter to so cover the plant that the water would be thrown off it and to the lower side of the inclined surface, so that the wet could not find its way on to the foliage after dropping off the glass. With a little ingenuity this can always be done, and in such a way that the glass is not liable to be blown off.

To cover a rockery with a frame and lights in winter has often been tried, but the results have not been satisfactory, reckoning up to the period of two months after the removal of the frame. Even in February, and certainly in March, the sun begins to be very powerful, and however much air might be given to a frame in those months, if closed at night when there might be rain, snow, or frost, sometimes, and perhaps very often, it would prove that air would have been better left on. In short, in practice it has been found that the plants have become drawn, and in several ways so stimulated that when the frame has been moved in March, late frost has been more fatal to the plants in their weakened condition than if they had never been enclosed at all, and I rather fear that when Mr. Williamson speaks of plants exhausting themselves with work in winter, that he may have been on this wrong track. The late Mr. Joad, of Wimbledon, managed to have the finest results in alpine culture under glass of anyone I ever heard of, but his system was very different to that indicated above. I think the aim should be to leave established plants where they have grown, shelter them from rain or wet by means of glass in such a way that air could reach them as freely as if they were not sheltered at all, and that some material capable of absorbing wet should be occasionally sprinkled about them during foggy weather. Such material might be hard burnt loam or dry wood ashes, applied so as not to clog such foliage as happens to be glandular. I have been looking at some of my alpenes so treated, and they seem to be quite cosy and comfortable. With regard to plants in frames, I have sometimes a difficulty in getting my helpers to allow plenty of air, but I usually get my way of allowing a few broken squares throughout winter. With regard to light, we have none too much in winter. Let us not mislead ourselves by thinking about plants in the Alps deeply covered in snow. There is darkness and

darkness, and how can we imitate the darkness of snow? However we tried in cultivation, there would be other conditions to upset the balance. Place a verdant alpine in darkness throughout winter, and see the result in spring. At least blanching would occur, and what then? —J. Wood, Woodville, Kirkstall.

— IN THE GARDEN, Jan. 21 (p. 67), Mr. R. W. Williamson seeks advice under the above heading, and I willingly place what experience I have in this direction at his disposal. Since the thaw set in on Tuesday, January 20, I have had a look round the collection of hardy plants, and I do not, so far as can at present be ascertained, find that the extreme frost, snow, and fog which have prevailed during the past few weeks have done any appreciable harm, for such things as *Sempervivum arachnoideum* and *S. Lageri*, *Silene Schaftæ*, *Primula minima*, *Saxifraga aretioides*, and *S. primulina*; also *cochlearis, sancta, luteo-purpurea*, *Acantholimon venustum*, *Arnebia echioides*, *Erodium trichomanoides*, *Campanula isophylla alba*, and others, which have not had the slightest protection whatever, are as fresh and vigorous as ever—a fact which does not in the least surprise me. It does not follow, however, that these plants, now so healthy and fresh-looking, will be equally so by the end of March, and for this reason: The portion of the winter through which we have already passed, though severe in the extreme and prolonged, has been almost unbroken throughout, and what is more, it succeeded a bright dry autumn and not a continuously wet one. The frost also has been accompanied by snow, which has lain upon the ground for a long time, and though by no means so deep a covering as these plants receive in their native mountain homes, it has in a very great degree kept them secure from the highly injurious and poisoning influences of those fogs which were so prevalent in the early part of the present winter. On the other hand, now that a mild time has succeeded so great and prolonged a spell of arctic weather, it is only natural that many plants, including alpenes, will become active before their proper season. Where such is the case, and frosts with biting winds visit us again in March, when the welcome covering of snow—at least to these alpenes—is absent, then it is that serious mischief is wrought, simply because these pigmies of other climes cannot endure the nipping frosts of the night, followed by the rapid thaw during the day, with drizzling rain before noon, followed again by frost at night. These are the conditions which delicately constituted plants are not able to endure, and seeing that we cannot remove the obstacle altogether, we must endeavour to remedy it as best we can. Where conveniences do not exist for wintering the more delicate alpenes in frames specially designed for these plants, they should be grown on the perpendicular faces of the rockery, the roots being tightly clasped between two pieces of rock; in this position they seem better able to endure our climatic changes, because at no time can any amount of water be present about the crowns of the plants, at the same time their roots penetrate deeply into the crevices of the rocks. Another capital way of accommodating these alpenes with comparative safety is that of inserting them between the joints of walls composed of burs, and built with soil and mortar mixed. Some years ago I was in charge of a garden containing some 200 or 300 yards of roughly constructed walls, purposely left with large joints for the insertion of alpenes and such like, and it was surprising how great a variety of plants succeeded when thus grown. Among the more choice may be mentioned *Saxifrages* in great variety; in fact any of the crustaceous section did splendidly, also *Erinus* in plenty, *Linaria alpina*, *Androsace lanuginosa*, *Arabis lucida variegata*, *Saxifraga autumnalis*, besides many commoner things; in short, these walls thus adorned were quite a feature in this garden. Thus placed, many of our rarer alpenes would be far more secure in winter than if they were planted on the flat or sloping surface of the ordinary formed rockery. The late Mr. Joad constructed a portable house over a

rockery for alpine in his garden at Wimbledon some years ago, which, I believe, answered well; and on a smaller scale, but with the same desire in view, the late Mr. James Atkins, of Painswick, had narrow boxes with a grooved ridge fixed 2 feet above the plants to accommodate large squares of plain glass, in which many of his unique specimens were annually wintered. The arrangement was an extremely simple one, and may be made of deal boards an inch thick and 9 inches wide; a groove along the upper and inner sides of the frame and another at the ridge will keep the glass in position, allowing a sharp pitch and regulating the width by the squares of glass to be employed hereafter. Mr. Atkins's rarest plants were grown in pots and plunged to their rims in the magnesian limestone of the district, and on each occasion that I saw them they were pictures of health. The arrangement was a very simple one and could easily be imitated by anyone. In the Birmingham Botanic Gardens, Mr. Latham, the curator, suspends some of the choicer plants in small pots or pans near the glass in a cold house with good results. Another excellent way when the plants are grown in pots is using a brick frame specially constructed for them, the walls at back and front of which shall be freely pigeon-holed to admit of a constant and free circulation of air, the lights during winter being constantly raised to admit a free current of air over the heads of the plants. In setting out the woodwork for the frame, the divisional bar between any two lights which is affixed to the runners must project 3 inches over the wall plate at back and front; then by fixing with a screw to the wall plate a piece of wood $1\frac{1}{2}$ inches wide, 1 inch thick, and about 6 inches long, you have a support for the light by turning this back against the projecting divisional bar. One of these supports should be placed at each corner of the light, and be fastened by a screw to the outside of the wall plate; the plants should also be raised near the glass, and so be as far as possible existing in a dry atmosphere, and upon no account close the lights day or night. Never mind the plants being frozen, or whether it rains hard, or a dense fog prevails; endeavour to maintain a constant circulation, keeping the plants all the while quite dry consistent with safety. To close a frame entirely, whether that frame be over a rockery or over a collection of pot plants, because the weather is cold and wet, is only to court failure. Aim rather at all times during winter, and with the more delicate alpine in particular, to preserve as far as possible a perfectly dry atmosphere overhead, for it is the damp gaining a lodgment in the woolly tufts of some of the rarest alpine that brings destruction to not a few. I have frequently on the open rockery merely fixed a piece of glass over a choice plant to throw off the wet, but I never dreamt of surrounding it at the base with any material whatever. The hardy *Opuntias* were always treated thus, while the bulk were grown in pots in frames, such as I have endeavoured to describe, the result being highly satisfactory and encouraging.

E. J.

The annual *Daturas*.—These are amongst the most ornamental of herbaceous plants, yet they appear to be but little cultivated in this country; one reason for which perhaps is that when planted out they require a hot sunny situation, which is not at everyone's command, and it is only in exceptionally long and warm summers that they are seen at their best, and flower for a lengthened period. To attempt to do much with them in such a season as the last would only result in disappointment. I have grown eight species; all are beautiful, but perhaps the handsomest is *D. chlorantha* fl.-pl., known also as *D. flava*, with its buff-yellow, double, fragrant flowers each 6 inches to 8 inches long. Although usually treated as an annual, this species is really a low, soft-wooded bush, most likely in the tropics of many years' duration. When it can be successfully done, it is best kept over the winter, for two or three-year-old plants bloom much earlier than seedlings and continue in flower throughout the summer, but until recently I have found this a difficult matter. It has a vexatious way of rotting

at the terminal buds, which once setting in, nothing seems to arrest. The decay extends down the stem until the whole plant perishes. Two or three years ago it occurred to me that if an inch or two of the tops were cut off early enough in the autumn for the wounds to heal before the dull damp weather set in, it might prevent the mould from gaining a foothold. In this I happened to be right, and I have now not much trouble in wintering them. This applies only to pot plants. Specimens lifted from the open ground would be most likely too full of moisture to respond to any kind of treatment. By admirers of this family—and who is not?—this mode of treatment may be worth noting.—J. M., *Charmouth, Dorset*.

SOME USEFUL HARDY PLANTS.

TO THE EDITOR OF THE GARDEN.

SIR,—Among hardy plants valuable both in the flower garden and for cutting from must be classed *Pæonies*, *Pyrethrums*, *Delphiniums*, and *Gaillardias*. As soon as the weather breaks, the division and planting of the above must be attended to, and to assist those about to form collections I will give the treatment pursued by me, and also the varieties of each that I have found do well in a heavy loam about 1 foot thick on a bed of gravel. The only thing in the way of feeding I have ever used has been old hotbed manure dug into the ground.

DELPHINIUMS.

These were very effective last summer growing against a group of *Acer Negundo* var., which, as you may imagine, had the effect of especially showing up those that are of a cobalt-blue colour. Ordinary hotbed manure may be used to great advantage; too much cannot well be given to them, neither can too much water be given in dry weather. If much manure be used, fine coal ashes should be frequently strewn about the plants to prevent slugs from eating them. A stake should be placed to each. An ordinary 3-feet cane answers the purpose uncommonly well, letting it quite 1 foot into the ground, so that the bottom part of the plant may have one tie, which is sufficient to keep the plant from toppling over. The stake should under no consideration touch the flowers.

The twelve best are *Diomedes*, violet, semi-double; *Figaro*, blue, inner petals violet; *Frank Holl*, cobalt-blue, white eye; *Prince of Naples*, semi-double, dark blue, inner petals plum, white centre; *Ivanhoe*, light blue, semi-double, white eye; *Duchess of Portland*, sky blue, shaded rose, black eye, single; *Faust*, a very large single flower, violet, with a white eye; *Princess Maud*, sky blue, veined pink, with a white eye, semi-double; *Ulysses*, semi-double, sky blue and rose, with a brown eye; *England's Pride*, semi-double, blue and plum, with a black eye, a very grand flower; *Mento*, violet, inner petals plum, with a white eye; *Prince Henry*, blue and plum, with a black eye, semi-double.

GAILLARDIAS.

My *Gaillardias* are growing amongst coniferous trees in groups of five, and have lived for several years without the slightest protection. I think many people destroy their *Gaillardias* by digging about them too early in spring, as they are the latest to show above the ground of any summer-flowering herbaceous plants that I know; hence, I believe the origin of many people maintaining that they are not hardy. They delight where plenty of hotbed manure is used, and if watered freely in dry weather in July it will help them to produce fine blooms. The flowers last a long time after they have been cut and put into water, and what makes the *Gaillardia* particularly valuable is that the early autumn frost does not affect the plants so much as it does some others; consequently *Gaillardias* are found to be blooming long after many other herbaceous plants are quite out of flower.

The best twelve are *Duke of Portland*, yellow, shaded bronze; *Prince of Naples*, red, shaded purple; *Raphael*, dark crimson, with a gold edge; *A-la-mode*, a very large flower, red, shaded yellow at the edge; *Belini*, crimson, with a yellow edge; *Buffalo Bill*, a very large quilled flower of a golden yellow, with a maroon disc, very extraordinary; *Splendissima plenissima*, double crimson, with a gold edge, very gay and pretty, and a splendid variety for bedding, the flowers stand-

ing perfectly erect upon stout foot-stalks; *Vivian Grey*, yellow, with a yellow disc, being quite distinct, most varieties having brown discs; *Win. Kelway*, very large, brilliant crimson, with a gold edge; *Orion*, a fine crimson, slightly edged with gold; *Pioneer*, scarlet, edged with gold; *Idalia*, yellow, with a brown disc.

PEONIES.

I consider these particularly valuable for cut blooms, as they are in flower before *Roses*, and if gathered just as the petals show colour, they will then keep fresh in water for quite a week. But they are gross feeders, requiring plenty of manure, and the more water is given them in dry weather in summer the more strongly they grow.

The best twelve double-flowered are *Lady L. Bramwell*, silvery rose, very richly scented; *Cyclops*, purple-crimson; *Prince Henry of Battenberg*, purple; *Princess Beatrice*, flesh; *Rossini*, cherry-rose; *Sylvanus*, cherry; *Psyche*, flesh; *Delia*, white; *Plutarch*, light crimson; *Ithaca*, purple, shaded crimson; *Actæon*, flesh; *Chiron*, cherry.

The best twelve single-flowered are *Adana*, French white; *Astræa*, silvery flesh; *Aurora*, rosy purple; *Climax*, cherry-rose; *Cybele*, purple; *Jupiter*, cerise; *Opiter*, purple-crimson; *Proserpine*, rose; *Læpède*, bright pink; *Arceus*, bluish-white; *Marcianus*, rosy peach; *Munitor*, crimson.

For distinct ornamentation I recommend *corallina*, the British species, which has been found wild on the Steep Holmes, an island in the Bristol Channel. Its seeds remain in the pods for a long time after the pods have burst, and when the sun is shining they look like amethysts; the bloom, too, is very pretty, being of a *vieux rose* colour, with old gold anthers; the foliage is also very attractive, of a bright olive-green, its segments being entire, so different to those of other species, and in autumn it dies away in various hues of yellow, crimson, bronze, and purple, and is particularly attractive for table decoration.

PYRETHRUMS.

I have my *Pyrethrums* in groups of five growing in nooks between evergreen and flowering shrubs, sufficiently far away so that the roots of the *Pyrethrums* do not come in contact with the roots of the shrubs. *Pyrethrum* flowers are a great attraction early in June before many hardy plants come into bloom. They will thrive in plenty of manure. Coal ashes should be used freely amongst these, completely covering them in winter as a protection from slugs. They are perfectly hardy, but I think the idea of their not being so has arisen from the fact that the eyes of the plants are completely eaten out by small white slugs which inhabit the crowns of the plants in winter. Watering freely in June if the weather be dry will add materially to the development of the flowers. The blooms are valuable for cutting, as they last in water longer than those of any other plant.

The best twelve double-flowered varieties are *Empress Queen*, blush; *King Oscar*, scarlet; *Leonard Kelway*, bright rose; *Meteor*, crimson-scarlet, with white tips; *Pericles*, old gold colour, with peach-coloured guard petals; *Aphrodite*, white; *Figaro*, rose-lake; *Melton*, bright crimson scarlet, very early; *Wega*, yellow, shaded pink; *Magician*, bright pink, tipped gold; *Carl Voget*, white, very early; *Queen Sophia*, flesh.

The best twelve single-flowered varieties are *Agnes Mary Kelway*, bright rose; *Albert Victor*, crimson-scarlet; *Camilla*, bright rose; *Clemence*, crimson, shaded maroon; *James Kelway*, crimson, shaded rose; *Mrs. Chamberlain*, flesh; *Princess Victoria*, carmine; *Mary Anderson*, flesh; *Princess Irene*, white, very fine, with two rows of glaucous stout petals; *Beatrice Kelway*, cherry-rose; *Lorna Doone*, maroon; *Mr. Santley*, rosy carmine.

SHEILA.

Hardy flowers and the frost.—I fear that the work of the late long hard frost will bring you many moans from the borders; I send you an early one. Looking round our plants at Oakwood yesterday, I found that many species of *Cistus* and of *Veronica* had been killed at least to the ground. *Veronica parviflora*, sometimes wrongly called *salicifolia* (which has broader leaves and larger flowers), which we always thought winter-proof, has been killed to the root in most places. In dwarf hedge borders of this every plant seems dead. We

hope, however, that some plants among shrubs may have escaped, or at the worst, as it sows itself so freely, that seedlings will spring up. Even V. Traversi has some branches already brown, though a hedge of this in a most exposed windy situation shows hardly any signs of injury. Of all the *Cistus*es, the old Gum *Cistus* seems to have stood best. On the other side of the account, some plants of doubtful hardiness, specimens of which have died in other winters, appear not to have been seriously hurt, but, of course, it will be several months before they can be considered safe. This long hard winter will give valuable lessons as to what situations will best enable plants to resist severe frosts. Notwithstanding good air holes, the ice in our ponds is studded with dead carp, chub, and roach, but trout seem to have survived. In my note (p. 69) I feared that *Iris Bakeriana* would not have stood this winter. It is now in beautiful bloom in the open border, its only protection having been a few Oak leaves; the colours are even brighter than those of the flowers grown under glass.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath.*

MARKET WALLFLOWERS.

VERY depressing indeed are the reports furnished to me from growers as to the general appearance of the Wallflower breadths in this district. When literally hundreds of acres are grown yearly in the locality, it is obvious that a failure of the crop of bloom must be productive of great loss. Wallflowers are some time in the ground. For the purpose of securing, if it be possible, an early bloom, that is one to begin cutting all through the winter, seed is sown in open weather early in February and the plants got out early in June. The breadths in good seasons are finally cleared in April, so that for annual planting few crops stand on the ground longer. In an ordinary season a grower would hope to make at least £10 per acre from his breadths, but even that item would leave but a moderate margin after all expenses are paid. Some seasons have seen Wallflowers producing three times that amount per acre, but these have of late been rare. The ensuing season bids fair to be a lamentable one so far as all very forward plants are concerned. At present these do not wear a browned or burnt aspect, but the leaves are flaccid and the tops of the shoots hang down. These will never again become erect, but presently will begin to decay, and will go all down the stems, killing the plants. One large grower who plants out 20 acres of Wallflowers considers that three-fourths of his plants are as good as dead. Indeed, once the main shoots are destroyed, even if growth broke from below, the blooms would be too late and too poor in quality to be worth cutting. Even where frost has not killed the plants it is but too obvious that the colour of the flowers will be seriously affected. The distinguishing feature of the London market strain of Wallflowers is the intense deep glossy red or crimson hue of the flowers when the plants are in rude health. When much cut by frost the flowers come pallid, rather brown in hue, than crimson, whilst heat, if the sun shines out hotly in the spring, soon causes the flowers to fade. It is not only this hard weather which has given trouble. I have never known seed so scarce as now in the district. The market grower does not go to his seedsman for Wallflower seed as he does vegetable seeds. The rule is for him to mark a few score perhaps, if he is a large grower, of his earliest, best habited and deepest coloured plants. It is in that way the finest qualities of the market blood-red strains are produced. Last year, however, owing to the great rainfall of the early part of the season, plants left for seed died wholesale. A kind of rot or fungus seized upon and destroyed the seed-bearing stems wholesale, so that the seed product was a miserable quantity. I have never seen a worse one. Many usually large growers have even had to purchase seed at unusually high prices from some whose crops were less hurt, but the seed produce never was less than now. The wholesale destruction of all the earliest and finest of the existing plants points to a possible seed famine. Next February the grower cannot afford to trust

stocks from other localities. A poor strain would be productive of much loss—in fact for market purposes would be unsaleable. Plants put out late and which are dwarf and compact have not suffered materially. There, however, will be late bloomers, and do not present the essential features of the strain upon which the market grower relies for profit. Plants that give early or winter cuttings are far more profitable than are those which give only a burst of bloom in April. A. D.

TUBEROUS BEGONIAS FROM SEED.

THE rapid advances which are made every year in this beautiful tribe of plants naturally conduce to their increased popularity among all classes, and as the present time is an important one in the raising of them from seed, a few remarks may not be out of place. The spell of frost to which we have been subjected of late will have afforded abundant opportunity for overhauling the seed saved during the past year, and also getting it cleaned and ready for sowing, an important item in which is that it be perfectly dry. That any seeds should be other than perfectly dry may at first sight to some appear strange, but the reason why I lay stress upon the remark is that frequently the seeds of these Begonias while being quite dry have an inclination to hang together in small clusters, often containing numbers of seeds which, if sown in this state, have no chance whatever of making plants, the result being that they smother each other in the very earliest stages after germination. The raising of Begonias from seed is very simple in itself, but they require more care and precision with regard to general detail than do many other things. The soil is, perhaps, one of the most important items, not so much as regards its constituent parts, for I have had the seed of these plants spring up wonderfully free on the moist coal ashes on the stage, and also on the cocoa-nut fibre, where no attention whatever has been given them. The soil used for Begonias and all choice seeds should be well baked to render it in the first place sufficiently dry for use, and, secondly, to guarantee absolute destruction to all insect life which may be present in the soil. The pots should be clean—6-inch ones are a useful size—and preference given to those that have been used once rather than new ones, unless these latter have been soaked well in the water tank. They should be drained with clean crocks one-third their depth, placing on the crocks a layer of Moss or cocoa-nut fibre screenings. Fill the pots to within three-quarters of an inch of the rim with soil consisting of loam and leaf-mould in equal parts, making it quite firm. A thin layer of finely sifted soil or silver sand may then be added to the surface, after which a thorough soaking of water should be given, and the pots be allowed to remain for an hour or so before sowing the seeds. In sowing, scatter the seeds thinly over the soil, it being far better to have a few extra pots than to risk a crop of valuable seedlings. Overcrowding is a very serious, though a very common error, and while we cannot with accuracy say that all the good varieties perish, one might safely state that the most vigorous will stand the best chance. Upon no account cover the seeds with soil. If a moist bottom-heat of from 60° to 70° can be had, the pots may be plunged two-thirds their depth in this, covering each pot with a piece of glass, and this again with brown paper, or the glass itself may be darkened. Maintain a moist temperature of 50° to 60°, syringing the seed pots overhead without removing the glass. The latter may be taken off for a short time if too much condensed moisture is apparent. During the first fortnight little attention will be needed, but in the third week, and as the seedlings continue to appear, they must be closely watched, giving air by degrees, gradually, as the seedlings increase in size, removing the glasses altogether. It frequently happens that some of the seeds take much longer than others to germinate, and where the crop, as it at first appears, is not satisfactory, the best plan will be to prick off the earliest comers into good soil and return the seed pot to the

bottom-heat again. As the seedlings become large enough to handle they may be pricked off into shallow boxes or pans a couple of inches apart, or if space be limited, they may at this early stage be placed much more thickly together, and be thinned out later on. In this stage on a shelf near the glass in a warm greenhouse, the young plants will do well, but they must on no account be allowed to become dry, as an hour's bright sun will do irreparable mischief, and for this reason a shelf on the north side of the house will be the best place for them. By degrees, as the warmer weather comes on, the plants will become sturdier, and therefore more suitable for planting out into frames, which should be freely ventilated as opportunity offers, until finally hardened off for planting in the open beds in June. In good soil the majority of them will flower well during the season. In planting them out, should the weather be dry, the beds may with advantage be thoroughly soaked with water the day previous to planting. E. J.

BORDER CARNATIONS.

LAIID close to the ground by the weight of snow, all old plants of Carnations have come through the hard weather so far very little injured. Generally, I have found a wet open winter to be productive of more mischief than such severe weather as that we have of late experienced, especially when the rains are intermixed with sharp white frosts. Carnations seem to like stiff holding soils very well during the summer, but are rather impatient of moisture through the winter. The best plan for preserving old plants from frost—for many old plants are well worth so much trouble—is to have the soil about them lightly stirred with a hand-fork during October, and a top-dressing of old pot soil and road grit laid about the old wood, so that a slight mound is formed, whilst the tops remain exposed. Old hard wood seems to suffer more than young shoots do. Sometimes when the old wood is long and very bare, it may be a good plan to lift the plants bodily and replant, but a top-dressing as advised is productive of much good. Of course, where labour is plentiful, and few gardeners find too much of it at disposal, there is nothing like layering the shoots in the summer, getting them well rooted, lifting and replanting these in clumps of three, and so keeping up a new stock and getting rid of the old straggling plants. We should do in gardens many things unfortunately left undone, because time for everything cannot always be found, and my recommendation as to the top-dressing of old plants is more for the benefit of those whose gardening is of the irregular kind.

It is just possible we have to thank the snow very much for protecting the Carnations so well during the recent hard weather. Still, we are far from being out of the wood, and there is plenty of time for hard weather of a mischievous kind yet. May we be spared it; and yet it would be a misfortune did we have no more cold weather, because the result would be too great precocity in growth, which is in most cases better kept in check till the middle of March. From that time onward growth may be regarded as fairly safe. Nevertheless, it would be wise for those who have old Carnations in their gardens to give them a top-dressing as advised. In any case, the dressing will be helpful when the layering season comes round, as fine soil with plenty of grit in it is wonderfully helpful to rooting. It is hardly possible to accelerate rooting of layers too rapidly. The season from the layering to the time for lifting is none too long, and requires to be made the most of. A. D.

Alpine Auricula Conspicua.—I find that this flower, which I take to be the one at present in cultivation, was exhibited as far back as 1834, at one of the meetings of the Manchester Horticultural and Botanical Society. Among the Auricula classes was one for four alpine or shaded selfs, as they were termed, and the winning four were King of the Alps, Conspicua, Favourite, and Bold Heights Conspicua. The Conspicua of our

day is a very old flower, white-centred, shaded maroon and violet, large, pure in the centre, but somewhat coarse. With all its faults it is sometimes useful in making up a collection of alpine. Mr. Turner's catalogue of florist's flowers for 1855—the oldest I have in my possession—gives a selection of edged and self Auriculas, but not a single alpine, perhaps because but very few were in existence, though in 1851 Mr. Turner was awarded a certificate of merit by the National Floricultural Society for alpine King of Crimsons, but this was perhaps among the first fruits of that long line of improved alpine Auriculas raised at Slough, and which is continued to the present day. If the Conspicua of 1834 is the same as the Conspicua which yet exists, it would be interesting to know who raised and who distributed it. A flower that can remain in cultivation for a period of nearly sixty years is certainly one possessing some good qualities.—R. D.

BEDDING LOBELIAS.

HAVING just made sowings in pans in a cool house of seed of diverse bedding Lobelias, a note respecting these pretty flowers may not be out of place. Of varieties presumably we have plenty, but really the diversity is small in many cases. Practically all bedding Lobelias resolve themselves into the speciosa or trailing type, the robust compacta form, and the very dwarf or Erinus varieties. Generally, for all ordinary bedding purposes, the robust compacta forms, of which Emperor William is a good type, are the best. To secure a long season of these, however, it is wise to cut the tops of the plants over once during the summer, as the later growth produces bloom in great abundance and density, and a good colouring effect is ensured till late in the autumn. The trailing or speciosa forms are capital for basket decoration or for window boxes. Close compact clusters of colour in these cases seem out of place, whilst free flowering growth hanging from and covering up the sides or fronts of baskets, &c., is just what the dresser desires to secure. If the soil be holding or the baskets or boxes in a fairly cool place and kept moist, these trailing varieties of the Lobelia bloom incessantly all through the summer and autumn. A capital variety of the blue colour is speciosa superba, the flowers being large and of a deep rich blue tint. Speciosa alba is a very good trailing white variety, and is equally useful where it is desired to have white colour from Lobelias. The small flowered and dwarf compacta forms are of the Erinus section, and pretty enough in their way, but they cannot be depended upon to produce good effects, especially should the weather be damp, as then the shoots come barren of bloom. This form seeds so sparingly, if indeed at all, that it can be relied upon to come true only from propagated plants. The more robust compacta forms of the speciosa type seed fairly freely, and will, if the strain be carefully attended to, come very true from seed. Naturally, where the utmost precision as to height and colour is required, it is desirable in all cases to trust entirely to propagated plants, but still a good compacta strain comes from seed relatively so true as to evoke surprise. I have had several hundreds of plants from seed, all fitted to make lines or borderings in bedding arrangements, and showing remarkable identity of character. The production of Lobelias from seed annually largely, especially for seed-production, admits of the improvement of the strain materially, as if but one plant only be specially selected, marked, and finally cut over for seed, the entire stock of the following year will very largely partake of the improvement found in the parent plant. We do not want plants of diverse habit; a really good robust-habited compacta is about as good as well can be had. Flowers, too, may be thought large enough. The chief need for improvement is found in richness of colour, for the Lobelia blue varies materially, and the brighter the blue the greater is the effect. Very deep blues look well enough close, but lose in force when far removed from the eye. In the white section, whilst speciosa alba gives a good trailing form, the new Snowdrift is one of the

very best of the robust compact section, and White Queen is very good of the more refined-habited forms. Snowdrift is a sort of white Emperor William, and will probably make for white Lobelias a popular variety. White and blue Lobelias compete with Violas of the same colours for bedding, but still the difference in habits enables them to be utilised for diverse purposes. Where the soil is strong and moist the Violas prove to be, on the whole, the most satisfactory, but where it is shallow and drier, then Lobelias will produce the most pleasing effects. A. D.

FERNS.

WOODWARDIAS.

This is made a separate genus by Smith, but some authors append to it Onoclea, Anchistea, and Lorinseria. Of these the first is a Linnean genus, which has nothing in common with Woodwardia, and the two last were esta-



Woodwardia radicans.

lished by Presl in 1849, who was a great and clever writer upon Ferns whilst professor of botany in the University at Prague, in Bohemia. W. radicans, of which an illustration is given, is perhaps the most noble of the few plants comprised in the genus. It is a native of Europe, being found, it is said, in Spain and Italy, but more generally recognised as a native of Madeira and the Azores. It is without doubt the best Fern that can be used for a large vase or pedestal. When planted a little above the line of vision its broad, rich, bright green, pendulous fronds have a beautiful effect, or planted in an elevated pocket in the fernery (as illustrated), it is almost, if not quite, as charming. Woodwardias are all easily grown. They require good drainage, and the soil should consist of turfy loam and peat in about equal parts, to which must be added a fair proportion of sharp sand. I am not particular what sand it is, as anything will do if it has the one essen-

tial—sharpness. Sand, however, from a macadamised road is injurious to plant life. When potted and placed in position, as soon as the roots show signs of moving into the new soil, the supply of water may be increased, until a large quantity will be necessary if the large fronds are to be kept in good condition. The temperature of quite a cool fernery is ample; indeed, the great fault is giving too hot a position, because then the fronds are apt to become infested with the black thrips, which turn them of a nasty brown colour and spoil their appearance. Although I do not recommend the treatment, I have a plant of W. radicans that has been out of doors all this winter. The crown appears to be sound, and this with only a covering of glass at the top, one end being open.

W. RADICANS, the subject of our illustration, obtains its specific name from its rooting and forming a young plant near the apex of the frond. Plants may very often be seen with fronds of considerable length. Upon the original plant, when growing strongly, the fronds are pinnate, the pinnae being broad, deeply cut or pinnatifid, and about a foot long at the base, tapering upwards. The colour is bright green on the upper side, paler beneath, the fronds attaining a length of 6 feet or more, and the habit is decidedly pendulous. The rhizome is creeping and clothed with large brown chaffy scales. This plant is said to be widely distributed, but I have little doubt that were specimens brought into our gardens from these various habitats some differences would be readily seen. It is found in Europe, Teneriffe and the Canary Islands, Northern India, California, Mexico, Peru, and Guatemala.

W. ORIENTALIS.—This species is a native of Japan. It is viviparous, the surface of the fronds being very often quite covered with hundreds of little bulbiform plants. These may be easily rooted by pegging the frond down to the soil. The fronds are some 6 feet or 8 feet long, by about 18 inches to 2 feet broad, bright green and pendent. It is a very fitting companion to the first-named plant.

W. JAPONICA.—This, as its name implies, is a native of Japan. It is a very handsome form, but smaller in all its parts than the two previously named. The fronds are broadly ovate in outline, pinnatifid, and from 1 foot to 2½ feet in length by about 1 foot in breadth, the colour being of a very dark green.

These Ferns are all evergreen, requiring but little trouble in their cultivation, and they should be more grown, for the effect produced by them is very charming.

WM. HUGH GOWER.

SHORT NOTES.—FERNS.

Odontosoria divaricata (H. Jamieson).—This is the name of the specimen sent. It is a climbing plant, but I am not aware that it has ever been seen in a living state in England. You say you know where it can be found in the mountains of Guatemala, and I hope when next you visit that country you will have the kindness to endeavour to bring home some living specimens. I, for one, should be happy to see it in a living state. It is a perfect gem.—W. H. G.

Myriopteris elegans (J. Bates).—This is the Fern sent. The fronds are about a foot long, and not full-sized, however. Some few years ago, when Ferns were in the ascendency, I have had them quite double this length; but I think they are much better when from 12 inches to 18 inches long. The genus is

one adopted by Fee, Professor of Botany at Strasburg, and was separated from *Nutholana* and *Cheilanthes*, to include all those having small concave segments. It is a store evergreen species, and should be grown in a mixture of turfy loam and peat. Some might suggest all peat, but I prefer half loam, as it keeps the plant from making its fronds too thick and long.—W. H. G.

Davallia Tyermani.—"D. McK." sends a frond of this plant, saying it is very useful for cutting, button-holes, and ladies' sprays. I agree with him that it is one of the best, as the texture of the frond is so firm. It is also a beautiful plant to grow in a hanging basket, the white scales clothing the rhizome being distinct. It is said to come from West Tropical Africa, but I think that wants confirmation. A friend of mine (now in Florida) had the plant when it was named, and he told me it came up amongst some *Dendrobiums* from Northern India. Moreover, it grows well in a cool house, and does not seem as if it came from such a tropical part as Western Africa.—W. H. G.

KITCHEN GARDEN.

PREPARATION OF ASPARAGUS FOR FORCING.

UNLESS in gardens where a regular supply of *Asparagus* roots is prepared annually for forcing it is rare that suitable roots are to be had for the purpose, excepting perhaps by growers for sale. It is during seasons like the present when other green crops, if not killed outright, are seriously crippled, that there is a run on forced vegetables, and where due provision has been made it is not at all a difficult matter to keep up a supply. *Asparagus* forcing is one of the simplest operations connected with the kitchen garden, the production of suitable roots or crowns being the main point. Where there are only a few old-established outdoor beds to cut from when the season comes round it would be sheer folly to dig any of these up for forcing, and it would certainly be much wiser to forego forcing for a couple of seasons or so, or take the alternative course, and purchase roots for the time being.

PREPARATION OF THE GROUND.—Ordinary preparation of the ground is only what is required on a suitable soil. Any well-drained soil if light or sandy and free working may be brought into condition with ordinary treatment, but on heavy or clay lands the staple would have to be improved, and the bed raised above the ordinary level to obtain success. The natural soils best adapted for the free growth of *Asparagus* are such as may be found in districts not far from the sea, or even in the valleys near large rivers. With such soils as these deep digging and ordinary manuring are all that is required to bring the ground into condition for the successful cultivation of *Asparagus*. On free light soils the ground must be deeply dug and heavily manured, but to heavier ground, well-burned garden refuse, sand, pond or ditch clearings which have been laid up for a time and sweetened by exposure, in addition to the manure, must be added. If a plot were sown every season, and the roots of three or four years' growth taken up in rotation and forced, a good supply would be forthcoming annually. I have even used roots of two years' growth, but, of course, this is rather a waste of plants.

SOWING THE SEED.—The seed may be sown from the middle of March until the same time in April in drills about an inch in depth, and if ground is not scarce 2 feet apart. As the seedlings gain strength and it is seen which are likely to take the lead, thin out by degrees to 15 inches or 18 inches apart. Keep the ground free from weeds or the young plants may be-

come choked, and so prevent subsequent free growth. An occasional dressing of salt will be an advantage. The following season, say, during the latter part of February or early in March, a surface dressing of rotten manure will be an advantage, or, what would be better, well burned garden refuse and manure in equal parts. It is astonishing how the roots will ramify in this medium. During the subsequent growing seasons the dressings of salt must not be omitted. Soot is also a valuable stimulant, and during the past few seasons I have used a mixture of salt, soot, and either guano or fish manure, the resulting growth being very marked. It will be necessary as growth advances to secure the stems against wind-waving by either placing sticks to each plant and drawing the growths up as they advance, or stretching lengths of tarred twine and securing them to this. This prevention of injury by wind-waving is very essential. A. Y. A.

HARDINESS OF SPINACH.

I WAS agreeably surprised at the way in which our *Spinach* recovered from the effects of the long and very severe spell of wintry weather. Certainly it was covered by about 15 inches of snow during the greater part of the time, but prior to this falling we had sufficient frost to render the ice of the lake near at hand fit for skating, the thermometer during one night having registered 24° of frost. Before the *Spinach* was properly thawed it presented a half-boiled appearance, and the most we hoped for was the safety of the hearts. As it happens, we are now gathering six pecks of leaves weekly or about the same as was done before the frost set in, and there is every prospect of this exceptionally satisfactory state of affairs continuing, provided severe frosts do not again intervene. The value of this supply of *Spinach* cannot well be over-estimated, and even during ordinary winters it is hardly possible to send too much of this wholesome vegetable to the kitchen. Once more the round or summer *Spinach* has proved equally as hardy as the prickly-seeded or winter variety, and those very superior forms, *Victoria* and *Monstrous Viroday*, have stood the winter equally as well as the rest. At least one of these two last-named varieties ought to supersede the older forms, as whenever sown the plants are invariably stronger, produce by far the finest leaves, and do not quickly run to seed. It will be interesting to learn how *Spinach* has behaved in other parts of the country. Good breadths of winter *Spinach* are not very frequently met with, but in most instances failures are more often due to want of preparation of the ground and too late sowing. The site for this important crop ought to be selected early in the summer, being then well manured and roughly dug. One or two turnings, freely forking in soot and lime, should be given before the time for sowing the seed arrives. A good breadth of ground may well be sown late in July or early in August, another sowing being made about the middle of August. One, perhaps both, of these sowings will be right, and the ground being frequently stirred with the hoe and the plants lightly thinned out, the greater portion of those reserved will most probably escape all enemies and dangers to which the crop is liable. W. I.

Spring Cabbage plants.—Now the frost and snow have passed away and we are having a few warm days, it is only too evident that the destruction of the green crops is serious. In looking over our patch of Cabbage for next spring's supply, it becomes only too clear that the greater portion of the plants has been destroyed by frost. Needing these as early as possible in spring, I sow during the third week in July, and again during the first week or ten days in August. These plants are put out on the ground where spring Onions have been cleared off without digging the land. I note there is no difference in the death rate from either sow-

ing, neither have the plants in the seed lines stood any better, although they are in rows in a most open position.—J. C. F.

PEAS.

THIS vegetable must be placed in the front rank as one of the choicest products of the kitchen garden. A good succession of Peas from the end of May to the end of October will constitute a most serviceable adjunct to the supply of first-class vegetables. Most gardeners succeed in getting Peas fairly early, and for a time maintain a good succession, but fail in prolonging the season. This is probably caused by various reasons, in some cases resulting from a want of space just when the later sowings need to be made, in others through overlooking to sow at proper intervals, and in some to failure of growth during a prolonged drought. Failures will, I am fully aware, occur even under the best of management which reflects no discredit upon the cultivator at all, but my impression is that sufficient attention is not so frequently given to the requirements for maintaining a good and as regular a supply as possible.

SOILS.

The character of the soil has an important bearing upon the successful cultivation of Peas. I have found by repeated experiments that sorts which will thrive in one particular kind of soil will fail upon another, and it does not follow that such instances need be far removed from each other. In my own case I have frequently tried to cultivate that fine Pea Veitch's Perfection and others of the same type in the garden under my charge, but they always fail. On the other hand, I can grow the tall Peas such as *Criterion* and *Ne Plus Ultra* without any difficulty whatever. I therefore rely upon these latter and do not now attempt to grow the former. For this there must be some reason. I attribute it to the soil being a light loam resting on gravel, the result being that as soon as hot weather sets in the plants suffer more in the case of the dwarf kinds than in that of the tall ones, because they have not had time to make the same amount of roots as the latter have, for I take it that the root-development must bear a certain resemblance to the top growth. Near me upon a heavier soil with a tendency to clay the dwarf Peas do well, and I have noticed also that they do much better upon fresh ground than do the tall varieties when compared with that which has been under cultivation for many years as garden ground. In fresh ground the tall Peas will grow extra tall and produce a superabundance of haulm as contrasted with the produce. The best plan, therefore, is to cultivate those kinds only which are calculated to give the most satisfactory results, as it is useless to continue with varieties which do not thrive in any particular instance. The only exception in the case of dwarf Peas which have not failed with me are *American Wonder* and *Chelsea Gem*, both of which are first rate. This success, however, I think bears out my theory that the primary cause of failure is the character of the soil, for these being early kinds do not suffer relatively speaking with other dwarf sorts later on in the summer.

Thorough preparation of the soil, either by double digging or trenching, should always be followed, the produce amply repaying for all extra trouble expended both in quality and quantity. The best manure I find to be that from the farmyard; when this fails I would prefer to use the decomposed lawn Grass of the previous season. This latter, if carefully preserved by itself instead of being allowed to get mixed with trimmings of shrubs and other refuse, is a first-class manure, yet it is often overlooked as of no consequence, and therefore wasted. I have tested it against farmyard manure and found it to be equally beneficial for kitchen garden crops. Those therefore who cannot conveniently get that from the farmyard will find in this an excellent substitute. In addition to either of these I always like to give a good dressing of soot and lime; the first will destroy the wireworm and the latter the slugs, and both at the same time act as stimulants to future growth. My practice is to prepare the ground for Peas, especially early

and midseason kinds, as soon as possible in the new year, that for later kinds may follow as crops are cleared, such, for instance, as the ground vacated by the Celery.

SOWING THE SEED.

That for the earliest crops I always prefer to sow in 3-inch pots in number of course according to the quantity required, with a little margin for failures. The numbers can be calculated to a nicety by estimating each pot of Peas at 10 inches apart, with about a dozen or so of seeds in each pot, taking care to equally distribute them over the surface. The soil for these pot Peas should be good loam, with leaf soil or other decomposed manure. A little Moss or some of the rougher particles of the soil is preferable as a drainage to using any crocks, as with the former there is nothing to be removed when planting out has to be done. When the sowing is completed these pots are removed to a vinery just started, or a Peach house advancing, and then given a good watering, afterwards never if possible being allowed to suffer in this respect at any period of growth. As soon as well above the soil, the Peas are removed, first to a cool vinery and then to a cold frame with a few days' interval between, so that they are gradually hardened off. Afterwards they are by degrees inured to the open air, guarding of course against sudden frosts and cold easterly winds. I generally sow from the middle to the end of January in pots, and at the same time, if the weather is favourable, or as soon afterwards when the soil is fit, the first sowing is made in the open ground. I consider the pot cultivation is preferable to either sowing in boxes or upon turves; in the former case the roots must of necessity, being interlaced so much into each other, be broken or injured when divided up for planting out, and those in the latter case must frequently suffer at the root either from one extreme or the other of moisture.

The after sowings are made in succession; as soon as the last one is found to be coming through the soil, another sowing follows. This, for the later sowings, need not, however, be so strictly adhered to, a little more time being allowed to elapse. It must, however, be borne in mind that frequent sowings of a less quantity are decidedly to be preferred to a larger bulk at longer intervals. It is a great mistake to have too many fit for gathering at the same time with perhaps an interval between the crops, when some may have to be used which are of questionable age. In my opinion, it is better to have none at all than to have to use those which have passed onwards towards semi-ripening. In my case, I find the latest sowings should be about the end of June; if later than this I think it is better to rely upon an early kind only. Sowing the seed thickly in narrow drills is a great error; the same proportion of seed if distributed in a wider drill will result in much sturdier plants. At no time is the system of thick sowing advisable other than when an intimation is given that the stock is not so good as usual. When the young plants crowd upon one another in the early stages of growth, it must result in a weakened condition. I prefer the drills of the midseason and late Peas to be extra deep, but not afterwards to be levelled off to the surrounding ground when the seed is sown, but left in about the condition of ordinary drills before the seed is placed therein. This will aid in keeping the roots from getting too dry in the younger stages before the growth is strong. The dwarf Peas I have named may be grown in rows 18 inches or a little more apart, but the others in proportion to their height require from 4 feet to 5 feet at the least. If Spinach is taken as an intermediate crop, another foot between the rows is better.

AFTER CULTIVATION.

The Peas in pots should be planted out as early in March as it is possible, taking the state of the weather into consideration at the time, as it is better to delay a few days than to run any undue risk. It is, however, surprising what sharp frosts they will endure when carefully hardened off. In planting out I prefer to draw a deep drill, laying all the soil upon the exposed side, either to the east or north as the case may be. The soil around

each ball should be worked down carefully, being selected as fine as possible to afford a better protection to the roots. About 1 inch of soil should be added above that whilst in the pots. If the soil at the time of planting out is in any way likely to suffer from being trod upon, I much prefer to use boards to stand upon; this extra trouble well repays itself afterwards. As soon as the planting out is completed some protection is necessary. In my case I use the spray which has been saved from the Pea boughs in the process of preparation for use, this being placed upon each side of the Peas. Then upon the exposed side I add a screen of evergreen boughs about a foot in height, for which the shoots of the common Laurel, the Fir, or the Yew are the best. A few weeks later on these may be removed to give place for the boughs proper, the spray, as first placed, being allowed to remain. This latter is at all times a protection against the depredations of sparrows, which with me are most destructive if not carefully watched and guarded against. At times, when more than usually troublesome, netting has to be resorted to upon each side of the rows, the net meeting at the top; whilst later crops sown in the open have also to be netted completely over to preserve them from injury, even so late sometimes as the middle of May. Boughing in every case pays for being done early; it may be postponed by giving an additional earthing up, but this is not advisable after the first turn when well done. In staking, a mistake is often made in keeping the rows of boughs too wide apart, allowing the Peas to bend over upon their sides before they can cling to the boughs for support; thus they are partially crippled. At the tops the other extreme is adopted frequently, the boughs being brought too closely together, with a large quantity of the haulm protruding upon the outer side of the sticks, one row thus growing into its neighbour. When this occurs a string or two should be passed along each row in due time, or the operation of gathering in wet weather will be far from a pleasant one. When it is found that one succession is too close upon its predecessor, the former may be stopped. The same plan can also be adopted when the Peas are getting too tall for their sticks.

For the very earliest gatherings it is possible in many instances to grow a few of the dwarf varieties I have named at the foot of a south wall. I have also seen extemporised protectors provided with excellent returns in an earlier picking. These were long wooden sides about 10 inches in depth, secured by cross-bars at intervals in an upright manner, and then the top covered with glass in the earlier stages, the glass afterwards being removed and eventually the sides also. In this way ten days may often be gained in obtaining the first gathering, which is a decided point worthy of consideration. As soon as dry weather sets in a mulching of well decomposed manure is a great benefit upon light soils, being the means of saving a deal of labour in watering. Considering that the manure is thus ready upon the ground for the next crop, this is not in itself any additional labour. Watering should certainly be attended to even with the mulching in very dry weather, and not merely poured into the rows, but likewise distributed over the surface between each row as well. Peas which have been turned out of pots require more attention in this respect early in the season, in April, for instance, if a dry time is being passed through. Where manure water is plentiful I would prefer it for the summer crops.

VARIETIES.

In my case I find the following varieties to be first-rate, giving every satisfaction. The earliest are Veitch's Extra Early, American Wonder, and Chelsea Gem, the latter being of the two dwarf kinds decidedly the best cropper; both are excellent kinds also for small gardens. William the First is a good succession to the foregoing, and, like Chelsea Gem, is of first-rate quality. Criterion is my next kind; this is, in my opinion, one of the best Peas grown, of superior quality, very productive, and a continuous bearer, also of strong constitution. Either the Duke of Albany or Telephone comes in well after Criterion; it is, in my opinion,

immaterial which of the two be chosen; both are first-class Peas and heavy croppers. After growing them both I can see but little difference; the former is perhaps the better selection. For the main crop nothing surpasses the old Ne Plus Ultra; it is a grand Pea all points considered, and the most reliable of all. If I were confined to two kinds I would grow this and Criterion. Amongst the newer Peas I have grown Success, which last season did remarkably well. In height it averages about 4½ feet, and is of vigorous branching growth. The pods are not of a fleshy character, but tightly packed with peas of superior quality; in shape they are more curved than most kinds. I consider this a Pea of great promise, and one which remains in good condition for use a long time without getting too old. With me it was first-rate in October last.

H. G.

SEED POTATOES.

WHATEVER may have been the effects of the wintry weather upon the stock of store Potatoes for eating, it is evident that the mischief is ere now fully manifest, and can be dealt with only by a rigid overhauling. There are many weak points in the strongest armour, and wonderfully fortunate must those be who found their covering or protection complete in every case. The very best course to take when Potatoes are even but moderately frosted is to get the tubers out and expose them to a dry air. Under any circumstances Potatoes will become damp, or, to use a common term, sweet. That is a product of greater temperature allied to a very moist air, and its best palliative is found in speedy exposure to as dry air as possible. It is not until this sweating is complete and has expended itself that it is possible to form an accurate estimate of the harm done by frost. It is wise to reject all tubers which are soft or partially so at once. They are valueless as food and absolutely unreliable for seed. But when seed tubers specially have to be overhauled it is well to replace them at once into shallow boxes and not into tubs or pits, or in any form of store which leads to heating and premature sprouting. When seed tubers are placed in shallow boxes they can be stored readily in a limited area if hard frost again ensues. Boxes of equal size and 4 inches deep on the inside if filled with tubers or seed, each box containing about a peck of tubers, may be stood one on the other a dozen deep, making three bushels of seed tubers in a pile, and yet occupy but a limited area. Yet, when there is no danger of frost, in almost the time it takes to write about it, the same dozen boxes can be stood on shelves or floors, so that the tubers are fully exposed during the day to light and air. In that way the most even and robust short breaks are ensured. The properly broken or sprouted seed tuber is greatly in advance of the ordinary seed tuber, which has the eyes either dormant or has been previously sprouted and these shoots removed. It is worth taking a good deal of trouble to ensure that the first growths of the eyes be retained. The produce of such sets always is found to be largely in excess of what results from weak or ill-prepared sets. There is, too, the advantage found in being able to plant direct from the boxes. Were these sprouted sets removed from the boxes to planting baskets, the chances are great that many of the sprouts would be broken off in the transit. When that is the case the set in question will be some three or four weeks later in producing its top-growth, and not only is a very broken breadth the result, but there is great irregularity in cropping. Some kinds of Potatoes, early kidneys especially, strongly resent the breaking off of the first shoots, and refuse to break again. Tubers properly sprouted have also the advantage that should any be rogues, these may with almost certainty be detected. Whilst tubers in a state of absolute rest may look much like one another, yet when sprouting naturally, so that the true colour and character of the shoots are manifest, they show what are respective features, and thus admit of detection if found to be strangers. It is difficult indeed to keep any large stock of Potatoes true without exercising considerable care. Few gardeners wish to see their Potato breadths irregular and uneven because the

tubers planted were much mixed, and the proper or natural sprouting of the sets before planting is a capital means to save growers from such a misfortune. A.

Veitch's Self-protecting Broccoli.—It is in a season like the present that a really good late Cauliflower or early Broccoli is valuable. The value of this autumn self-protecting Broccoli cannot be too often brought before the public; the more so to those who have to keep up a continued supply of choice vegetables. Last season I planted a large patch, 3 feet from row to row. From this patch I had a grand supply following Cauliflowers. In November I took up all I could, planted them in a large patch in a sheltered spot, and covered them up safely at night. From this lot I have had a constant supply till to-day (Jan. 22).—DORSET.

SPRING FLOWERS IN THE CONSERVATORY.

It appears rather early to write of spring flowers, but the lengthening days tell us that spring is at hand, when we shall welcome the Primrose and countless early flowers in the open garden. But long before these gems expand their blossoms to the sun the conservatory and greenhouse wear a spring dress, through the gentle forcing of many things that yield to this treatment. We have a spring scene in the conservatory in the accompanying illustration, and we know few prettier gardening pictures than a well-furnished greenhouse or conservatory in the early months of the year, when Lilacs in pots, Spiræas, Auriculas, and many other plants spread their fragrance around, besides forming with artistic treatment bold and interesting groups. Very little expense is required to make such structures gay with flower in the early months of the year, and with the help of white Hyacinths and blue Scillas even, a happy colour effect can be obtained. In the greenhouse at Kew there are often very pretty arrangements of this kind, and nothing more is wanted than a good relay of Daffodils, Scillas, Chionodoxas, Tulips, Staphylea colchica, Prunus Pissardi, Hyacinths, Freesias, and such like things. In the accompanying illustration we see what a rich variety of plants can be used in this way. In this case Ferns have been brought into requisition, and associated with Rhododendrons, the common feathery white Spiræa, Cannas, Abutilons in pots, and Auriculas. A noble flower for forming bold arrangements is the Calla, and though of a different character, the Clivia is of great value by reason of the showiness of the large, striking umbels of brilliant orange-scarlet flowers. There is one plant that is not made sufficient use of for the greenhouse, and that is the Freesia, on which many interesting notes have recently appeared in THE GARDEN. We hope that it will not remain neglected as it has in the past. There are few prettier flowers, for not only are they pure white, save in the variety Leitchlini, but deliciously scented, a few plants filling a large structure with perfume. As spring gives way to summer the arrangements can be altered, and in this way made a true index of the season, the Chrysanthemums closing the year. It is to be regretted that the love for Orchids and Chrysanthemums has led to the neglect of the greenhouse and conservatory as regards flowers. In gardens of old one of the best spots was the greenhouse, always a delightful feature in early spring when filled with fragrant bulbous flowers. But this is not the case now, with, we must admit, a loss of interest to such places. Stove plants are frowned upon as well, but this is the result of the absurd system of training and stopping adopted then, and even now, but only a mere reflection of what it was twenty years ago. The same

cannot be said of the greenhouse, which should always be kept full of flowers, as far as expense will allow, not only for producing a beautiful effect, but for providing material for the decoration of the house.

ORCHIDS.

CÆLIA BELLA.

This is a somewhat rare member of the Orchid family, but at the same time a very pretty one. It was introduced by the Messrs. Loddiges now nearly forty years ago, but it never appears to

are thick and fleshy in texture, the lower part of a soft creamy white, the upper portion of a rich bright rose colour. It begins to grow soon after the flowering season, and should, therefore, be encouraged to make vigorous growth. If the plants want repotting it should be done, or if only re-surfacing is necessary this should be attended to, first examining the drainage to see that this is in perfect order, for without this success in its culture cannot be achieved. In potting use good peat fibre and a little sweet Sphagnum Moss, and some sharp sand mixed with a few moderate-sized nodules of charcoal. The whole should be made firm, and the plant be raised a few inches above the rim of the pot. It likes a genial warmth, and should be placed in a temperature not lower than 60°, whilst during the growing season the glass may run up to 75° or 85°. The plant should be shaded from the strong rays of the sun.

WM. HUGH GOWER.

Odontoglossum Wilckeanum pallens.—G. Wheeler sends me a flower of this. It measures 3½ inches across. The sepals are smooth on the edges, the petals broader and ornamented with several long jagged teeth, ground colour French white, conspicuously blotched with cinnamon; lip of the same colour with a large blotch in front, and sundry other smaller ones on the side lobes; crest yellow. It is a grand form, and at the same time a very rare one. It will succeed well in the house with other Odontoglossums. I am told this came out of an importation last year.—W. H. G.

Dendrobium Wardianum.—A plant of this species is now flowering freely in the garden of Mr. Coulthurst, Streatham Lodge. Mr. West, the gardener, says it was well rested after it had made its growth, and kept dry and cool since. I have often considered that many people entirely fail with this fine species from not ripening the growths, or if they do ripen they are treated badly. Only this week some fine plants came under my notice which ought to have been a blaze of beauty, but there are not, and will not be any flowers this year.—W. H. G.

Zygopetalum Mackayi (J. Gregory).—I have received a letter with a fine spike of this plant, which shows it to have been a very good variety, and also a photograph of the plant from which it was cut. Eight spikes, each with six and seven flowers, are represented on the specimen. My friend says they have been open for seven weeks, a fortnight out of which the plant was in the drawing-room, the perfume emitted being delicious. The spike was sent me to show that no harm had come to the flowers, and that they were likely to last some time. Mr. Gregory has certainly grown this plant well, and proved it to be a most useful Orchid, but I should not exhaust its powers much longer. It would have been better to have had it good for two months, and have it again next year.—W. G.

Lycaste Skinneri alba.—G. W. Thompson



Spring flowers in the conservatory.

have been met with in any quantity, or at least Orchid growers in this country have never reaped any advantage by it, for the plant now remains very scarce and very little known. C. bella appears to have been collected by Mr. Skinner, although it is said to be found in several other districts. The plant has roundish or oblong-ovate pseudo-bulbs, with two or three narrowly ensiform leaves on the top. The scape is radical, erect, and usually bears about four of its pretty flowers. The sepals and petals

sends a fine flower of this variety. The sepals and petals are so broad that they make up almost a round flower, and the colour is snowy white. I first flowered this plant in the spring of 1856, in the collection of the late Messrs. Jackson and Sons, of Kingston, Surrey.—G.

Odontoglossum Hunnewellianum (T. W., Dundee).—This seems to be the flower you send, and a very nice variety it appears to be. I have never seen a strong plant, but should it produce a spike with a dozen or fourteen flowers, it will prove a most acceptable acquisition. It was introduced by Mr. Sander about two years ago.—W. G.

Masdevallia Davisi (G. Bell) is the name of your species. I am glad to see these flowers, as from them my supposition, often expressed in these pages, that we shall eventually have a fine large flower of this canary-coloured species, is correct. The plant was introduced from Peru by the Messrs. Veitch and Sons, of Chelsea, about eighteen years ago.—G.

Phalænopsis speciosa (H. Buckley).—The flowers you send are those of a very rich and bright form of this plant. It is a native of the Andaman Islands. It is one of the brush-lipped species and grows very strongly, but its flowers have not the telling effect of those of *P. grandiflora* or *P. Schilleriana*; it thrives best on a bare block of wood and likes a genial moist atmosphere.

Manure for Orchids.—I was very much interested in "W. J. B.'s" article in last week's GARDEN on the manuring of Orchids, especially where he speaks about damping the floors at closing time with manure water. I had two houses of Orchids under my charge, and I always found manure water advantageous to them, especially in the way "W. J. B." advocates. Every night I was in the habit of damping floors, paths, and all available spaces at leaving-off time with strong manure water direct from the tanks. This caused the houses to be filled for several hours with a damp ammoniacal moisture. Several growers have remarked upon the healthy appearance of the plants and of the absence of red spider. I find that plants on blocks or in baskets where a circulation of air passes freely through the roots do even better than plants in pots.—O. W. GUY.

Seasonable floral decorations.—The varied colours of Cyclamen persicum look exceedingly well arranged together without any other flowers. I have tried to use these useful early spring flowers with other things in a mixed arrangement, but was never yet satisfied with the results of my labours. I prefer, therefore, to keep them by themselves with the leaves of the smaller Ivies as an assistance. Those leaves of the Ivies which have a bronzy shade intermingled with the green I like best for this purpose, whilst they are, I think, peculiarly well suited for associating with the blooms of the Cyclamen, and also last in good condition for a long time. If several are arranged together, some little assistance is needed to keep them from crowding upon one another. Two or three sprays of a dried Grass, such as *Eragrostis elegans*, will answer for this purpose. It is better, I think, to arrange them in small vases; six or eight flowers will thus make a nice show. With several colours it is possible to avoid any sameness, as varied shades may be used in each. If exposed to draughts whilst in a cut state, even when in water, they are at times disposed to droop, but if put in secluded nooks and corners this will not be so likely to occur. In taking them from the plants it is not a good plan to cut the stems, otherwise the portion left is inclined to decay. The best way is to twist them round gently, when they will be found to separate easily from the corm, no injury being done. Another useful family of plants for supplying cut flowers now and onwards for some weeks is the *Epacris*. For my own part I am very partial to them, both for their beauty and their lasting properties. It may be urged against them that they are somewhat stiff. When arranged, however, by themselves this will not be so much noticed. There is a choice selection of colours amongst them from the purest white, through the delicate shades of pink up to deep crimson and brilliant red. When the plants are not well cultivated I must admit they are not so attractive, but when fine long spikes crowded with the small bell-

shaped flowers are obtained, they will yield to very few things in point of beauty. It is these well-developed spikes which look so well when associated together in a cut state. I like to cut them with a good length of stem, this being good also for the plants in assisting to keep them more compact. The leaves upon the lower portion, which is inserted in water, need to be rubbed off, otherwise they impede the grouping together. It is possible to use them and with beautiful effect up to 18 inches in length. A few sprays of *Erica melanthera*, with its minute flowers, will make a capital groundwork, no other foliage being needed.—J. H.

BOOKS.

LINDENIA.

WE have received part 1 of the English edition of "Lindenia," published by Lucien Linden, 100, Rue Belliard, Brussels, Belgium, and, as far as one can judge from a first part, it will be a valuable and interesting work on a class of plants that has been the subject of many books during recent years. It is only evidence of the love that exists for Orchids, and even against severe English competition the present production should receive more than ordinary attention. The information is good, the coloured plates creditable, and the whole is simply, but clearly printed on excellent paper. It will not eclipse English serials on the same plants, but in saying this we are not deprecating the efforts of M. Linden to provide us with Orchid lore and illustrations. It is conducted by Messrs. J. and L. Linden, Em. Rodigas, and R. A. Rolfe, of Kew; and the part now before us contains four coloured plates with descriptions, these consisting of *Cattleya Rex*, *Cochlioda Noezliana*, *Peristeria aspersa*, and *Cattleya Warocqueana amethystina*. The two finest are the *Cattleyas*, which are well drawn, the *C. Rex* having white sepals and petals; the lip rich crimson, reticulated with golden veins and a fringe of white. It reminds us strongly of *C. Imschottiana*, certificated by the Royal Horticultural Society last autumn, the plant having been exhibited by Baron Schroeder. We have not seen living flowers of the *C. Rex*, but should consider it a splendid acquisition. It was, according to the description, originally discovered by M. J. Linden during his travels in South America, but it was only last year that it was sent to Europe. Great difficulties seem to have attended its introduction, by reason of the plant not having a central district, and from the country in which it grows being one of the least accessible in South America. We are told that one can form an idea of the difficulties encountered when it is stated that not only the plants, but also the collectors have to be carried for several days on the backs of the Indians. *Cochlioda Noezliana* recalls the pretty *Odontoglossum* or *Mesospinidium roseum*. The flowers are very freely produced, the colour orange-scarlet, the disc yellow. The worst plate is of *Peristeria aspersa*, which is a garish association of impossible green and gaudy brown. This singular species was collected by M. Bungeiroth, who has given his name to one of the finest of this genus—*P. Bungeirothi*. A very beautiful plate is that of *C. Warocqueana amethystina*, which was exhibited and certificated by the Royal Horticultural Society last autumn. The flower is of large size, splendid rose colour, the lip of a darker shade, enriched with golden yellow at the throat. Sufficient has been said of *C. Warocqueana* to render further comment unnecessary.

This edition of "Lindenia" will appear each month, and will be carried on in the same way as the French work.

Aves Hawaiienses.—In this interesting book by Mr. Scott Wilson, F.Z.S., the native plants on which the birds are perched are admirably rendered by the artist, Mr. Frohawk. The author collected specimens of the plants and made careful descriptive notes, which have enabled them to be reproduced exactly. The birds are most beautiful, and some of them hitherto undescribed. Mr. Scott Wilson

having resided in the Sandwich Islands about a year and three-quarters, and having made many influential friends there, had unusual advantages of making observations. What adds to the value of the work is that as cultivation extends in the islands and the forests are cut down, it is feared that many of these richly coloured birds and interesting plants will become extinct. The first part of the work has been published by Mr. R. H. Porter, of Prince's Street, Cavendish Square.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

THE report of this society shows that much useful work has been done during the past year. Five conferences have been held at Chiswick, viz.: on Daffodils, Carnations, Ferns, Dahlias, and Grapes, and the attendance of Fellows and others at them, as also at the fortnightly lectures at the Drill Hall, has been decidedly more encouraging than in previous years. Fellows would greatly assist the council by making these meetings and lectures better known among the general public. For this purpose, Fellows may obtain at the office packets of tickets of admission for distribution amongst their friends at the following rates: twelve one shilling tickets, 10s.; or six for 5s.

Sixteen fruit and floral meetings have been held at the Drill Hall, besides those held at Chiswick, and lectures have been delivered at fourteen of them. The society's great show held in the Inner Temple Gardens, and opened by His Royal Highness the Prince of Wales, was a greater success than ever, alike in the number of visitors, the quantity and quality of the exhibits, the propitiousness of the elements, and the consequent pecuniary result. The society's general work of scientific experiment and investigation, and of the practical trial of various plants, has been going on steadily at Chiswick, under the superintendence of Mr. Barron. Trial has been made of 104 varieties of Lettuce, 25 of Endive, 33 of Celery, 36 of Leeks, and 30 of Broad Beans. Thirty-four new varieties of Potatoes, 23 new Peas, 30 new Tomatoes have been tested. In the floral department 415 varieties of Carnations and Picotees, 354 Dahlias, 58 Ivy-leaved Pelargoniums, 70 Violas and bedding Pansies, 112 different strains of China Asters, and 32 of Stocks have been tried. Very large collections of perennial Asters (Michaelmas Daisies) and Sunflowers have been received in view of the projected conference upon them in October, which will prove of the greatest possible interest, and will, it is hoped, serve to clear away the existing confusion in their nomenclature in different parts of the country.

It has been decided to abandon the experiment of opening the gardens on Sunday, as it not only throws additional work on the officials on their one rest day in the week, but also entails considerable expense on the society which can ill be spared from the general work of the gardens. The society's Journal has been continued so as to enable Fellows at a distance to enter more fully into and reap the benefits of the study and work of those more actively engaged at the centre.

The council wish to impress upon Fellows the absolute necessity there is for them all individually (as many as have the society's welfare at heart) to endeavour to secure new Fellows to the society if its work is not only to be continued at its present standard, but still more so if the ever-opening and extending opportunities of usefulness are to be embraced and accepted. The adoption of £1 ls. as one rate of subscription was, no doubt, a popular movement, but the council desire to remind the Fellows that such a low rate of Fellowship can only be self-supporting if it draws into the society a very large number (far larger than at present exists) of additional Fellows. The council, therefore, venture to express the hope that every Fellow of the society will make an endeavour to obtain at least one new Fellow during this present year. There has been an increase in the number of Fellows of 364.

The most notable feature in the past year's work

has been the excellent commencement made for raising a fund for obtaining for the society more suitable and worthy premises, and for building a horticultural hall to meet the requirements with regard to light and space and position, not only of our own society, but also of the numerous kindred associations of this great metropolis. A scheme for the purpose was put forth in the spring by which it was proposed to borrow, without interest, from those willing to so lend it, a sum of £40,000, part of which was to be expended on the buildings and part placed in the hands of trustees to safeguard the annual ground rent, the principal being, it is hoped, gradually repaid to the lenders by annual drawings out of the assets accruing from the rent paid to the trustees by the society and by other kindred associations using the building, and by occasional lettings. The trustees are Sir Trevor Lawrence, Bart., M.P., Baron Henry Schroeder (to whom we are indebted for the scheme), and Mr. Everard A. Hambro. The response made to the scheme was at first very promising, and half the amount required was promised during the ensuing summer, but owing to circumstances connected with the condition of financial matters generally it was thought advisable in the autumn to allow the appeal to rest for at least six months, but it is hoped to resume active operations again as soon as the present spring is advanced.

The council have the sad duty of recording the death of nineteen Fellows during the year, and amongst them they deeply regret to find the names of Messrs. Wildsmith, MacIntosh, Haughton, Williams, Holmes, Deal, and Shirley Hibberd, Miss North and Miss Owen. The loss the society has sustained in this manner has been unusually great, not in numbers, perhaps, but in the relative importance of the gaps left in our ranks—Messrs. Wildsmith, Deal, and Hibberd, and especially the last named, having been most energetic and loyal supporters of the society and themselves active workers in all its undertakings.

During the past three years the council have, amongst other matters, been considering methods of interesting amateurs more in the society and its work and of rendering to them a greater personal return for their subscriptions. To this end they have already established the fortnightly lectures and the great Temple show; have promoted various conferences on interesting horticultural subjects, and have revived the publication of the *Journal*. They have now further decided to revive the society's ancient custom of offering prizes to amateurs, a long schedule of which has been already circulated in the "arrangements for 1891." The council cannot afford, with the very limited funds at their disposal, to embark on any very comprehensive scheme this year, but if this new departure should meet with general approval they hope that the Fellows themselves will, by subscriptions to the "prize fund for 1892," enable them next year to set forth a much fuller schedule.

Another revival during the past year has been the following scheme of affiliation with local societies, and the council would feel greatly obliged if Fellows who take an interest in the affairs of any local horticultural societies would use their influence to secure co-operation in this way.

SCHEME OF AFFILIATION OF LOCAL HORTICULTURAL SOCIETIES WITH THE R. H. S.

I.

Local societies subscribing £1 1s. per annum will be entitled to:—

- 1.—Two copies of the R. H. S. *Journal* for circulation amongst the local society's members.
- 2.—To nominate one of their members to rank as a £1 1s. Fellow of the R. H. S. with all the privileges of a £1 1s. Fellow, with the exception of the R. H. S. *Journal*.
- 3.—One transferable ticket admitting to all the R. H. S. meetings and shows, which may be used by any member of the local society.
- 4.—To purchase at cost price one silver and one bronze medal of the R. H. S.

II.

Local societies subscribing £2 2s. per annum will be entitled to:—

- 1.—Four copies of the R. H. S. *Journal* for circulation amongst the local society's members.

- 2.—To nominate two of their members, each to rank as a £1 1s. Fellow of the R. H. S., with all the privileges of £1 1s. Fellows, excepting the *Journal*.

- 3.—Three transferable tickets admitting to all the R. H. S. meetings and shows, which may be used by any members of the local society.

- 4.—To purchase at cost price two silver and two bronze medals of the R. H. S.

N.B.—Local societies are invited to send interesting exhibits and specimens of plants, plant diseases, &c., to the R. H. S.'s fortnightly meetings of the floral, fruit, Orchid and scientific committees, and to correspond with the secretary of the R. H. S. on any interesting horticultural subjects or events in their locality.

The secretary of the R. H. S. will also at any time be pleased to assist the secretary of any affiliated society in introducing them to horticulturists, or specialists, able and willing to deliver lectures on interesting subjects before meetings of their local societies, or to act as judges at shows, &c.

It has been decided to hold a conference at Chiswick on conifers during October, which it is hoped will prove interesting. The unusually hard winter through which we have just passed will prove a most practical commentary on the hardness of the different varieties. The co-operation of landowners and others who may have planted these trees or shrubs in years past, or who take a present interest in them is specially invited.

NATIONAL CHRYSANTHEMUM SOCIETY.

ANNUAL MEETING.

THE annual general meeting of this society took place on Thursday week at Anderton's Hotel, when there was a good attendance of members, and the proceedings passed off quietly. A lengthy report of the past year was read by Mr. R. Dean, and showed that the society had done much work, including the celebration of the centenary of the Chrysanthemum. The number of members on the books was 770, and 109 joined during the year, whilst there were 79 affiliated societies, 25 also having joined in 1890. The report, which contained sympathetic reference to the late Mr. Holmes, was adopted.

Votes of thanks were passed to Miss Holmes and Mr. R. Ballantine for their work in the society's interest during the year.

The proposed alterations in the rules were then considered, which provided (1) for the abolition of the term "honorary" as applied to the offices of secretary and foreign corresponding secretary; (2) empowering the general committee to pay the secretary for clerical assistance, such a sum as it may annually determine; (3) for securing the appointment of one new auditor annually; (4) limiting the number of medals to be supplied to affiliated societies without the express sanction of the general committee; (5) for giving the general committee power to determine from time to time upon what term foreign members shall be granted the privileges of the society; and (6) for abolishing the permanent catalogue revision committee, and the provision instead of a committee of five members to be elected annually by the general committee. The recommendations of the committee were adopted after some discussion, one member proposing that the election of officers and committeemen should be by ballot rather than the usual show of hands.

The officers elected for the coming year were as follows: President, Lord Brooke, M.P.; treasurer, Mr. J. R. Starling; chairman of committee, Mr. Ballantine; vice-chairman of committee, Mr. E. C. Jukes; secretary, Mr. Richard Dean; and foreign corresponding secretary, Mr. C. Harman Payne. All were elected unanimously. The election of members of committee brought forward eighteen names and the following were elected: Messrs. H. Briscoe-Ironside, J. H. Witty, J. Newton, Drain, junr., R. E. Reeve, R. Payne, T. W. Saunders, H. A. Needs, F. Bingham, N. Neary, F. J. Long, and Vince. Mr. W. Davey was elected to the position vacated by Mr. Dean on his election as secretary. Mr. Crane and Mr. F. Cobbold were chosen as au-

ditors. A vote of thanks to the chairman, Mr. Ballantine, brought the proceedings to a close.

The Gardeners' Orphan Fund.—The usual monthly meeting of the committee took place at the Horticultural Club, Hotel Windsor, on the 30th ult., Mr. William Marshall in the chair. The minutes of the last meeting having been read, the secretary reported a balance of £300 at the bank in addition to £600 on deposit. The following list of special donations was announced: Mrs. Todd, proceeds of flower stall at Edinburgh Chrysanthemum Show, £15; Scottish Horticultural Association, per Mr. McKenzie, £5 (it is thought this will become an annual donation); Ealing District Gardeners' Society, proceeds of concert, £15; Mr. Jameson, on behalf of Messrs. R. Scott & Co., proceeds of skating fête at Elm Grove, Acton, £5; proceeds of skating fête at Hanger Hill House, per Mr. Chadwick, £7 13s.; Liverpool Horticultural Association, per Mr. R. W. Ker, £2 2s.; Bristol Chrysanthemum Society, per Mr. Vallance, £2; Mr. M. Dunn, Dalkeith Palace Gardens, donation, £1 1s.; Mr. H. Herbst, Kew Road, S.W., donation, £1 1s.; Mr. McFarlane, artist, to make his son and daughter life members, £10; Mr. A. J. Brown, proceeds of concert at Chertsey, £1 16s.; and the contents of the following money boxes: Mr. J. Hughes, Birmingham, £6 10s.; Mr. D. T. Fish, Hardwicke, Bury St. Edmunds, 19s.; Mr. T. Turton, The Gardens, Maiden Erlegh, Reading, 8s. 2d.; Mr. G. Gibson, Morden Hall Gardens, Mitcham, 9s. 6d.; Mr. Lemmon, Brighton, £1 5s. 8d.; Mr. F. Ware, Wimbledon, 12s. 4d.; box at Chiswick Gardens, R.H.S., 7s.; Sevenoaks Gardeners' and Amateurs' Society, per Mr. Denning, £1 10s.; Tunbridge Gardeners' Society, per Mr. Fennell, 14s. 6d.; and Leeds Paxton Society, per Mr. Franklin, £1 1s.; total, £79 13s. A letter was read from Mr. H. J. Veitch, chairman of the Williams Memorial Fund, stating that at a recent meeting of the executive committee to dispose of the fund they had, in the full belief it was a commendable way of doing honour to the memory of the late Mr. B. S. Williams, voted the sum of £250 to the Gardeners' Orphan Fund in order that two orphans might be placed upon the fund at once, Mr. Henry Williams to nominate them. It was unanimously resolved that the offer made by Mr. Veitch be thankfully accepted, subject to the condition named in his letter and in due conformity with the rules of the fund. The secretary reported that he had already received nine applications on behalf of orphan children, some of them of a very urgent character. Mr. A. J. Brown made a statement on behalf of Dr. Hawksley, the director of the School of Handicraft for Destitute Boys at Chertsey, and a vote of thanks was passed to Dr. Hawksley for his communication.

NOTES OF THE WEEK.

Bambusa palmata is a new and fine species. The tallest stems I have seen were 5 feet high, so that it is quite distinct from *B. Raganowski* in respect to height. It differs also in size of leaf, the largest I have measured being 13 inches long by 3 inches broad—very big for a Bamboo. It promises to be quite a sensational Evergreen.—T. SMITH.

Lycaste Skinneri varies much in the shadings and substance of the flowers. The seat of colour is usually the lip, which displays many tints, from the clearest salmon to the deepest crimson; but we noticed in Messrs. Veitch and Sons' nursery at Chelsea a few days ago a variety with flowers wholly of a soft pink shade, very beautiful in contrast with the white forms. This great variability of colour has done much to extend the culture of *Lycaste Skinneri*, and it well deserves popularity by reason of its freedom, beauty, and showiness.

An interesting plant in the Cactus house at Kew now is the Epiphyllum grafted on a specimen of the *Pereskia* that runs up one of the rafters. The Epiphyllum is grafted on at various points, and the bunches of leaves and flowers hang down like a large cluster of Mistletoe from an old gnarled Apple tree. The effect is very pretty, the masses of Epiphyllum giving colour to the house, as the plants are now in full

bloom. Those who have a house of sufficient size should bear in mind this use for the Epiphyllum.

Park for Thurso.—Sir Tollemache Sinclair has given several acres of ground to the town of Thurso for a park as a memorial of his father, the late Sir George Sinclair.

Late Chrysanthemums.—After several years' trial I find *Boule de Neige* (white), *Golden Gem* (when well grown, a vivid clear yellow), and *La Favorite* the best January Chrysanthemums. They are all compact growers, the flowers lasting well in a cut state about a fortnight. *La Favorite* when well grown forms a deep globular flower. On Jan. 29 I cut beautiful flowers of *Etoile de Lyon*, some of them nearly white. *Mme. Hoste* is a great favourite here. *Putney George* is a robust grower, and of lovely form and colour.—GEO. BOLAS, *The Gardens, Hopton Hall, Wirksworth, Derby.*

Chrysanthemum Golden Gem.—I send you a head of bloom of *Chrysanthemum Golden Gem* to show its value as a late variety. I have grown this variety for the last ten years, and I consider it the best late variety we have. It is free flowering, of good habit, and requires no sticks if the points of the shoots are taken out up to first week in August. If the wood is thoroughly ripened by exposure to light and air, and the plants kept cool after housing, the cultivator will be rewarded with abundance of bloom from Christmas till early February.—R. OWEN.

* * A useful and beautiful Japanese reflexed variety, the flowers yellow, the centre shaded bronze.—ED.

Violets in frames.—The recent sharp frost through which we have recently passed has left its mark on these plants as well as on many others, but not to the degree that one would have expected. Our frames of Violets were not opened for more than six weeks, neither did the plants obtain a ray of light during that time. It is really surprising to see how well the plants have stood this severe ordeal. There were many fine flowers on the plants at the time the frost came, but when the long-looked-for thaw came I was able to gather flowers directly, for, with the exception of a petal that was damped here and there, and this only on some of the blooms, there was nothing the matter with them. As might be expected with a humid and warm time succeeding such severe weather, it is now the effects of the latter are most clear, and with such compact and close-growing plants as Violets considerable care will be necessary in keeping every piece of decayed leaf removed daily, or damp will prove very destructive to the plants. If care is taken to remove the decayed leaves as soon as they can be seen, the harm done by the frost will have been reduced to a minimum.—C. WARDEN.

Stachys tuberifera.—I have on several occasions spoken favourably of the above plant as a useful autumn, winter and spring vegetable. Its merits are still more conspicuous this winter, inasmuch that it is quite uninjured by the severe and long winter we have passed through, although it has remained in the ground all the time, with only the protection of a thin layer of litter. Its extreme hardiness and also usefulness in a season like this, when there is scarcely a plant of the Cabbage tribe left alive, stamp it as a desirable vegetable in all gardens where an unbroken supply is expected all the year round. Our cook makes use of it in various ways, and thinks highly of it. When first brought to notice in this country and its cultivation described, instructions were given that it succeeded best in very poor soil; in fact, I believe it was given out that it would succeed admirably grown in ashes. That it will grow under these conditions no doubt is quite true, but the tubers will be very small. I find that if planted in rich soil in rows 18 inches apart and 12 inches between each set in the rows, that the tubers are much larger and a much heavier crop is produced.—O. T.

—This new addition to our vegetable supply has proved most useful for some time, when other kinds were scarce through the severity of the weather. Should there be plenty of other vegetables, a change is generally acceptable in the kitchen. When this tuber was first brought into notice, I planted it in rather stiff, moist soil, but

here it proved a failure. Last year I planted it in drills drawn about the same as for Peas or French Beans, the small tubers being placed a few inches apart in the drills, the soil being very light and moderately rich. Here we had two bushels in a drill 10 yards long. The roots spread 2 feet on each side of the drill, and seem to keep about 3 inches under the surface of the ground. The soil being light, the roots met with no obstruction and thus yielded the crop above mentioned. The tubers may be cooked in various ways, and are much appreciated here.—W. O., *Fota.*

Angræcum fragrans.—Although Orchids are of practically no economic value, an exception, besides the notable one of *Vanilla*, appears to exist in this *Angræcum*. It is a native of Mauritius, and the leaves (if not at the present date) were, some years ago, exported in considerable quantities from that island. In a dried state they are known as *Faham*, and are much in favour with Asiatics for their vanilla-like fragrance, being used for perfuming tea and similar purposes. They are also said to possess certain medicinal properties. From the horticultural standpoint the species is worthy of cultivation. A plant now in bloom at Kew shows the flowers to be both pretty and very sweetly scented. The sepals, petals and lip are all of the purest glistening white, the only exception being the spur, which is $1\frac{1}{2}$ inches long and of a yellowish green. The flowers measure over 2 inches in diameter and are produced singly on the scapes. The plant has a slender erect stem bearing two opposite rows of dark green bilobed leaves each about 4 inches long. The species is very rare under cultivation.

Pleione humilis.—This species differs considerably from the better-known group which flowers in the autumn, and to which *P. lagenaria* belongs. It is generally at its best in February and March, and the flowering season is, therefore, some three or four months later. The pseudobulbs, too, instead of being broad and flat-topped, taper from a broad base to a slender neck, being perfectly flask-shaped; they are of a rich dark green without any of the brown mottlings usually seen in *Pleiones*. The flowers, which are each 3 inches across, are borne, as a rule, on one-flowered scapes, those on the strongest plants, however, occasionally bearing two. The petals are white, prettily flushed with rose, the funnel-shaped lip being mainly of the same colour. It is fringed in front, and there are six parallel veins running lengthwise, also fringed; various blotches of brownish-crimson give to it the elaborate coloration seen in the *labella* of *Pleiones*. It is a strictly mountain species, being found at an elevation of 7000 feet in Nepal, Sikim, and Bhotan. Sir Joseph Hooker, who, in his Himalayan journeys, saw it growing wild, says that it is commonly found in shady, mossy places, sometimes on the trunks of trees. It requires the same treatment as the other species, except that owing to its later blooming, repotting should be deferred until the end of March, or whenever the flowers are past. It is flowering in the cool house at Kew.

The Mezereon is a noteworthy shrub at the present season and we wish it was more planted in English gardens. A good way to use it is that which is followed in the Royal Gardens, Kew, where we are pleased to see many efforts made to show off to the best advantage the full beauty of flowering trees and shrubs. At the end of the walk from the Palm house at Kew leading to the "Wilderness" are two large beds filled each with *Ruscus*, or *Butcher's Broom*, and about thirty little bushes of the *Mezereon*. These are just now expanding into flower, and when in full bloom provide a rich feast of colour, also filling the air with a sweet fragrance. The effect of the two is very happy, and those who have not planted the *Butcher's Broom* and *Mezereon* in this way should do so. Both plants succeed in a sunny spot and in ordinarily good soil. There are several varieties of *Daphne Mezereum*, the best being perhaps *rubra* or *purpurea*, by reason of its darker coloured flowers. Then there are double forms, also white and pink varieties, but the deeper the colour of the flowers the better for so early in the year, when rains are fre-

quently heavy. It is strange that the best bushes of this fine old *Daphne* are only to be seen in cottage gardens, but it is to be hoped that when such things as *Privet*, *Laurustinus*, and other monotonous Evergreens have had their day, things will change for the better in this respect.

Masdevallia melanopus.—This is one of the profusest-flowering of *Masdevallias*, and one of the happiest under cultivation. When it gets suitable conditions it increases rapidly in bulk, so that from even a small piece several fairly-sized plants may be obtained in a few years. Although the flowers are neither large nor showy, like those of such species as *M. Lindenii*, they are both quaint and pretty, and their number compensates for deficiency in size. As many as nine or ten flowers are open at one time on a spike. The sepals are triangular at the base where they are united, but the apex of each is lengthened out into a yellow tail. The main portion is white marked inside with a few purple spots. The whole flower is 1 inch long, the racemes being about 8 inches high, and standing clear above the thick tufts of leaves.

Galanthus Fosteri.—This is now in full flower, and so far is most certainly not the finest of all, as it was said to be, being much inferior in size to the good forms of *Elwesi* or *Imperati*. However, as my bulbs are only two years imported, they may when older and stronger produce flowers of increased size. Nevertheless, it is a good and distinct species, very shapely and pure in colour; the leafage is also most distinct, being broad, *Scilla*-like, and pea-green. I think it will prove more amenable to gentle forcing than the common *Snow-drop* does, judging from some that I placed in a cold house and hurried along rapidly. If this should turn out to be a fixed trait in its character, it will indeed be valuable. The flowers are also strongly scented, especially those opened under glass.—T. SMITH, *Newry.*

Rhododendron arboreum.—A richly-coloured variety of this Himalayan species planted in one of the beds in the temperate house at Kew is now crowded with bloom, almost every branch of the tree, which is 12 feet high and half as much through, bearing a truss of the deep, almost blood-red flowers. The species is a very variable one, the flowers ranging in colour from deep rose to almost crimson, and the foliage in some forms being silvery white underneath, whilst in others it is covered with a red pubescence. For large conservatories no more effective plant than this could be found; when in full bloom with the sun shining on the flowers it makes a most brilliant picture. Although it is hardy in some of the mildest parts of the country, it requires protection in the neighbourhood of London. It was one of the first species to be introduced from the Himalayas, having been brought over in 1820. It has been largely used for hybridising, and its progeny are some of the most richly coloured of *Rhododendrons*.

The late Mr. Wm. Court.—A monument has just been erected in Brompton Cemetery to the memory of the late Mr. Wm. Court, who for many years represented Messrs. Veitch and Sons in America. The same is subscribed for by his many friends there, through Mr. A. D. Cowan, of Chambers Street, New York. The monument is of red granite set upon a substantial York landing, bearing the inscription of "Court, born Sept. 1, 1843; died Sept. 7, 1888. Erected by his American friends." The English and American flags are represented entwined. It is a fine piece of workmanship by Messrs. J. Barker and Son, of West Brompton, the same being entrusted to Mr. Alfred Outram, one of the late Mr. Court's most intimate friends.

The death of Mr. Ormiston, of Melrose, we are sorry to hear, occurred recently. The deceased nurseryman belonged to the firm of Messrs. Ormiston and Renwick, Melrose, and was 70 years of age.

BOOKS RECEIVED.

"Idle Hours with Nature." By Charles Dixon. London: Chapman and Hall (Limited).

Names of plants.—*G. Thomas.*—*Mina lobata*.—*L. K.*—*Love-lies-bleeding* (*Amaranthus caudatus*).—**Name of fruit.**—*T. C.*—*Mère de Ménage*.

WOODS AND FORESTS.

THE HOME NURSERY.

WHERE ornamental and covert planting and hedging are performed on an extensive scale, the convenience of a home nursery cannot be over-estimated, the plants being always at hand and of the size and in the quantity required, thus obviating the necessity of sending to a distance for these when wanted. The advantages in these cases are too well known to require comment, and plants more especially those of a large size, sent from a distance cannot, after packing and transmission by road and rail, be expected to succeed equal to those raised and planted on the same day. The extra soil or ball with which large plants can be removed for a short distance is also much in their favour, but which is next to impossible where packing and transit have to be resorted to. It is well known that too sudden a change from rich, well-sheltered nursery borders to bare exposed hillsides often proves fatal to young plants; and when we consider that few public nurseries are at a greater elevation than 300 feet, the necessity of proprietors rearing their own stock whose plantations are, perhaps, upwards of 1000 feet above sea level will the more readily be seen. There are certainly difficulties to contend with in planting high-lying ground, more especially if the soil is poor and the situation exposed, and in these cases the advantages of using hardy plants that have frequently been transplanted in a well-chosen home nursery are only too perceptible, especially when contrasted with others that have been grown under more favourable circumstances and in a sheltered position. Some plants seem better adapted than others for this removal, but in the majority of cases the shock sustained by transferring from low-lying ground to that at a great elevation is only too apparent, and from which the plants seldom recover. A good deal of comment has taken place as to the necessity of rearing trees from seed sown on the site of the future plantation; and although the suggestion has many points in its favour, still, artificial planting is better adapted to the wants of our country, and not at all likely to be superseded by artificial reproduction, which is more fitted for countries differently situated to our own. The nursery treatment of plants is, therefore, sure to remain a prominent feature of British forestry, and the soil and situation, as well as most successful treatment of these, so as to produce plants suitable for the positions they are intended to occupy, will require due consideration, and vary much according to the position of the estate and ground to be planted.

In choosing the site of a home nursery, a good deal will depend on the general elevation and exposure of the estate. The situation should be neither too much exposed nor yet sheltered, but partake to a certain extent of both, and with a southern or western exposure; for although too sudden a change from sheltered to exposed ground often proves fatal to young trees, this should not altogether form a criterion for rearing such in situations unfavourable to the development of strong, healthy plants. The soil should be good friable loam on an open, porous subsoil; but the quality of ground required for different seedlings is so diversified, that it is next to impossible to suit all within the small bounds required for a home nursery. As water is indispensable where seedlings are raised, as well as for numerous other purposes in

the nursery, it is well to have provision made for a continuous supply, either by a stream running through the nursery ground or in close contiguity to it. From 6 acres to 10 acres will be found sufficient nursery ground for most estates, but it is advisable to add a little more than is really required, so that the breaks may not all be under forest trees at the same time, but undergo, when found necessary, a course of green crops, which will not only enrich, but clean the ground and leave it in good condition for replanting with seedling forest plants, bearing in mind that farmyard manure should always be applied first to the green crop, and never directly to the plants themselves. Land intended for nursery ground should be thoroughly trenched to the full depth of the soil, and, where necessary, heavily manured or enriched by the addition of lime, vegetable soil, or loam, as the case may require. In laying out the ground into breaks it will be found convenient to have these either square or rectangular in shape, and, if possible, parallel to each other. The breaks may be divided by different kinds of hedges, which, when well kept, give not only a neat and tidy appearance to the nursery, but are highly beneficial in the way of shelter. The site chosen for the seed beds should be naturally sheltered, or, failing this, such artificial shelter as is found necessary should be provided, as exposure of the young plants to cold, cutting winds causes them to become stunted and bark-bound. Young trees, like other plants, rarely thrive well in a bleak situation.

In the management of a nursery the amount of care and attention required is certainly great, but any trouble as well as expense connected with starting and keeping it in good condition afterwards will be amply repaid by the increased value and superiority of the stock obtained; and as the subject of extended planting is one well worthy the consideration of proprietors owning exposed or otherwise worthless tracts of land, steps in the right direction will be the establishing and maintaining in good order a well-stocked home nursery. A.

The Holly and Yew are two valuable trees. They will grow tolerably well in the shade and in almost any ordinary good soil, but in a rather dry, strong loam both do best, the Holly particularly. Though a difficult subject to transplant, I never remember the Holly to have shown any signs of distress from drought if the roots had had time enough to get hold of the soil, but the Yew occasionally suffers, owing to the habit of the roots spreading out close to the surface. Hence the benefit trees growing on lawns and other exposed places receive from top-dressings, which should be placed over the roots as far as they extend. Still, though there are trees that prefer a dry, and others a moist situation, as a rule all timber trees prefer a soil free from stagnant moisture; hence the necessity of drainage in plantations. This may be effected by means of open drains to a considerable extent, if these be cut in parallel lines at regular distances apart and kept open by periodical cleanings. I have known extensive woods drained in this way when doing it otherwise would have entailed much expense.—W. S.

Grass for pheasant covert.—I feel sure "Wild Bird" (p. 63) would be pleased with the Grass I have to mention, and I speak from a knowledge of it culturally. Its name is *Elymus glaucus*, or Lyme Grass. It is a noble and beautiful plant, and most serviceable in many ways. I know no method, however, in which it could be better employed than in planting rough land of a copse character, and where the shade of trees is not too much I am sure it would grow well where it could have good side glints of light and a fair amount of direct sky light. I see it is priced at a somewhat

high rate in some trade lists, but that will no doubt be owing to the fact that it is not much known or asked for, at least in many parts. Before trying to describe this Grass, a word might be said in its favour as a decorative plant. It may not be fit for the more dressy parts of gardens or shrubberies, and yet, properly used in other ways, it could hardly fail to give a pleasing feature, especially near trees or water. It is perfectly hardy and perennial. With me it grows 4 feet to 5 feet high. The foliage is glaucous, nearly blue, quite as broad as that of common Oats, and it keeps more or less green throughout the winter. From the stout character of the Grass, it must make fine covert either in summer or winter for pheasants and other game. Its habit of growth is rampant and spreading by means of running roots. I may mention an illustration where I saw it had been planted in a small round bed out in the Grass and labelled "Pampas Grass." It had pushed in one year beyond the bounds of the bed and come up both in the Grass and further out in the gravel drive.—J. Wood, Woodville, Kirkstall.

STOPPING DECAY IN SPECIMEN TREES.

THIS is a point often overlooked, and one frequently sees trees in a rapid state of decay that timely attention would have prevented. Decay in old trees may often have gone too far and it will be impossible to arrest it, but in the case of young specimens with only a small hole, or in older trees not too decayed, much may be done to prevent it. I have tried various ways to prevent valuable trees from decaying, and so far the best remedy I find is to well mix good Portland cement and to thoroughly stop the hole or portion decayed with it. It will do much good and probably give the trees so treated many years of life. One thing is very necessary before using the cement: the decayed portion must be thoroughly cleaned out, all rotten parts scraped as clean as possible, so that the cement should get a firm hold of sound wood, as unless this is done it is impossible to check the decay. Many trees often split badly down the middle, and thus admit the moisture, and if noticed in time a strong iron clasp will prevent further injury, at the same time using the cement as advised. Of course in young trees the clasp must be such as to give more room as growth increases, as often young trees get injured by winds and snow and need this support. From the same cause large trees with heavy tops split and need attention. One great advantage of the cement is that it prevents birds and insects using the decayed portion, and thus adding to the mischief. The cement when properly used stops the moisture from going into the affected parts and arrests decay. Many of our very old trees are encased with lead, but this does not prevent the wet reaching the decayed portion, and insects also have their haunts under the lead, so that the above remedy when used in time will be found a reliable one and not at all costly. G. WYTHES.

Ivy injuring trees.—I shall be glad to know if Ivy growing on Oak or any kind of tree does harm, and in the end causes them to die.—J. P. W.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

KITCHEN GARDEN.

EARLY TOMATOES.

THERE are various modes of obtaining early Tomatoes, and, considering the importance of the crop, means should be taken for the production of fruit as early as possible. Some gardeners rely on cuttings rooted during the late autumn months for the earliest supply, but the system has little to recommend it, as, besides making but slow progress, these autumn cuttings appear to be very subject to the attacks of a small white fly only too well known to growers of Tomatoes who have probably had to combat with it at some time or other. When grown from seedlings the plants are clean to start with, and with ordinary care there is not much difficulty in warding off this destructive pest. An occasional fumigating while in a young state will generally result in the plants remaining clean until the crop is cleared. In private gardens, for the earliest supply the plants are either fruited in pots or boxes, a rather limited root run being very essential, thus inducing earlier fruiting than there otherwise would be with a freer root run. It must not be inferred that I favour starvation by cramping in small pots during the earlier stages of the plants' existence, and as a means of inducing early fruiting, as this would have an opposite tendency by inducing the earlier trusses to go blind. When the plants are grown in pots they can be arranged in any available position for the time being. For later crops I do not recommend the plants to be thus distributed on account of extra trouble entailed in keeping the plants free from the destructive pest mentioned above. Later or rather general crops succeed better when planting out is adopted, the labour of watering being thus greatly lessened. In many gardens the plants for the production of the earliest crops will be fairly on the move, the early part of January being a favourite time for sowing the seed. Where such is not the case, seed of an early fruiting variety should now be sown. A good selection of the dwarf Orangefield is still a favourite with many. The young plants must be grown on sturdily from the first in a very light position near the glass and where the night temperature ranges about 60°. The plants must also not be crowded up amongst other things, this causing a weakly growth. An over-moist atmosphere must be especially guarded against, as being a source of disease, and with which some growers have a deal of trouble. A firm woody growth being very desirable, means must be adopted to obtain this. The seedlings I prefer to be potted singly into 3-inch pots, and as soon as they have recovered from the check and are able to bear exposure they should be placed in a light position with free exposure to the sun. As soon as fairly rooted repot into 6-inch pots, the soil used being three parts loam to one of pulverised horse manure, in which material the plants will grow apace. The young plants will now increase in size fast and also thicken considerably. Stand the plants out thinly, so as to have free exposure to light all round, when they will make satisfactory progress. Some growers allow the plants to remain in the 6-inch pots a considerable time longer than is really good for them, or until the first trusses form, but instead of

hastening the crop the reverse is the case, as if any fruit does set it is about at the rate of one or so to a truss, and it is invariably very small when fully grown and ripened. Generous treatment, therefore, being advisable, the plants before they become stunted must again be re-potted into the fruiting pots, or either be planted into boxes, if this mode is decided upon. A good sound compost being very desirable, this must be provided. The same proportions as stated above, with the addition of a little charcoal, will form a good rooting medium for the production of healthy roots. The plants must be supplied when the fruit is set and swelling off with either liquid manure or a good fertiliser. The pots or boxes must be efficiently drained, and a space of 3 inches or so left for future top-dressings. Keep the plants neatly tied to a stout stick, and at this stage it will be desirable to place each plant in the position it is to fruit in. I prefer growing the plants to a single stem, pinching out all side growths as soon as perceived, and also stopping the leader at a desirable height when a sufficient crop has set, this inducing the fruit to swell up more quickly. I have also practised stopping the shoots whilst in 6-inch pots, afterwards training up three shoots, treating each of these as a single plant as regards rubbing out the side growths, but topping each shoot as soon as two trusses have shown, which would make six bunches of fruit to a plant. Where head space is limited this is the best system to adopt, otherwise I prefer the single cordon. With early Tomatoes some people have a difficulty in getting the first blooms to set, but this is mainly through growing the plants at this stage in a too moist or close atmosphere. With a warm buoyant atmosphere, not over-charged with moisture, there should not be the least difficulty in securing a good set. Some growers resort to the camel's-hair brush, but all I do is to give the plants a tap once or twice during the day whilst the pollen is perfectly dry. As soon as the first fruits are set each plant should be top-dressed with rich material to induce surface roots, afterwards feeding with liquid manure or any concentrated fertiliser. These plants being only grown for the earliest crop, it is not necessary to allow them to keep on growing ahead, as they might do if they had adequate support provided. When growing in a narrow border I have allowed the plants to grow to a length of 14 feet or 15 feet, the crop secured being enormous. A. Y. A.

Blanched Turnip-tops.—Placing Swedish Turnips, or Swedes, in a warm, dark place, in order to obtain a good supply of tender, blanched tops, is no new idea, but it is doubtful if it has ever been so extensively acted upon as during the present winter. Owing to the great scarcity of green vegetables, notably Broccoli, Borecole and Cabbage, the demand for Seakale has been exceptionally heavy, and seeing that very few gardeners would be prepared for such an emergency, anything in the way of a substitute ought to be most welcome. Luckily, Swedish Turnips have been unusually plentiful; in fact rarely have they been seen so good in the open fields as during last summer. A bushel or two, or even less of roots are not missed by the growers, or could be bought cheaply, and those who procure them have only themselves to thank if they do not cut many excellent dishes of blanched or even green tops from them. A few dozen at a time placed in a Mushroom house quickly commence active growth, and produce the most succulent tops if surrounded by moist soil. We treat ours much the same as Seakale roots, and after their tops are exhausted (they sprout two or three times) the roots yet contain a certain amount of good and are given to the rabbits. They would sprout equally as well in warm dark cellars, and less quickly in any dark sheds.

In a blanched state the tops go much further than is the case when cut green, but we shall yet bed out several bushels of Swedes, the tops obtained taking the place of ordinary garden Turnip greens, and which the severe frosts and rabbits have effectively prevented from forming. These blanched tops would really pass muster with the uninitiated for Seakale, and properly cooked are only slightly inferior. Much naturally depends upon the cooking. They ought to be steadily boiled for fully one hour, the water being changed half an hour from the start—that is to say, the water should be poured off and fresh boiling water substituted. Served similarly to Seakale, not omitting the white sauce, the Swede tops thus well boiled will be found tender, succulent, and mildly flavoured. When little or no pains are taken in cooking them an objectionable smell and a strong flavour are noticeable, and this excellent substitute for Seakale is condemned accordingly.—W. I.

CULTURE OF THE ONION.

No vegetable is better known or more generally cultivated than the Onion. It is grown in almost all kinds of soils and climates, from the tropics to the coldest fringe of the temperate zone. The roots and leaves are annual, and die in the course of one summer after ripening a bulb, which, however, is biennial, and after a few months' rest sends out new roots and produces fresh leaves, afterwards throwing up a flower-spike. There are a great number of varieties of the Onion in cultivation which are added to annually.

VARIETIES.—The most reliable sorts for spring sowing are Reading Improved and Rousham Park, and for long-keeping qualities, James' Keeping, Danver's Yellow, and Deptford. For sowing towards the end of July and again in August should be included The Queen, a very early variety with small, round, and very white bulbs; Early White Naples, of quick growth, mild flavour, large and handsome; Giant Rocca, a splendid, large, hardy variety, of fine globular shape, and a good keeper. Silver Skin is a small white Onion, and is cultivated for pickling. The Potato, or Underground Onion, forms a number of bulbs on the parent root underground, and by means of these it is propagated, ensuring a good supply even during a very hot and dry season.

SOIL.—Although fairly good crops of Onions may be obtained from any kind of soil ranging from peat to substantial loam, the best results are to be had, in connection with good culture, from seed sown in a good rich loam, inclining to be light rather than heavy in texture, and in an open and somewhat dry situation. If the soil is of a strong adhesive nature it should be rendered more porous by the addition of leaf-mould, chalk, burnt earth, coal or wood ashes in autumn as soon as the ground is cleared of the summer crops, and should then be ridged up for the winter. Previous to ridging up, the ground should have a good dressing of well-rotted stable or farmyard manure. Advantage should be taken of fine dry weather to level down the ridges and dig over the whole. Then tread and level the soil, laying on a good surface dressing of soot before putting in the seed. Where Onions follow Celery, which is generally the case, the ground need only be levelled and deeply dug after the Celery has been cleared off in February, afterwards treating it as indicated. As early in February as the soil is sufficiently dry the seed should be sown thinly and evenly in drills about 1 inch deep and 1 foot asunder.

SOWING FOR PICKLEES.—In order to obtain small, firm bulbs for pickling, seed of the Silver Skin should be sown about the same time as the main crop in a somewhat poor, dry, and shallow soil, in which they are not likely to make luxuriant growth. With this object in view the seed should be sown rather thickly broadcast.

SOWING FOR LATE SPRING AND EARLY SUMMER USE.—About the 25th of July and again about the middle of August are good times to sow Onions for use at the above dates. In cold districts the first sowing should be made a few days earlier, and in order to secure the best possible results a dry and

somewhat light soil should be chosen. The preparation of the ground for the reception of the seed and the cultural details are the same as those recommended for spring Onions. The varieties The Queen and Early White Naples should be used in the first sowing, and for the second and last sowing Early White Naples, Giant Rocca, Golden Globe, and Ailsa Craig, or other approved varieties should be employed. The seed should be sown somewhat thickly, afterwards thinning out the young plants required for salading during the autumn months, leaving them sufficiently thick in the rows to make allowance for mishaps during the winter. Early in spring the rows of plants should be again thinned out to 6 inches apart, and if necessary to extend the crop, the thinnings may be transplanted to ground prepared in the same manner as recommended for the reception of the seed, giving, if fine bulbs are desired, a space of 15 inches between the rows and from 9 inches to 12 inches between the plants in the rows, setting them the same depth in the ground as before, and making the soil firm about the roots with the dibber in transplanting. These sowings and transplanted plants will produce bulbs for filling up the blank that would otherwise occur in May and June as the Onions of the previous year are used and those of the current year's sowing have not attained a size suitable for cooking.

POTATO OR UNDERGROUND ONION.—This should be planted early in spring in deep rich soil in rows 1 foot apart and 6 inches asunder in the rows, burying the bulbs just under the surface. If larger bulbs of this and the ordinary Onion are desired, they should be allowed a space of 15 inches between the rows and 12 inches from plant to plant in the rows. The crop should be taken up and dried when the tops die down and be stored away in the dry.

AFTER TREATMENT OF MAIN SOWING.—This consists in thinning out the young plants in due time (when a couple of inches high) to from 3 inches to 6 inches from plant to plant in the rows, according as the soil is poor or rich and the usual size to which the respective varieties attain, filling up at the same time any blanks that may occur with some of the thinnings, letting the young plants as deep into the ground as they were before. The thinning and weeding may be proceeded with together, choosing showery weather for the operation, as then the plants not only draw and transplant better, but they experience very little check. They must be kept free from weeds, and the soil stirred between the rows occasionally with a Dutch hoe during the growing season completes the necessary cultural details till the bending down of the tops of the plants early the following August.

HARVESTING THE CROP.—As early in August as the leaves have turned yellow, the bulbs should be pulled and spread out in widths of about 4 feet with their roots facing the sun. Turn them over every other day until the tops and the bulbs are both thoroughly dry. The withered tops may then be cut back to within a few inches of the bulbs, which should then be stored away in a loft from which frost and damp can be excluded. They should be spread out thinly on the floor of the loft, or strung together by the withered tops and suspended from the roof. When storing the bulbs, put all the small ones by themselves for pickling or cooking, for which they are frequently asked for in preference to larger ones.

SAVING SEED.—When the Onions are taken up select some of the finest and best shaped bulbs of whatever variety it is desired to save seed from. Early the following March these should be planted in a row 1 foot apart and about 4 inches deep in light rich soil in a sunny and sheltered situation. When the flower-spikes push into growth they should each be supported by a small stake. The seed will ripen by the end of August or early in September, according to the season. The stalks should then be cut a few inches above the ground and spread out on a cloth in the sun to dry, taking care that the seed does not get wet during the few days it is in the open air to complete the ripening process.

When quite dry, the seeds should be rubbed out, cleaned, and stored away in paper or other bags for use in due time.

INSECT ATTACKS.—The maggot of the Onion fly (*Anthomyia ceparum*), of the Brassy Onion fly (*Eumerus æneus*), and of the snake millipedes (*Julus*) frequently work havoc among the Onion crops in this country. The best and only effective remedy that I know of for the prevention and eradication of the above troublesome pests is to give the ground, as recommended above, a good surface-dressing of fresh soot immediately before drawing the drills for the seed, scratching it into the ground in the process of raking over the Onion bed. The presence of insects in the ground indicates that the soil requires purifying, and for this purpose there is no better agent than soot, put sufficiently thick on the ground to completely cover it; it is also a capital fertiliser. The application, to be successful, should be repeated annually for all crops subject to the attacks of insects at the roots.

H. W. WARD.

Longford Castle Gardens, Salisbury.

Asparagus, or Buda Kale.—For the first time in my experience this usually extremely hardy winter vegetable has come to grief. We had a larger breadth of strong plants than in previous years, and depended upon them to give a heavy late supply of tender succulent greens. Unfortunately, the whole of them are badly damaged, the snow in this case doing more harm than good, as it broke down the stalks of most of the leaves, this rendering them most susceptible of injury from frosts. Soon after the snow disappeared the damaged stalks commenced to decay, and it is very doubtful if the hearts will not go in the same way. The Scotch Kale suffered in a similar manner, but the Brussels Sprouts alongside of them are not nearly so much injured as at first suspected.—I.

Some good Cabbages.—Four Cabbages unsurpassed for general use are Ellam's Dwarf Spring, a gem for spring cutting and of delicious flavour. It may be too small to satisfy some, but then it can be planted much more closely than some other kinds, and as much or more produce can be cut from the ground occupied by it as by larger sorts. Mein's No. 1 is larger than the preceding, also later, and is an excellent variety for early use, of good quality, and forms a good succession to Ellam's; while succeeding it comes Perfection (Dickson's), a grand variety, distinct in foliage, turning in quickly, and producing large solid hearts, which, unlike those of many large kinds, are of a most delicate and pleasant flavour. This is a first-class main crop variety. Winningstadt is a superior old sort for late use, not so generally grown as it should be. It stands the autumn rains without heart-splitting better than any kind I know, and for table quality is not easily excelled in its season. A white Cabbage that can pass through such prolonged severe weather as we have just experienced, and show as little signs of the ordeal as the red does, has, I fear, yet to be raised.—J. R.

Early Radishes.—In many gardens Radishes are not secured so early as in the market gardens. In most market gardens early Radishes are a specialty, and the earlier the crop the higher the price obtained. Radishes can often be had much sooner in the open ground by protecting the beds than if left to chance. Of course, when frames can be spared, so much the better. In many instances a few seeds may be sown thinly in Potato frames or with Carrots, as they come in for use much sooner than the vegetables named. Much material that is often thrown away in a garden if saved would greatly assist in securing an early crop of Radishes, as when the soil in the garden is heavy or wet the potting shed refuse and old leaf soil go a long way to encourage a rapid growth. Radish seed being sown on the surface to get them early must be protected. Dry Bracken if cut green is an excellent protector for the Radish bed, and I have also used the tops of Asparagus if cut before quite ripe. Straw mats are most useful, and with care last a considerable time. Dry leaves also answer better than most people think if removed when the weather is bright, but these are more troublesome

than the other materials named. Market gardeners chiefly rely on litter and get fine crops, but litter in private gardens cannot always be spared at this season, as it is required for so many other purposes. For early crops a warm border should be used, and soil of a light and dry nature, sowing such reliable kinds as Wood's Early Frame and French Breakfast. If only a small quantity is needed, a bed under a south wall with a few sticks and mats for protection will suffice. As materials for salads will this season be scarce owing to the severe weather, a few early Radishes will be appreciated.—GEO. WYTHES.

Hardiness of Spinach.—Like "W. I." (p. 128), I am pleased to see our Spinach has come through the severe weather well, and we have an abundance. Happily, the snow was the best of protection while it lasted, but we had two of the sharpest frosts after the snow had disappeared. One night we registered 27° of frost. The variety we grow is the prickly seeded. I have not grown either Victoria or Monstrous Viroflay, but intend doing so this season. I fully agree with what "W. I." says respecting the preparation of the ground for winter Spinach. My first sowing was on ground where Broccoli had been previously grown, this being well manured and roughly dug, lying a good time exposed to the influences of the weather. Later on a dressing of soot and lime, which insect pests do not like, was forked in. When the time—viz., the first week in August—arrived for sowing the seed the ground was in good condition. My second sowing was made about the middle of the month; this also is very satisfactory, and will give a good supply till the spring-sown is ready for use. The later sowing stood the frost best, owing to its not being so fully developed.—A. J. BROOKS.

PUBLIC GARDENS.

New park for Brighton.—Another step has just been taken in the development of Brighton. The Corporation recently acquired the estate known as Queen's Park, at the north-east end of the town and on the road to the racecourse, for the purpose of converting the bulk of it into a park and recreation ground. The necessary works are shortly to be commenced. The Lands Allotment Company has purchased all the land fringing the park, and this will be laid out for the erection of residences.

Addition to Epping Forest.—The corporation have just added upwards of thirty acres to the acreage of Epping Forest by the completion, through the City solicitor, of the purchase of a portion of Higham Park. This important acquisition, which includes superb timber and charming ornamental waters, is the result of active and cordial co-operation on the part of Mr. E. N. Buxton, Sir Fowell Buxton, Bart., Mr. H. F. Barclay, and other well-known resident gentry, who, with the Walthamstow Local Board and the Woodford Local Board, have contributed half the purchase-money, the corporation giving the remaining half, and undertaking to maintain the whole as an open space for the benefit of the public for ever.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association held at 83, Lancaster Gate, W., Lord Dorchester presiding, in the absence of the Earl of Meath, it was announced that of the £3000 required for the laying out of the Victoria Park Cemetery, E., over £2800 had been subscribed, including £500 promised by the late Duke of Bedford. It was agreed to continue negotiations respecting the proposed conversion of Bartholomew Square, E.C., De Beauvoir Square, N., Sidney and Bedford Squares, E., into public gardens; to assist the Poplar District Board of Works in the laying out of a recreation ground in the Bow Road; and to communicate with the Chelsea Vestry respecting the seats removed from Sloane Square. It was reported that the Ecclesiastical Commissioners had given three months' further extension of the time in which they would be prepared to sell about nine acres of land between Crown Road and Fulham Palace Road for a recreation ground at a low rate, and that the Fulham Vestry was prepared to give half the money if the London County Council subscribed the balance.

FERNs.

A BEAUTIFUL FERNERY.

THE illustration appearing herewith represents a view in a fernery belonging to Mr. J. Halliwell, Laburnum House, Bury, Lancashire. On passing through the doorway of this fernery a scene presents itself which at once in imagination transfers the beholder to a lovely tropical district, such as is sometimes described by travellers who have seen Ferns revelling in their native homes.

Entering the fernery, one looks upon a mass of sandstone rising tier above tier. From

the way down a miniature lake is formed, from which the water again escapes and falls into a deeper and larger receptacle, which, judging by appearances, the water might have made by its incessant fall and flow during past ages; going a little further, the stream disappears, like some mysterious underground river, to appear in a different place and be put to further use. Turning and looking towards the now invisible entrance, completely blocked from view by a large projecting Fern-clad rock, the prospect is very beautiful. One very striking thing is the perfectly natural appearance presented by the luxuriant growth of the various Ferns,

genus; and Pterises without number. Every step that is taken brings to view species and varieties rare and beautiful, and seldom seen in private collections.

One exceedingly beautiful Fern will be noticed in the illustration hanging gracefully over the rock, viz., *Adiantum concinnum*. This is indeed a lovely plant, such as is seldom seen. There is an absence here of the arches which so often appear in various fantastic designs in ferneries, and which very frequently spoil the effect, producing an unnatural appearance. In this fernery, while there is not the slightest trace of formality, the rockwork is so arranged that the Ferns and other plants growing at the bottom on the level of the footpath get an abundance of light. When the light is obscured by arches or by overhanging rocks injudiciously placed, the plants below them which ought to be as healthy and in as good condition, or better than anywhere else because more in view, are weak and drawn, and detract from instead of add to the appearance of the fernery. The requirements of plants in the matter of light should always be provided for, and in Mr. Halliwell's Fern paradise they show a healthy vigorous condition, as a result of this and other natural surroundings and provisions.

In addition to the Ferns there are many *Selaginellas* planted, some upright in growth, others forming tiny carpets of green, golden, or silver verdure. *S. cæsia arborea*, with its rambling stems and branches and beautiful metallic blue foliage, might be in some tropical forest, it is so thoroughly at home. *Ficus repens* and *F. minima* creep up the stones, hang over the rocks, and spread in all directions. *Tradescantias* and a few other suitable plants give additional variety in form and colour, and altogether serve to make up a scene of beauty.

This fernery was constructed and planted by Messrs. W. and J. Birkenhead, of the Fern Nursery, Sale.



View in the fernery of Mr. Halliwell, Laburnum House, Bury, Lancashire. Engraved for THE GARDEN from a photograph sent by Messrs. W. and J. Birkenhead, Sale.

interstices and also from capacious pockets hang in graceful profusion lovely fronds of innumerable species and varieties of varied form and colour. The pathway winds in and out, gradually sinking lower and lower, while the rockwork rising on each side gives the appearance of the path having been hewn out of solid stone; here a mass projecting, there receding and forming large receptacles in which the Ferns grow in wonderful health and vigour. Passing along this rocky footpath, at the extreme end a very attractive feature is a stream of water, which, after running along a rocky channel for a short distance, comes tumbling and dashing over the rocks obstructing its course. Three parts of

Selaginellas and other plants; *Adiantums*, large and small-leaved, growing in masses in the large pockets, and peeping out of crannies and crevices; *Davallias* creeping here and there over and up the rocks, showing their peculiar brown and white feet; *Aspleniums* in abundance, some large and spreading, bearing numbers of young plants, others finely divided and cut; the noble Tree Fern (*Alsophila excelsa*), *Microlepia platyphylla*, a rare species, but a splendid object; Gold and Silver Ferns, the lovely *Gymnogramma schizophylla gloriosa*, with its gracefully curved, finely cut fronds, a picture of beauty; the Stag's-horn Ferns, the lace-like *Cheilanthes elegans*, with others of this

WATERING FERNS.

ALTHOUGH Ferns like a more humid atmosphere than most plants, it is a great mistake to suppose that they require such copious supplies of water at the root as many seem to consider necessary. With all pot plants, watering is one of the most important factors in producing healthy and luxuriant growth, and with Ferns it is very necessary to give water judiciously, especially to the more delicate sorts. I believe that many of our choicest Ferns are lost through excess of moisture at the root, and the ordinary sorts, more particularly *Adiantums*, are weakened from the same cause. Plants which have been kept fairly dry at the root during the winter will, now as the weather gets brighter, start away freely and throw up strong healthy fronds, while those which have been saturated with water will produce weak and sickly growths. When once they get into this condition it takes a long time to set them right. It would be useless to say how often Ferns should be watered, as much depends upon circumstances, some sorts requiring much more water than others. The *Gymnogrammas*, for instance, require more moisture from the soil than others with more foliage. *G. schizophylla gloriosa*, which we grow in pans suspended from the roof, will soon shrivel up if neglected, while *Adiantums* under the same conditions will not suffer in the

least. Much depends upon the artificial heat given. Where the plants are near the pipes they will require almost as much water during the winter as in summer, and unless carefully examined they are more likely to suffer from the opposite extreme, for the surface may appear moist, while at the bottom of the pots the soil may be quite dry.

Some Ferns when in a warm temperature will continue to make new fronds throughout the winter, while others mature their fronds in the autumn, and do not make new ones until the spring. Those which are growing will take more water than those at rest. Most of the *Adiantums* are at rest during the winter unless they are kept too warm, in which case the plants become weakened. It is much better to keep a low temperature and the plants rather dry during the autumn; then they will start away vigorously. The temperature may be raised as the days lengthen, water being given freely while the plants are growing. Ferns which lose all their fronds during the winter require careful attention. The soil must be moist enough to keep the roots in good condition, as it is a mistake to dry them up too much. The deciduous *Adiantums* are among the most difficult Ferns to keep through the winter. I find they do best if placed on a shelf and kept sufficiently moist to prevent the soil from cracking away from the pots. *A. lunulatum*, *A. palmatum*, *A. speciosum*, and *A. Henslowianum* are deciduous, and those who are not acquainted with their habits are apt to throw them away after they have lost their fronds, in the belief that they are dead. *Leucostegia immersa* I find keeps well in a dry cool place. *Nephrolepis pluma* may also be kept rather dry. The hardier deciduous Ferns are better when moderately moist. F. H.

ADIANTUMS IN WINTER.

THE severe weather which we have experienced has given us a good opportunity of judging which are the best sorts for keeping fresh and green during the season when there is a scarcity of other green foliage. Such a winter as the past has been very trying for the ordinary Maiden-hair (*A. cuneatum*), and I find that in many instances the fronds have lost their freshness through cold. *A. elegans* appears to be hardier and also begins to grow earlier under the same conditions. *A. scutum* has kept fairly well, yet in any position where exposed to cold draughts the fronds have become quite black. *A. fragrantissimum* seems to be naturally semi-deciduous, for the old fronds ripen off of a yellowish hue instead of becoming black, as is the case where they are affected by cold. Most of the *A. Capillus-veneris* type, though nearly hardy, require to be placed in a warm position if the fronds are to remain fresh and green during the winter. *A. macrophyllum* shows the effects of cold very quickly, as also do *A. concinnum* and *A. Fergusonii*. *A. Weigandii* has stood the cold well, and may be recommended as a useful winter Fern. *A. farleyense* has suffered very little either from cold or fogs, but as this has had a good position, I cannot say how it would fare if exposed to a low temperature. *A. Pacottii* has not suffered from cold, but it is not a good winter Fern, being inclined to damp off; its dense habit is, of course, the chief cause of this. *A. undulatum* has stood well, and although nearly as dense in habit as *A. Pacottii*, it is not so liable to suffer from damping. *A. formosum* is one of the best for winter and does not require much heat, yet, like *A. Capillus-veneris*, the fronds are discoloured by cold quite as soon as those requiring more warmth. *A. peruvianum*, *A. Wilsoni*, *A. brasiliense*, and, in fact, all the stove species with broad pinnules suffer somewhat during the winter. I think this can be partly attributed to the damp settling on the surface during the night. The effect of this is most seen where the sun catches them before they are dry. I have also found that while many Ferns will keep their colour well while they are in a low temperature, as soon as placed in warmth again they change colour and have the appearance of having been scalded. In all cases a sudden rise of temperature should be avoided. A little top ventilation before the sun comes on the fernery may be recommended even in winter, if it can be given without exposing the plants to the direct influence

of a cold wind. Where a regular night stoker is not kept, it frequently happens that the fire-heat is at its highest just as the sun is coming on the houses, and this is the cause of much mischief. H. T.

SHORT NOTES.—FERNS.

Pteris serrulata plumosa.—This is perhaps the prettiest of the many forms of the tasseled Ribbon Fern. The ends of the pinnae and the apex of the frond are amply crested. It is compact in habit and close-growing, but yet the fronds are sufficiently long to make it a suitable object for a hanging basket.—G.

Antigramma rhizophylla.—This plant, known as the Walking Leaf Fern, exists in large masses in the nursery of Messrs. Pitcher & Manda at Hextable. The plant is more commonly known by the sectional name of *Campetosorus*. It has lanceolate fronds about 9 inches long, slightly eared at the base, recurved and rooting at the apex, thus forming a young plant at the end of each leaf or frond. The colour is rich deep green. The plant is hardy in the open-air fernery, and I remember having a specimen of this many years ago in the woods. This I protected with leaves, and it lived through several severe winters. The plant is a native of North America.—W. H. G.

FLOWER GARDEN.

PLANTS FOR SHADY PLACES.

It is not an uncommon thing to have too much shade in a garden. Large trees may have grown on the south side of it, and it may be undesirable or almost impossible to remove them. Moreover, shade has many advantages. On a hot summer day, what is more delightful than to be able to enjoy the pleasant shade of a large spreading Chestnut tree, or on a bright afternoon to take a stroll in the shrubbery? But shade is decidedly against the production of an abundance of flowers. If you want quantities of flowers of bright hues and gay with the varied tints which our summer borders will so readily afford, then it is necessary to have a full exposure to the spring and summer sunshine. Of course, the best and happiest state of things is to have plenty of both sun and shade, and in a garden of any size this will probably be the case. Even then it is well to pay special attention to plants which love the shade, as they will tend so much to make the shady grove or the shrubbery interesting.

The first plant which occurs to me as being specially useful in this respect is the hardy *Cyclamen* (*Cyclamen hederifolium*). Just at the present time it is proving itself to be an invaluable plant. Notwithstanding the prolonged frost of seven weeks, including five weeks of snow, and one night when the thermometer went down to 3°, this plant shows no signs of injury. Its beautiful leaves are as fresh and smooth as if there had been no frost at all, and certainly form a very great attraction in the outdoor winter garden. *Cyclamens* love the shade and require plenty of moisture. In late summer they produce quantities of their pretty flowers, some white, some pink, but all beautiful, and continuing for an unusually long period if the weather is at all favourable. There are thousands of these beautiful plants in the shady woods and deep valleys close to the western sea in some parts of Cornwall. I do not know why they are so uncommon in ordinary gardens, but they are seldom met with, and when they are seen in flower in some shady nook, people generally exclaim as if they had discovered a great rarity, or perhaps declare that *Cyclamens* belonged, they always supposed, to greenhouses, and to greenhouses only. This *Cyclamen* grows readily from seed, and though it is rather long in coming to maturity, it will in

a year or two make a pretty little plant to adorn the roots of some forest tree, or to nestle in a shady nook of the rockery.

Another beautiful plant which grows well in the shade and loves a rich, deep, leafy soil, where it can have plenty of moisture, is Solomon's Seal (*Polygonatum multiflorum*). This plant is now exceedingly well known, as it takes so readily to being forced; it is very popular in spring for the decoration of our drawing-rooms. I have never seen it anywhere in such perfection as at Trebartha, near the Bodmin Moors, where among great granite boulders and tall Ferns and other wild luxuriant foliage of that damp climate, Solomon's Seal asserts itself by its stately growth, throwing up its giant arched stems, studded with little green bells, to a height of 5 feet or 6 feet. I have never found it growing wild anywhere else so far as I can remember, but no doubt readers of THE GARDEN will be familiar with it in many woods and wet places. It is to the early spring months what the Royal Fern (*Osmunda regalis*) is to the later months of autumn. But the *Osmunda* cannot be forced, nor brought into our rooms; in this respect Solomon's Seal has a very great advantage.

One of the loveliest of our hardy spring flowers, and one which also does thoroughly well in the shade, is the beautiful *Anemone apennina*. It likes to grow round old stumps of trees or against a stone, probably because in such places it gets abundance of moisture. It rapidly spreads if it is growing in a suitable place for its cultivation, and even a little harassing with the trowel in a moment of forgetfulness in summer when it is invisible seems to do it no harm. On a fine spring day when the sunshine is just beginning to attain some warmth, when the early butterfly and the honey-bee venture forth on their first flights in search of the sweets to be found in our spring flowers, the blue stars of this lovely *Anemone* unfold themselves to the light and look so beautiful, that they certainly add very much indeed to the delightful sensations experienced in the first warm sunny days of the early year. The foliage of this *Anemone*, as indeed of all *Anemones*, is very luxuriant and deeply serrated. The flowers sometimes get so hidden underneath them that it is well to search for the buds, and to pull them out into the light, so as not to lose their beauty when they come into bloom on a later day.

There is a tufted Sedge which is very common in our woods, and is wont to find its way as a weed into our groves and shrubberies—*Carex pendula*. It is, however, not a plant to be despised, simply because it is a thorough weed. Its mode of growth makes it useful in many ways, as the tufts are exceedingly graceful, and the plant is one of those rough hardy things which nothing will destroy. Moreover, it will grow in any ugly corner, no matter how poor the soil may be, and good-natured things of that kind, if they have any beauty, are genuine treasures; for ugly corners may cease to look bare and unsightly if anything worth growing can be made to take its place there. The flower of this *Carex* is also pretty and graceful, and very often in winter when it is hard to get suitable leaves for making up a vase of flowers, the long, narrow green blades of *Carex pendula* are useful.

The beautiful *Dielytra spectabilis*, which too often is unknown except as a plant to be forced in a pot, is a fine subject for the shrubbery. I have known it do well under the shade of trees. It likes the shelter, for one of the difficulties of growing this plant to perfection is that the bitter east winds which we often experience in

spring are fatal to its beauty. Well sheltered under trees it will sometimes resist the cold, which in more exposed situations would be fatal to its prosperity. Few hardy plants are prettier than the *Dielytra*, and few are more fragile. Given a mild spring, and it will grow 2 feet or 3 feet high, and bear quantities of its long tasselled flowers, but should there be a late frost or too much east wind, it is only too probable that the whole plant will shrivel up, or only give a very poor account of itself when it ought to be a thing of beauty.

Palms might be used a great deal more than they are in snug, sheltered, and shady nooks, and they certainly give effect and add an attractive novelty to an ordinary shrubbery. I have a *Chamerops* which was only wrapped in a small bit of matting during the late very severe frost. When the snow was gone the matting was removed, and to my great delight, the Palm, though showing signs of the effect of the frost, is not only alive, but looking green and healthy. I cannot say as much for our *Hollies*, which, being of course unprotected, have in some cases lost all their leaves. It is a sad sight to see the ground around a fine young *Holly* tree, for instance, growing just where it is most wanted, strewn in all directions with hundreds of the pretty leaves and the bare bones of twigs sticking out, looking as ugly and miserable as possible on the tree above. In many places a beautiful green carpet composed of the Sweet Woodruff (*Asperula odorata*) may be made to grow over a wild shady place. Its leaves are bright green and it has pretty snow-white flowers. The perfume of the plant when dried is very agreeable. The chief use of it is to let it grow carelessly on a shady bank, just as we often see *Saxifrages* in a rockery, filling up every crevice and clothing every nook with bright green leaves. I suppose many people would include *Primroses* amongst things which like shade, but *Primroses*, if only they can get sufficient moisture, like the sun. An open glade in a shrubbery is a very suitable place for them. But they like best to grow, like wood *Anemones*, where the shade of deciduous trees gives shelter from the full glare of the midsummer sunshine, while in winter the naked boughs do not prevent them from enjoying such warmth as the winter and early spring sun has to give them. It is impossible to have too many coloured *Primroses* in the Grass under trees, along the shady walks, or anywhere they can be put. Thousands of them should greet our eyes when first we begin to enjoy the outdoor garden in spring—thousands and thousands, so that there may be plenty to gather to fill the rooms in which we live with their bright colouring, and to enable us fully to enjoy the fragrant breath of the early year.

A GLOUCESTERSHIRE PARSON.

Chinese Primulas from France.—We have had sent to us from Messrs. Stuart and Co., Tavistock Street, Covent Garden, a beautiful collection of Chinese *Primulas*, grown in their seed grounds, Nice, south of France. The flowers were picked on Saturday, and on Tuesday were as fresh as if recently gathered. We can see from these what good results accrue from growing the plants in the sunny air and warm temperature of Nice. They are large, but not coarse, and represent in the best possible way the several varieties, amongst which were *Chiswick Red*, finer than we have ever seen it before, the colour delightfully rich; *alba magnifica*, *lilacina marginata*, *Fern-leaved white*, a very beautiful kind, and others; but the mention of these will suffice to indicate the extent of the collection. Evidently the finest culture had been brought to bear upon the plants, and the results were sufficient to make growers in London envious. But then the atmosphere of London and

its suburbs, we must remember, is very different from the clear skies and bright sunlight of Nice.

NEW VARIETIES OF GLADIOLI.

GANDAVENSIS SECTION.

USEFUL and beautiful as the hardy varieties of *Gladioli*, of which I have previously written, may be, I do not think that they can for one moment be compared to the older section, of which I now desire to say something. They are called varieties of *gandavensis*; but what is *gandavensis*? Some say it was raised by Dean Herbert from *psittacinus* and *cardinalis* or *oppositiflorus*, sent out to the Cape, then returned to Van Houtte, of Ghent, by whom it was flowered. Others, without crediting this peripatetic character, assert that it was raised at Ghent between *psittacinus* and *oppositiflorus*. However that may be, it has under the skilful hands of such men as Souchet in France and Kelway in England become a grand autumnal flower, which seems to be each year advancing both in length and closeness of spike and in the size of the individual flowers. Such a flower can hardly ever be coarse, but I hope the temptation to get size may not lead to the neglect of quality. I have now for more than thirty years grown a small, but choice selection of these bulbs, composed chiefly of those of French origin, but of late years have added some of Mr. Burrell's seedlings, who, in the favourable soil and climate of Cambridgeshire, has of late years been so successful. Mr. Kelway's seedlings have been exhibited at the Drill Hall, and as I have not grown any of them for some years, I must only refer your readers to the descriptions given of them in the reports of the shows at the Drill Hall. The varieties described in the following note are all of them Souchet's seedlings, and although the names of other raisers are attached to a few varieties in the French catalogues, they never seem to make any mark, and most certainly, although the names remain on the catalogues, the flowers are never seen over here. There seems to have been of late years a great advance in white flowers, a class in which we were previously most deficient. The older flowers of this colour, such as *Norma*, were too small for the present taste, while *Mme. Desportes*, an old and beautiful flower, was so difficult to keep, that most growers abandoned the attempt. There is now no occasion to hanker after it, for the more recent varieties have completely eclipsed it, such kinds as *Enchantresse* (following close on *Thérèse de Vilmorin*, which, however, is not a pure white) will supply all that is needed in this class.

MONT BLANC (Souchet).—A grand flower of good substance, forming a large spike. There is a faint tinge of cream colour in the white, but as the spike is long and the flowers large, it is a grand acquisition. A spike of it which I exhibited at the Crystal Palace in September was awarded a first-class certificate and was greatly admired.

SNOWDON (Burrell & Co.).—This is a magnificent flower, pure white in colour with a long spike closely set together. The raiser showed a spike of it at Sandy last September which had twenty expanded blooms on it, and I hope to see it finely exhibited this year.

GLAIVE DE FEU (Souchet).—A very pretty flower, but I am not quite sure whether it will be considered an exhibition variety. It is very fresh in colour and of fair size.

ALBATROSS (Souchet).—This is another undoubtedly fine variety, as described, for I have not seen it, but it is described as a large well-opened flower of pure white, and would seem to be in the same direction as *Mont Blanc*.

BLANC FUSE (Souchet).—A curious and distinct flower, but I do not think that it is likely to be in favour here. The petals are crimped on the edges. The colour is creamy white, breaking after a little while into pure white.

BUFFALO BILL (Souchet).—This is a fine flower of cerise-rose colour with very pale primrose blotch, the lower petals convolutely stained with violet.

FANTÔME (Souchet).—A somewhat late variety, but I think, so far as I have seen, one of the best of the set of 1889, and bears one of the largest flowers yet raised. The ground colour is a pure white, largely marked, especially on the edge of the petals, with rosy-lilac.

GERRE DE FEU (Souchet).—I could not get this into exhibition order, but it seemed, if the spike were long enough, to be a promising flower. The colour a bright scarlet with a large creamy white spot.

L'ARDOUSIERE (Souchet).—Although a fine flower, this is not one, I think, very likely to find favour here, for although the ground colour is scarlet, it is so largely marked with a sort of greyish-slate colour, that it has a dull appearance, and although offering a contrast to others, yet it is too dull for general effect.

MONS. BELJAMBE (Souchet).—A very early dwarf variety, the spike I fear too short for a stand. The flowers, of a good size, are dense red in colour, spotted and striped with violet.

ROMEO (Souchet).—A long spike of large well-opened blooms, closely arranged, very early flowering, coming in very closely after *Shakespeare*, *Amalthée*, and such early-blooming varieties.

TIGRE (Souchet).—Large and well-formed flowers, rosy-salmon, good colour, but very largely striped with slaty-brown and grey, a very curious flower, and brighter in colour than *L'Ardouisière*, and I think likely to be a good exhibition flower.

There were twelve varieties sent out by M. Souchet in 1889. Of these I have not grown *Albatross*, *Artaban*, *Mon. Patrick*, and *Panache*, and of the eight remaining varieties I think best of *Fantôme*, *Buffalo Bill*, and *Tigré*, although it is just possible that some of those I have not seen may be additions to new exhibition varieties, and it shows how difficult it is to add to our existing list of show varieties that such indefatigable, intelligent and long-practised raisers cannot add new varieties of sterling merits in large quantities. I may also mention as an instance of how sometimes natural crossing by bees or moths may equal all the efforts of the most skilful hybridiser, that I exhibited and gained a first-class certificate for a chance seedling at the Aquarium of the very purest white I have yet seen. It had neither a streak nor stain of any colour whatever. It was greatly admired, and I have had many inquiries about it. It spawned freely, and in the course of two or three years may perhaps come into commerce, as I have sent all the spawn to my friend Mr. Burrell. I may add that I had not probably more than 100 seedlings raised from seed gathered at random, and yet this first-class variety appears among them. One is reminded of what happened in a far more important case. M. Jacotot, of Dijon, discovered on his garden walk a seedling *Rose*, than which there is none more popular or more generally grown—the celebrated *Gloire de Dijon*. The bee or moth which effected that cross was a benefactor to the *Rose* world, and amongst the Egyptians had he been found would have doubtless had a shrine erected to his honour. As the time for planting is drawing nigh, let me say to interested growers that if they have a good loamy soil, such as is good for *Roses*, thoroughly well drained, they have the most suitable soil in which to grow them. It used not at one time to be so thought, but as better knowledge of their requirements has been attained, so this better mode of culture has prevailed. I am not favourably situated in this respect, nor am I in another, viz., the power of changing more frequently the position of my beds. This is, I believe, a very essential point in successful cultivation, and the inability is, I think, one cause why I have so frequently had to mourn over my losses, and yet I was talking about them to one of our most successful perpetual *Rose* growers, who has the very perfection of soil in his garden, yet he said "Bother *Gladioli*! I have spent more than £50 on them the last few years, and I have hardly any left." Another point is that you may safely cut your bulbs in two. The wisdom of this has been disputed, but I am since more and more convinced that the plan is an excellent one, and I am quite sure that it can be done with even smaller bulbs than those I have been accustomed to cut, and where new varieties are to be planted, it is a great advantage thus to be able to double one's stock. I may add that I have done the same with *Lemoine's* hybrids with equally good results.

DELTA.

Codonopsis gracilis.—This beautiful member of the *Campanulaceæ* was introduced by me from

Sikkim some years ago when I was with the Messrs. Rollisson and Sons. I was told the flower was tubular and of a bright rich blue colour. The plant is a climber, and on this account would produce a charming effect. I should be glad to know if it is now in cultivation.—W. H. G.

Rats destroying Hellebores.—Rats have this winter eaten off all the buds and half-opened flowers from a good collection hereabouts. There is no doubt as to the delinquents, as the traces are in evidence. Has such a thing been known before?—T. SMITH.

Iris Bakeriana deserves a note, as it holds almost equal place with its near relative *I. reticulata*. The more we see of this little gem the more its beauty becomes apparent. It is now in full flower in Mr. G. F. Wilson's garden at Wisley, at Kew, and several other places, so that we gather from this it has, thanks to Max Leichtlin, become fairly common. One of its most interesting phases is its variability of colouring. In some forms there is no yellow present, in others the violet margin is quite thin, and the spots on the white lip small. But this constitutes a great charm, unless those who think varietal names would be an advantage put their thoughts into practice. We should have then as great a farce in plant nomenclature as the naming of various phases of *Tulipa Greigi*.

HARDY HERBACEOUS PLANTS.

DICTAMNUS FRAXINELLA and the white variety might well be added to your list of hardy herbaceous plants (p. 96), as they are typical examples of a perennial. They may be left undisturbed for years and improve annually. The leaves when crushed have a peculiar aromatic odour. It can be propagated by division or by seeds. The latter must be sown as soon as ripe, as they are very slow to germinate. *Cimicifuga racemosa* (Actæa), rarely met with in cultivation, has long racemes of feathery white flowers, something like those of a *Spiræa*. *Thalictrum aquilegifolium* makes a fine specimen, and the variety *adiantifolium* has leaves similar to those of the Maiden-hair Fern. Virginian Cowslip (*Mertensia virginica*) is a very graceful plant; the leaves are slightly glaucous, the flowers purplish-blue, drooping in clusters. The Compass Plant (*Silphium laciniatum*), although tall, is not to be despised. It grows 6 feet to 9 feet high, but if propagated biennially it is not so tall. *Asphodels* (*Asphodelus ramosus* and *A. luteus*) are worthy of a place in large gardens. *Yucca gloriosa* and *Y. recurva* may be used to advantage. The leaves are evergreen, and have a somewhat tropical appearance. *Tritomas* are similar in character, and are very effective if planted in groups. *Papaver pilosum* is uncommon and a favourite with some, and now that Poppies are fashionable it might well be grown. Golden Drop (*Onosma taurica*) is better suited for a rockery than the herbaceous border. It will, however, thrive if planted in well-drained sandy soil, slightly raised above the ordinary level. *Campanula trachelium* makes a good edge for large beds. There are a few varieties of Fennel which are effective as foliage plants, also *Ruta graveolens* (Rue) and *Artemisia Abrotanum* (Southernwood).

The following are all beautiful for the wild garden, especially if allowed to grow naturally. Mr. Ingram, at Belvoir Castle, makes great use of them all in the spring garden: *Myosotis dissitiflora*, the best of the Forget-me-nots; Foam Flower (*Tiarella cordifolia*), pretty both in leaf and flower—the former when young is of a delicate green, spotted and veined with red; the flowers something like those of a Mignonette, cream colour, tinged with pink; *Anemone nemorosa*, white and blue; *Asperula odorata* (Sweet Woodruff), the leaves of which when dried have a delicious hay-like odour; *Omphalodes verna*, resembling the Forget-me-not, the flowers of an exquisite blue; and *Epimediums* in variety. The leaves of the last are most useful for using with cut flowers. They last well in water. I have a large stock of several varieties, but can never see them at their best, as the leaves are continually gathered. *Hepatica triloba* does well in the open if properly treated, the single white and blue being the best, Barlowi, perhaps, excepted. The old double blue, so much prized by florists of

the old school, is difficult to grow and not to be recommended. *Hepatica angulosa* has larger flowers, is more accommodating and the most desirable.

HERBERT ROTHERA.

PANSIES.

It would seem as if a revival of the old love for the Pansy is proceeding. Certainly if this fine old hardy plant comes again to the front it will be heartily welcomed by all who admire hardy flowers. We have perhaps rather too much centred admiration of late on *Violas*, because of the bedding craze, and have ignored the grand and wondrously varied Pansies. It is doubtful whether, for the apparent modesty and humble appearance of the plant, we can find a rival in our hardy flower gardens to the beautiful Pansy. There may be some reason for doubting as to whether the holding of special exhibitions of this one flower is likely

respective positions of exhibitors in the classes to be clearly defined. Perhaps the most satisfactory method of exhibiting Pansies would be as plants in pots, because then we should see the habits of the varieties. The Scotch Pansies have some sort of compact habit as a rule, but the French and German Pansies usually make very wild or ragged growth, rendering them more fitted for rock-work than for pot culture. That these give very fine and richly coloured flowers there can be no doubt, but they lack the substance and form found in those sent out by the northern florists. Whilst it may be useful to obtain named varieties in the form of rooted cuttings to secure the finest sorts for exhibition, it is found most satisfactory in the south to raise from seed sown in June, thus giving strong plants to stand through the winter. Some of these seedlings will even flower freely in the autumn, but the best blooms come in the spring, and the stronger the plants are then to produce them the better. Our best Pansy flowering time in the south is during April and May, though very good blooms will be found until mid-summer if the month of June be not too hot and dry. As to propagated plants, it is the rule to get these in the spring, but it is far wiser to have them in the autumn, either planting them in a cold frame or keeping them in pots during the winter, so that they may be transplanted into the prepared soil outdoors about the middle of March in a well-established condition. Newly-rooted plants sent from the north in the spring have no time to become established ere the hot weather sets in, and then with a bloom or two all is over. Pansies are hardy enough in the south, but I advise frame wintering only for costly or choice varieties.

A. D.

STOVE AND GREENHOUSE.

COOL PALMS.

CONSIDERING the enormous quantity of Palms in everyday use for indoor decoration, &c., it is rather remarkable to find how small is the number of species that supply them. Often enough *Livistona chinensis* (*Latania borbonica*)



Seaforthia elegans.

to prove attractive or successful, but so long as there are spring and summer exhibitions we may well wish to see a fine display of it. We have seen some very good shows of these at the Temple Gardens, but there has been no organised attempt to produce a really fine representative display, yet hardly a better time offers or a better place for the south of England than is the month of May and the locality London. It is true that when summers are hot and dry we find it very difficult to do Pansies well in the south. They thrive best near the seacoast where the air is naturally moist, but still we rarely see blooms of such fine colour and substance as those from the north. It is very evident that the northern growers must always have the best, and in any competition instituted in London it would not be fair to have northern and southern growers competing in the same classes. It would not be difficult to strike a line across the kingdom which should enable the



Phoenix spinosa.

and *L. australis* among Fan Palms, and *Seaforthia elegans* and a species or two of *Kentia* amongst the pinnate-leaved kinds, comprise the collection—for the rougher and colder work at least. It is the same in the majority of conservatories and winter gardens throughout the country; the number of species may frequently

be cast up on one's fingers, and as a rule they represent only the commonest types. There appears to be no knowledge of the extensiveness of the material that may be selected from, nor is it generally known how many types of Palms quite distinct from those in general use are available, and not only for warm houses, but for structures where the temperature is that of an ordinary cool greenhouse. Although as permanent specimens in the conservatory, Palms, as a whole, cannot be said to equal the Tree Ferns in beauty or effectiveness, they possess certain advantages over them; they are less susceptible to dryness and fierce sunlight, and are also capable of withstanding rougher treatment. They represent, however, two such different aspects of exotic vegetation, and each is so well qualified to enhance the effect of the other, that there is no need to consider their respective merits. Every conservatory should contain specimens of both.

In order to show the hardiness of the species mentioned in the following notes, I may describe

some, however, are in pots, but this difference does not appear to in any way affect their hardiness.

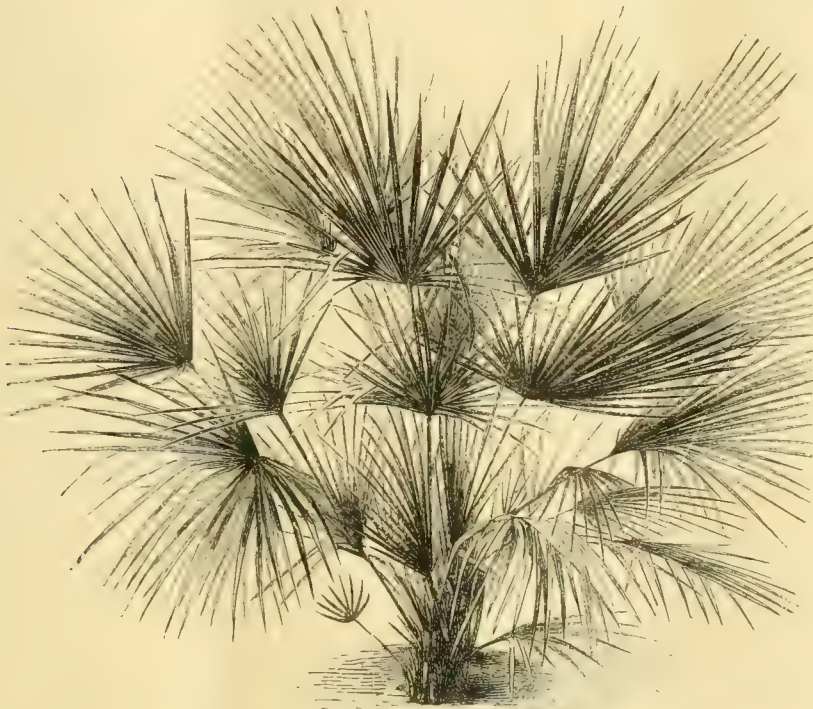
LIVISTONA.—So well known are the two commoner representatives of this genus, that it is scarcely necessary to describe or comment on them. The first, *L. chinensis*, is, perhaps, the commonest of Fan-leaved Palms. Its hardiness and the amount of rough usage it will bear make it a very useful variety especially where the plants have to be frequently removed from one place to another. As a permanent specimen for the conservatory it does not compare with some of the species belonging to other genera. The same may be said of *L. australis* (*Corypha*), although its rigid leaf-stalks armed with strong spines and stiff plaited leaves are undeniably handsome. A third species is *L. inermis*, sent out by Mr. Bull a few years ago as *Corypha decora*. At present the plant is rare. The form of the leaf is very remarkable; the main central rib is very much lengthened out, and this, together with the deep lobing, gives the Palm the appearance of being a connecting link between the pinnate and palmate sections of the order. The leaf is also curiously decurved. Well-grown speci-

raised from seeds sent as *W. filifera*. It has never been found wild. In a young state the chief distinctions consist in its sturdier habit and in a dark reddish brown hue that appears at the base of the petiole. Of all the Palms that are cultivated on the Riviera (between Marseilles and Genoa) these *Washingtonias* are the most conspicuous. In the famous gardens at Villa Valetta, Cannes, there are about sixty specimens planted in one grove on a sloping lawn near the house. Most of these have stems 10 feet to 12 feet high, and measure 9 feet in circumference at the swollen base, the heads of foliage being in most cases over 20 feet across. The tens of thousands that are being grown on in the nurseries show the popularity and demand for these Palms. As conservatory plants they deserve a wide cultivation, and amongst the green-leaved Fan Palms are perhaps the most desirable. The third species, *W. sonora*, of recent introduction, bids fair to even surpass the older kinds in value. The leaves are furnished with the same white filaments, but they are more numerous, and instead of hanging like threads are curled in various ways. The general bearing of the plant is also, if anything, more elegant.

THRINAX.—Although the *Thrinaxes* are generally regarded as stove plants, as indeed they mostly are, one species has passed through the recent winter without serious injury. It is *T. parviflora*, a West Indian species of distinct and handsome appearance. It may be compared to the well-known *T. radiata*, but differs in being of stouter proportions. It makes a useful addition to cool Palms, but would evidently prefer a minimum winter temperature not lower than 45°.

ERYTHREA.—Of this genus we grow two species, but only one of these can as yet be said to have fairly proved itself a greenhouse subject. This is *E. armata*, better known as *Brahea Roezli*. It is only lately that plants showing the true character and full beauty of this Palm have been received in this country. The largest of our plants is about 3 feet high, the leaves, which are rather narrowly palmate, as well as the petioles, being of the brightest glaucous tint, the precise shade, in fact, of the bedding *Echeveria*. The plant itself is of sturdy, handsome habit. The species undoubtedly shows an entirely new feature in this class of plants, and one which, when it becomes better known, most gardeners will be eager to avail themselves of. In the gardens surrounding the Casino at Monte Carlo, a fine specimen, 6 feet high, is planted on the lawn, and forms one of the most striking of the many remarkable objects to be seen there. Under the brilliant sunlight of Southern France the leaves become almost white, and although this intense glaucous hue may not be developed under our duller skies, even here it surpasses anything seen in the Palm family.

CHAMÆROPS.—Properly speaking, *Chamærops* contains but two species, *C. humilis* and *C. macrocarpa*, although the whole of the following are generally given that name. *C. Fortunei* (*Trachycarpus*) is now widely known in England as a hardy Palm. In suitable situations where it is sheltered from rough winds it makes a very effective item in outdoor gardening, as may be seen by an illustration in *THE GARDEN* for June 16, 1888, of two fine specimens growing at Heckfield. Indoors, of course, it makes a more luxuriant growth, but seeing the number of handsome kinds available, it is no longer needed for the conservatory. It is different with *C. humilis*, which can only be grown outside in the southernmost limits of the kingdom. The aspect of its rounded head of stiff leaves with their rigid outstretched segments, generally semi-glaucous in colour, some of the many varieties, however, being green, is unusually handsome, differing to a certain extent from that of any other Palms. But by far the most effective species of *Chamærops* we have is *C. Griffithiana* (*Trachycarpus khasyanus*). Our two largest plants are respectively 30 feet and 35 feet high. The stems are 8 inches in diameter and quite clean and smooth at the lower portion, the leaves being confined to a tuft at the top. Standing clear above the other vegetation, these two crowns of graceful foliage have a distinctly



Chamærops humilis.

the temperatures that have prevailed during the past winter in the house where the whole of them have grown. It is at least ten years since we have experienced in the neighbourhood of London conditions so unfavourable to plant life under glass. During the severe frost that lasted from November 26 to January 22 the temperature of this house only reached 50° at the short intervals of milder weather that occurred twice or thrice. In the greater portion of this period the temperature varied only between 40° and 45°. For two nights and one day, when the thermometer out of doors did not rise above 17°, with a bitter north wind blowing, the house for thirty hours stood below 39°. On two mornings the glass fell to 36°, or within 4° of freezing point. Those species, therefore, that have passed uninjured through the ordeal of fog, darkness, and cold of 1890-91 may be safely considered to have established their claim to rank as cool greenhouse plants. Most of the following species are planted out;

mens are both striking and handsome. The petiole is armed with short spines; the name, therefore, is scarcely appropriate.

WASHINGTONIA.—At present this genus of Palms can hardly be said to be known in this country, so few are the plants introduced. So far as is known at present, it consists of three reputed species; these, however, may eventually prove to be merely forms of one. The credit of the first discovery of the genus belongs to Dr. C. C. Parry, who found *W. filifera* in California about the year 1850. It does not appear to have been introduced to Europe until 1875. It is a plant of striking appearance, some of the leaves on specimens only 5 feet high measuring 3 feet across; the petiole is armed with stout spines, and the long drooping segments of the leaf are very graceful. The most characteristic feature of the Palm, however, and the one to which the specific name refers, is the long white threads that hang from the margin of the leaf. On our small plants these are over a foot long, and they have a beautiful and almost unique appearance. *W. robusta* is reputed to have been found in a Continental nursery in a batch of young plants

tropical appearance. *C. Martiana*, a handsome species nearly allied to the preceding, and *C. hystrix*, an acaulescent species with long black spines guarding the centre of growth, complete this genus.

SABAL.—This is the only remaining genus of Fan Palms of which we have established plants in the cool house. *S. Blackburniana* and *S. Palmetto* are two marvellous Palms when seen at their best (some splendid examples are in the Palm house at Kew), but in a young state they are not very ornamental, being of coarse and rather ungainly habit. Although they remain quite healthy in this house, they grow very slowly, and except where an attempt at forming a collection is made, I should not advise their use. The only species of real value is *S. serrulata* (more properly *Serenoa*), the Saw Palm of the Southern United States. We have plants 3 feet high, perfectly healthy and of good appearance. Turning now to the pinnate-leaved section, the most interesting genus is

COCOS.—Considering their elegance and distinctness from the Palms in general use, the cool species of *Cocos* deserve a much wider notice. The long, graceful, plume-like fronds of *C. flexuosa* with their rich deep green colour are quite different from any but those of closely allied species. We have now had this species in a cool house for several seasons, and value it as one of the most beautiful in this family. *C. insignis*, too, a kind with fronds of the same type as the tropical *C. Weddelliana*, only much larger and stronger, is unrivalled by any except the others in the same group. Our plant is 5 feet high with a stem 2 inches in diameter; the fronds, which are 3 feet long and curve very elegantly, are light green, silvery white beneath. The remaining species are *C. capitata*, *C. coronata*, and *C. Yatay*, the two last with silvery grey foliage; all three have passed unscathed through the recent winter.

PHŒNIX.—The cultivation of this group of plants is now becoming general, their quick growth and graceful habit rendering them most useful Palms. For conservatory work the best kind, perhaps, is *P. canariensis*, a plant of hybrid origin. It is one of the hardest of *Phœnixes*, and in the elegance of its rich green, shining, and beautifully arching fronds it almost equals the tenderer *P. rupicola*. On the French Riviera some enormous specimens are to be seen. At Nice I have seen plants with stems 12 feet high and 4 feet in diameter, the head of leaves being 30 feet across. *P. dactylifera* is a gaunt and by no means ornamental species, but of great interest as providing the Dates of commerce. *P. reclinata* in a small state is not of much worth, although large plants are decidedly handsome. *P. spinosa* may be recommended as a quick and easily grown Palm, and also one of very pleasing appearance. It forms a dense head of arching fronds, which in some varieties have a decidedly glaucous hue. The base of the petiole is armed with formidable spines. *P. humilis* var. *Hanceana* is a dwarf species suitable for small houses. I have not seen it more than 2 feet high.

ARECA.—The New Zealand species *A. sapida* might from its native country be expected to rank as a cool Palm, and it is, I believe, generally grown as such. Either in a young state or after it has begun to form a stem it is welcome in the conservatory border. *A. Baueri*, a nearly allied species, found exclusively in Norfolk Island, is most frequently seen in stoves. We have conclusively proved it, however, to be quite as happy, if not so quick growing, in a greenhouse temperature. Our largest plant is now some 20 feet high, with a smooth annulated stem 5 feet high, the head consisting of about fifteen huge dark green leaves. Although so well known under the name, neither of these species is an *Areca*, the correct name being *Rhopalostylis*.

Of the remaining Palms the most noteworthy is *Chamædorea elatior*. This species has the tall slender habit characteristic of the genus, our specimen consisting of a cluster of about a score of stems each the thickness of a walking stick. These vary in height from 3 feet to 12 feet, according to age, and are being continually

added to by fresh ones from the base. Each stem is topped by a crown of pinnate leaves about 2 feet long. I know of no other Palm that can be grown in a cool house whose habit resembles this, or one whose distinct and graceful appearance entitle it to wider notice. *Rhapis flabelliformis* is fairly well known, but another species, *R. humilis*, is by no means common. It resembles the former in mode of growth and shape of leaf, but is smaller in every way, and is perhaps more elegant; it is certainly to be preferred for small houses. We have only been able as yet to find one species of *Caryota* hardy enough to be placed in the present list. This is *C. ochlandra*, a native of China. Its foliage is so distinct from that of the ordinary types, each frond being like that of a mammoth Maiden-hair Fern, that it makes a very desirable addition to cool Palms. Our old acquaintance *Seaforthia elegans* (whose modern title is *Archontophoenix Cunninghamii*) completes the list. B.

A good climber for a north greenhouse.

—A light, graceful, highly scented, vigorous winter-flowering climber that will succeed on the wall or pillars of a cool lean-to greenhouse facing north must prove a great acquisition to anyone who can get it. Such a plant may be found in *Myrsiphyllum asparagoides*. As the best proof of its value, I enclose with this 4 feet of a wreath in full flower and berry cut from a plant grown in such a position. The flowers are orange-scented, and though small, when plentifully produced they are effective, while the foliage is very elegant and most useful for table decoration, or for clothing the long bare stems of trumpet vases, for it is very bright and lasting. The plant requires very little treatment of a special kind, as long as it gets plenty of water when making its growth, and frequent attention in preventing the shoots from being spoiled by intertwining. As the growth is very rapid, this close attention is only necessary for a few weeks. With me the plant runs to a height of from 15 feet to 20 feet and clothes the portion of wall allotted to it from base to summit. If necessary it could be taken much higher than this.—J. C. TALLACK, *Livermere Park*.

Monstera deliciosa.—This plant has several times lately been mentioned in THE GARDEN, and a note appears as to its being a water-loving subject. It certainly does well in a moist position, but it is not at all particular, and grow fairly well under the reverse treatment, as we have plants in rather dry positions and they do well. I have also grown the *Monstera* in pots and treated it as an ordinary stove plant. We have a very fine specimen from 25 feet to 30 feet high, trained on the trunk of an old Palm and covering a lot of ground, giving abundance of fine fruit every year, and it does not get more moisture than the other stove plants; indeed, in the winter season, especially in severe weather, this plant and others somewhat smaller are not watered for weeks, and are not even syringed, as we cannot keep up a high temperature. I believe the *Monstera* does better when the roots are allowed to descend into gravel or shingle. We tried some in damp Sphagnum to cover an old trunk, and till we removed the Sphagnum they made no progress. The position "P. G." advised just suited it, as no doubt the tank was not always full of water. It is a capital plant for covering a damp wall at the back of a stove, as it is both ornamental and useful. When well hardened off it does well for sub-tropical work and also for large vases. The *Monstera* is readily propagated by division and cutting up the stems into small pieces, placing them in a warm bottom heat in the spring.—G. WYTHES, *Syon House*.

The white Poinsettia.—This does not appear to be much grown at the present time, yet it is worthy of culture, and forms a pretty contrast to the bright scarlet *Poinsettia pulcherrima*. It does not produce quite such fine heads of bracts and is more delicate. The plants must be kept in warmth and as close to the glass as possible, in order to secure

all the light available. Being naturally of more slender growth, it is somewhat difficult to get good strong cuttings to start with. Where the stock plants make a start at several eyes the shoots should be reduced to two or three of the strongest. The double *Poinsettia* (*P. pulcherrima plenissima*) is also neglected through its delicate nature. It is, however, well deserving of the extra attention it requires, one great advantage being that it comes in later than the ordinary variety and lasts longer. I have seen it in fine condition late in February.—F. H.

Leaf-mould for Eucharis amazonica.—That the *Eucharis* mite is answerable for many of the failures with this beautiful plant is undoubted, but I think that the soil also has a great deal to do with much of the non-success experienced. I have frequently seen unhealthy plants potted in the compost generally advised for them, yet they refuse to grow, and this is at once attributed to the ravages of the mite. Is it so? I think not. On examining the soil it will be seen that it has become stagnant, and loam largely predominates in it. This, I think, with weakly bulbs is quite sufficient to retard a healthy growth. Loam is necessary for strong healthy specimens, but for bulbs that have become weakly it is too heavy and too retentive of moisture. Bulbs under these circumstances should have every particle of the old soil washed from them, and be repotted into small pots, using leaf-mould and sand only. The bulbs should then be placed in bottom heat, and too much water should be avoided. If they are not infested with the mite this should give them a good start. They may afterwards be potted in a compost of loam, leaf-mould and sand, a liberal admixture of leaf-mould being used. When I say leaf-mould I do not mean the black, rotten material from the rubbish heap, but that carefully selected from Beech and Oak leaves. The *Eucharis* should be kept growing, and on no account be rested. If a stove temperature is given, the *Eucharis* will, I find, bloom three times a year.—G. C. L.

SHORT NOTES.—STOVE AND GREENHOUSE.

Gesnera zebrina splendens.—This fine old plant will be found useful at the present time. The flowers are rich orange-scarlet, the marbled and veined leaves being also very beautiful. I should much like to see these fine plants again restored to favour.—W. G.

Begonia Carrieri.—This is a most excellent winter-flowering kind of neat, compact habit, and producing abundance of its trusses of pure white blooms. It flowers, too, in a small state, and makes an excellent plant for table decoration. It is just now one of the finest pictures in Messrs. Cannell's nursery at Swanley.—W. H. G.

Glonera jasminiflora (J. H.).—This is the plant of which you send flowers, and I wish it was to be seen more frequently. "J. H." says it has been grown in an intermediate house, which may account for its flowering so early. It was sent out by M. Linden, by whom it was introduced from Southern Brazil. It has bright green leathery leaves and bunches of long pure white flowers, slightly hairy on the outside. I think Hooker calls it *Psychotria jasminiflora*, but *Glonera* was the name under which M. Linden sent it out.—W. H. G.

Plumbago capensis in pots.—This fine old subject, so often used to cover walls and pillars in conservatories, does not receive much attention as a pot plant, but it is easily managed as such, and is useful late in summer and in the autumn. We grow a few examples of it in 8-inch pots for that purpose. The plants are kept dry in winter, and in spring they are cut back hard, shaken out, and repotted. When they have made 2 inches or 3 inches of growth the tips are pinched out. Under this treatment they become bushy specimens and are very effective. A few cuttings rooted in spring make useful little plants for autumn decoration.

Aralia Sieboldi.—This is now grown very extensively, and it is one of the best plants we have for decoration. With ordinary care it will last almost as long as the *Aspidistra* in rooms, &c. It is also a fine plant for the open ground, and when planted in an exposed position where it can get well ripened in the autumn it is quite hardy. Plants in a growing condition, however, are very tender; a very slight frost will kill the young

leaves. It takes about two years to establish good useful-sized plants. The seed, which is imported, reaches this country in April, and should be sown as soon as received. There is little trouble in raising seedlings if the seed is fresh. It should be sown rather thinly in pots or pans filled with fresh loam and sand, and be covered with a little of the same compost sifted through a fine sieve. The pots should have a thorough watering, and if placed in a light and rather cool position little more water will be required until the seeds begin to germinate. From the time they show the first leaves the greatest care should be taken to prevent them getting drawn. By the time the plants are large enough for potting off singly they will do best in a cold frame; for the first few days they may be kept close and shaded, but as soon as they are established plenty of air should be given and very little shading. If the watering is properly attended to they will be better without any shade. During the winter they must be protected from frost, and by the following spring or rather early in the year they will be ready for potting on into 5-inch pots. A rich loamy compost suits them well, and after the pots are well filled with roots a little liquid manure may be used occasionally. The plants must have plenty of room and light. During the summer they may be placed in the open. If the pots are plunged in the ground and the plants kept free from insects, they will make fine sturdy specimens. Aphides if allowed to get a hold will soon cause permanent disfigurement.—F. H.

ORCHIDS.

DENDROBIUM SPLENDIDISSIMUM.

FLOWERS of a splendid hybrid *Dendrobium* come to me from Mr. Denny, gardener to Sir W. Marriott, Down House, Blandford. He says the parents were *D. heterocarpum* crossed with *D. nobilissimum*, but I really do not know the latter variety. Perhaps Mr. Denny means *nobile nobilius*. He says the flowers are much larger than any he has seen from the ordinary form of *D. nobile*. The flowers before me are each $3\frac{1}{2}$ inches across, pure white, with a tinge of rose colour on the tips; the lip is very large, just the shape of that of *D. splendidissimum* of Veitch, the entire basal part being rich Indian purple, the side lobes at the extreme base being strongly streaked with the same colour. In front of the Indian purple is a zone of pale yellowish white, and the extreme front is faintly tipped with rose. This description seems to me to accord with that of *D. splendidissimum* raised by Mr. Seden, and flowered by him in Messrs. Veitch and Sons' nursery at Chelsea. The flowers now before me I have no doubt are the first the plant has produced, and next season they will most likely improve in size. The three types that have been obtained from this cross are *D. Ainsworthi*, *D. Leechianum*, and *D. splendidissimum*. Mr. Denny's flowers appear to me to be much nearer those of the last form than either of the other two; they are all, however, somewhat similar, as might have been expected from the cross, and it is only by selecting the best varieties that better results can be expected. The flowers sent are certainly magnificent, and I am glad to see the *Dendrobiums* are being taken in hand by the amateur grower. Some other flowers have also come from Mr. Osborne, but they were only those of a good form of *D. Ainsworthi*. In neither case do they appear to retain that beautiful odour of Violets which is such a marked feature of *D. heterocarpum*. There can be no doubt but that the flowers from Mr. Denny are of the *D. splendidissimum* type, and those from Mr. Osborne of the *D. Ainsworthi* form. WM. HUGH GOWER.

Cymbidium Lowianum.—"J. B." sends me flower of this plant, asking if it is the same as that

he saw shown at the Regent's Park some few years ago. Yes, it is; but whereas the plant then shown was a bad variety, these flowers show that "J. B." has an exceptionally good one. A bad and dull-flowered variety of this plant, which everyone is apt to meet with among imported plants, is not worth the room it occupies. If required the spikes may be kept on the plant for the next four or five months, but I should relieve the plant of them in half that time; it will give it a better opportunity to grow and flower strongly again next year.—W.

Cypripedium villosum.—From Messrs. Seeger and Tropp, Dulwich, come flowers of two varieties of this species. Each flower measures about 6 inches across, the flowers broad and well marked. The dorsal sepal of each was very broad and flat, both being bordered with yellow on the margins, the middle part dark sepia-brown. In one form the lip was a clear yellow, and in the other it was soft rose; the petals, too, were broad and distinct. These are the two best varieties of *villosum* that I have seen.—G.

Cypripediums at Hextable.—The American firm of Pitcher and Manda have here a very nice collection of Orchids, consisting for the most part of *Cypripediums*. Upon the occasion of my visit there were about sixty or more kinds in bloom, forming quite a grand show. Of the kinds in flower I may name *C. Laforcadei*, a French cross between *C. barbatum* and *C. insigne* Chantini, having light yellowish-green dorsal sepals streaked with dull purple and a broad white apex, the petals brownish purple with darker veins, the lower part yellow dotted with purple, and a reddish pouch. It is a very pretty form. *C. pavonium*, a cross between *C. Boxalli* and *C. venustum*, is a beautiful hybrid; *C. Dominianum* and *C. Dominianum* *erubescens*, a finer-coloured form of the type; *C. Ainsworthi*, *C. Sallieri* Hyeaunum, some fine forms of *C. callosum*, *C. Hookeri*, *C. Meirax*, *C. plunerum*, *C. Charles Canham*, *C. marmorophyllum*, and many others were also in bloom. The finest variety I saw was *C. Godseffianum*, a cross between *C. Boxalli* and *C. hirsutissimum*. This is the first time I have seen this form, and I must confess it is very beautiful, the dorsal sepal being dark brown in the centre, broadly margined with soft yellow, spotted with almost black at the base; the petals long and broad, prettily undulated, and very much spotted at the basal part with black; the top half rich and deep purplish-mauve, the remaining portion yellowish-brown; the pouch soft brown, the whole making up a flower at once distinct and very beautiful.—W. G.

SHORT NOTES.—ORCHIDS.

Calanthe Veitchi.—Amongst other things a very good form of this beautiful hybrid is now flowering with Mr. Cannell at Swanley, the flowers being almost scarlet.—G.

Lælia alba.—I recently noted a variety of this, much like the form known as *L. a bella*, but more richly marked, the sepals and petals creamy white tipped with lilac, the lip having a broad band of magenta round the middle lobe.—G.

Cypripedium villosum aureum.—From Mr. Lyntwyche comes a flower named as above; but although it is a very pretty form of *C. villosum*, it certainly has nothing in common with *aureum*; it has no yellow about it, and the lip is rose-coloured on the front of the pouch.—G.

Dendrobium nobile.—Good forms of this plant are now flowering in Mr. Cannell's establishment. When last I paid Mr. Cannell a visit he was much against devoting any portion of his nursery to Orchid culture, but the rapid strides which these plants have taken compels him now to take them under his care.—W. H. G.

Cologyne cristata maxima.—There is little doubt of your flowers being of this form, which was put into commerce by Mr. Sander, of St. Albans. The size of the flowers and the number of them on the spike prove this. It is a magnificent form of the flower, and a coloured figure of it was given in *THE GARDEN*, February 26, 1887 (p. 190).—G.

Odontoglossum Alexandræ flaveolum.—Flowers of this come to me for a name from Messrs. Laing and Sons, Forest Hill. It is precisely the same form as figured in the early numbers of the "Orchid Album" on t. 43, having previously been named by Reichenbach in the *Gardener's Chronicle*. The sepals and petals are deep primrose-yellow, and the lip is deep

creamy yellow dotted with bright chestnut. The flowers will in all probability increase in size as the plant gets stronger.—G.

Odontoglossum Rossi majus.—Some flowers come to me of this species, asking if they are true. They are true. The flowers are those of one of the varieties with bands of pale green instead of dark chocolate-brown. I do not, as a rule, like these pale-banded varieties, but here we have a pure white flower of good size and substance, and it looks very chaste and delicate.—W. G.

Cattleya Percivaliana.—From Messrs. Seeger and Tropp, Dulwich, comes a gathering of this beautiful *Cattleya*. Nos. 5 and 6 are the two best flowers, and they are certainly very fine, worthy of a varietal name; 1 and 7 are very poor forms; 4 is a rather distinct looking variety, with almost white sepals and petals, and is worth looking after.—G.

Dendrobiums at Messrs. Pitcher and Manda's.—Of these some pretty varieties are now open, amongst them being good forms of *D. Finlaysonianum*, *D. nobile*, good varieties highly coloured, but not large, *D. cretaceum* and *D. eripidatum*, two kinds which used more frequently to be seen in English collections than they are now. A superb form of *D. splendidissimum* was also in bloom.—G.

THE ORCHIDS OF BRITISH INDIA.

LOVERS of Orchids naturally associate them more especially with the New World—with Mexico, Central America, Colombia, and Brazil—the home of the apparently inexhaustible variety of the genera *Odontoglossum*, *Oncidium*, *Lælia*, *Cattleya*, *Epidendrum*, *Masdevallia*, and a host of others, including the highly curious dimorphous or trimorphous *Cataseti*. This is doubtless owing to the fact that the cultivation of exotic Orchids on a considerable scale began chiefly with American genera, when about sixty years ago George Ure Skinner introduced living plants, from Guatemala and Mexico, of many of the gorgeous kinds previously only known from imperfect descriptions. Not that it is not equally well known that the richly and variously coloured *Dendrobes*, the lordly *Vandas*, and singular *Cirrhopetalums* are at home in the East; but Western Orchids have found more favour with cultivators, generally peaking, than Eastern; and, on the whole, they are of a more ornamental character. Yet, if we are influenced by statistics, we must give the palm to British India in the matter of number of species in relation to other natural orders of plants.

A few years ago I had occasion to construct a table of the composition of the flora of British India for comparison with that of other countries. Of course, this could only be a rough approximation for those natural orders of which there were no recently published monographs. But the results obtained were certainly a surprise, in so far that Orchids considerably outnumbered every other natural order of plants; whilst in Central America they occupy the third place, which is the position of this natural order or family of plants, so far as regards number of species, in the flora of the world. The predominating family of plants in Mexico and Central America is the *Compositæ* (*Dahlia*, *Sunflower*, *Marigold*, *Zinnia*), by far the most numerous and the most universally dispersed family in the vegetable kingdom, reaching almost the extreme limits of flowering plants both in altitude and latitude. In the highly specialised flora of Australia the *Leguminosæ* (*Acacia*) even more greatly outnumber any other family. In India, as already stated, Orchids far surpass all other families of plants in number of species; but it should be borne in mind that it does not necessarily follow that Orchids occupy more space and are more prominent in the vegetation of the country than any other family. Indeed, the contrary is the case. Whereas, the family (*Leguminosæ*) most numerous in species in Australia, and the family (*Compositæ*) most numerous in species in Mexico, each in its country constituting a prominent and pervading feature in the composition of the vegetation and in the scenery of the country (especially the *Leguminosæ* in Australia), Orchids in India occupy a comparatively small space and appearance in the flora, being surpassed in these respects by probably nearly a hundred other families. Excluding arboreal and shrubby families of

plants, Orchids are by no means so prominent and so generally spread in India as many herbaceous families of plants represented by half, or even a quarter as many species. This is explained by the fact that, apart from size, Orchids are not prominent, except locally, because the species, generally speaking, have a very restricted area of distribution, and are, many of them, found only in a single locality or district.

Orchids may be divided into two groups, according to the medium or situation in which they grow—namely, into terrestrial, growing in the ground, and epiphytal, growing on trees or other plants. The latter attach themselves to trees and rocks indiscriminately, and obtain their food from the water and other matter accumulated on the surfaces. Terrestrial Orchids, as a rule, have a wider range than epiphytal Orchids, the former mostly inhabiting temperate and frigid regions, and the latter tropical and warm temperate regions. The exceptions are few of epiphytal Orchids extending into cold temperate regions, and the nearest approach we have to an epiphytal Orchid in Britain is the Bog Orchis, which grows on coarse Moss in bogs. But to return to the Indian Orchids, of which Sir Joseph Hooker has just finished the monograph for his "Flora of British India." They number about 1400 species in a total of about 14,000 species of flowering plants known to inhabit British India, and they are referred to upwards of 100 genera. It is hardly necessary to state that within the area of British India there is nearly as great a variation of climate as there is in the whole world, both in relation to temperature and rainfall, the latter amounting to as much as 600 inches a year in some localities in Assam; consequently there is every kind of flora from the tropical littoral to the highest alpine. Orchids inhabit almost every kind of situation, from the tidal swamps of the seacoast up to altitudes of 10,000 feet to 12,000 feet in the mountains of Northern India. It is true that some other kinds of flowering plants ascend some 5000 feet or 6000 feet higher than this; but it is probably not the intensity of cold in winter that prevents Orchids from ascending to greater elevations, for Mr. Chichester Hart, the botanist attached to the last British Polar expedition, collected three species of Orchids, two of them also British, on Disco Island, in 69° 15' of latitude, where they were growing in abundance, forming dense beds of rich foliage. Beginning with the epiphytal or tree Orchids of India, we find that they belong to genera almost exclusively confined to the Old World, and to species perhaps exclusively so. Notable among the exceptions is the climbing genus *Vanilla*, of which there are five Indian species; but it is the Mexican and Central American species that yield the fragrant fruit used in confectionery.

Coming to the characteristic genera, *Dendrobium* undoubtedly stands first, both in number of species and rich variety and combinations of gorgeous colours. Nearly 160 Indian species are described by Sir Joseph Hooker; and when we remember that some of these species present an almost endless diversity in the colouration of the flowers of different individuals, we can form some idea of the Orchid flora of India. A great many of the species have, it is true, small or dull-coloured flowers; yet at the same time the Indian Orchids include nearly all of the most beautiful species in cultivation, from the old favourite, *D. nobile*, to the more showy *D. fimbriatum*, *D. densiflorum*, *D. Devonianum*, and a host of other equally ornamental species, which space will not permit of particularising. But Veitch's "Manual" of this and other genera of Orchids may be mentioned as a mine of information for lovers of this class of plants. *Dendrobium* inhabits the forests from the seacoast up to the region of Oaks in the Himalayas, perhaps in some localities up to elevations of 8000 feet. One of the first species, if not the very first species, introduced alive and cultivated in England was *D. Pierardi*, which flowered in the then noted Liverpool Botanic Garden, under the management of the Shepherds, in 1822, and was figured by Sir William Hooker in his "Exotic Flora." The home of this species, or at least the locality where it was first

discovered, and where it is most abundant, is the delta of the Ganges, in the Mangrove swamps, where it is associated with such other Orchids as *Vandia Roxburghii*, *Luisia teretifolia*, and *Saccolabium guttatum*—all ornamental Orchids known to cultivators, though none of them stands quite in the first rank in its genus. Yet at the period when *Dendrobium Pierardi* first flowered in this country it was regarded as "one of the most beautiful plants in the world." Its stems attain a length of 6 feet, and in due season are laden with a profusion of lovely flowers of various combinations of rosy-red, or pink, and yellow. Among the ground Orchids in the Sunderbunds are *Eulophia virens*, *Zeuxine sulcata*, one or two species of *Anectochilus*, and *Spiranthes australis*. The last is the most widely spread of any species of Orchid, and is very closely allied to the English Ladies' Tresses (*S. æstivalis*). It ranges from Afghanistan and Siberia to China and Japan, throughout India, from altitudes of 8000 feet down to the seacoast, through the Malay Archipelago to Australia and New Zealand; and it is one of the common plants in the floating vegetation of the large water-tanks of Bengal. The *Cœlogynes* of India are upwards of fifty in number, and some of them ascend to greater altitudes probably than any of the other tree or rock Orchids. There are two or three of the section *Pleione*, such as *C. Hookeriana* and *C. præcox*, which flourish at altitudes of 10,000 feet to 12,000 feet, where there is frost and snow. Although the fine genus *Vanda* numbers some fifteen species in India, several of the best, such as *V. suavis* and *V. tricolor*, are Malayan, and not Indian. *Vanda cœrulea* is, however one of the most striking ornaments of the Oak forests of Assam, at an elevation of about 4000 feet. The old *Vanda Cathcarti*, now referred to the genus *Arachnanthe*, a native of the mountains of Eastern India, has been called the noblest of the genus, but it is rather difficult to cultivate. Among other Indian tree Orchids we may name the genera *Eria*, *Aerides*, *Cymbidium*, *Phajus*, and *Phalenopsis*. *Grammatophyllum speciosum* is a robust and striking epiphyte, with stems 8 feet to 10 feet high, and flower-stems 6 feet long, bearing a long raceme of numerous fleshy flowers, 5 inches across, of a deep yellow spotted with chocolate-brown, reminding one of the colouring of the New World *Oncidia*. Among the smallest of epiphytes, the elegant *Drymoda picta* deserves notice. The so-called pseudo-bulbs are disc-like, about half an inch in diameter, and closely appressed to the branches of the trees on which they grow, and each pseudo-bulb bears a tiny leaf on the top, which soon falls away, and is succeeded by a slender stalk from beneath, carrying one singularly shaped red, green, and white flower at the tip. Orchids intermediate in their mode of growth, between the true ground Orchids and the tree Orchids, are represented by the genus *Vanilla*, mentioned above, and two or three others, remarkable among which is the genus *Galeola*. Several of the species of this genus are comparatively small erect herbs, whilst others, such as *G. altissima*, climb to the tops of trees 50 feet to 150 feet high, and then, like the Ivy, produce their inconspicuous flowers. They are leafless plants, with fleshy, although slender white stems, more or less tinged with pink.

The terrestrial or ground Orchids inhabit chiefly, and are more characteristic of, the temperate and sub-alpine regions; yet, as already stated, some terrestrial Orchids grow almost close down to the sea. Some of these terrestrial Orchids, like the *Galeola* just described, are leafless plants, and draw their nourishment, it is presumed, from the organic matter (decomposed vegetable matter) in which they grow. A very curious Orchid of this character grows under clumps of Bamboo near Calcutta, and in other distant localities in Tropical India and Malaya. This is a small plant of the genus *Didymoplexis*, a few inches high, and bearing a few minute flowers almost closely seated on its unbranched stem; and the great peculiarity of it is that, after fertilisation, the stalks of the individual flowers elongate from almost nothing to 6 inches or 8 inches in length, carrying the seed vessel, it would seem, well above the dead leaves and other vegetable matter in which the plant grows. Chief

among the genera of terrestrial Orchids in India is the genus *Habenaria*, represented in Britain by four or five species, and in India by upwards of 100 species, exhibiting a marvellous variety in the modifications of the parts of the flower. As already pointed out, the genera, and to some extent the species also, of the ground Orchids of the temperate and arctic regions of the Northern Hemisphere have a comparatively wide range of distribution, some of them ranging all round. This fact comes out more clearly to us when we know that all the genera of Orchids represented in California are also represented in Britain, with one exception, and that (*Calypso borealis*) is found in sub-arctic Europe and Asia; and when we know that at least eight of our British Orchids are also found in the mountains of Northern India.

Much more might be written about the Orchid flora of India, and all botanists and lovers of Orchids will be grateful to the author of the "Flora of British India" for the immense amount of information and reference he has condensed in the 400 or so pages he has devoted to this family of plants. —W. BOTTING HEMSLEY, in *The Field*.

GARDEN FLORA.

PLATE 792.

MINA LOBATA.

(WITH A COLOURED PLATE. *)

THE genus *Ipomæa* to which this rare and beautiful novelty has been assigned in the "Genera Plantarum" numbers something like 400 species, with a very wide distribution, the majority in warm or tropical countries, and only a very few hardy enough to be grown outdoors in our climate unless under specially favourable conditions. *Quamoclit* along with many other small genera has been reduced in the above work, and it is to this section that the subject of the coloured plate has been added. With *Quamoclit*, now *Ipomæa Quamoclit*, *Mina lobata* has many characters in common, more especially in the structure of the ovary and stigma, but in that species, which may be regarded as the type of the section, the inflorescence is arranged in a method general in the majority of the order, the corolla limb being flat when expanded. In *Mina*, on the contrary, we have quite a remarkable inflorescence, even in this variable genus, the limb of the corolla having the shape of an oblong five-cornered bag, the base being thrust so much inwards by the tube as to be invariably hid from view. Denuding the *Mina* of its inflorescence, it would be difficult to make anyone believe it was not a common *Ipomæa*, and, minus the leaves, it loses all its *Convolvulus* characters. Its unusual inflorescence, somewhat racemose, upright, and arranged in the scirpoid manner of the Borage-worts and *Phacelias*, is very unconvolvulus-like, as also is the remarkable form of the corolla. The flowers when in bud are of a bright rich crimson, changing through orange to pale soft yellow as they expand, and as they may be seen in all stages when the plant is in bloom, they have a very charming and unusual effect. *Mina lobata* is said to have been long cultivated by the Mexicans as a decorative plant, although it was not until 1841 that the first packet of seeds reached England. These seeds were sent to the Earl of Burlington, the first plants having flowered in the gardens at Holkar. Plants were afterwards presented to the Royal Horticultural Society's gardens. These, we are told, only produced two seeds, and very soon after this most beautiful plant was lost to cultivation. In 1885 it was successfully re-introduced

* Drawn for THE GARDEN by Miss H. M. Shrimpton. Lithographed and printed by Guillaume Severeys.



MINA LOBATA

by Messrs. Haage and Schmidt, of Erfurt, these gentlemen expressing surprise that such a remarkable climber was suffered to disappear from cultivation. Although properly a greenhouse species, where it is most valuable for pillars, trellises, and rafters, it has been successfully grown in the open air. Its success in the open depends more or less on the season; if a hot one the plants will grow vigorously and flower freely, but if cold and wet they are almost sure to fail. It may be best described as a climbing annual, and has proved under cultivation to be a very rapid grower. The seeds, which are now plentiful, should be sown in a warm house or pit in March, the seedlings being pricked out into pots when ready and shifted as required. About the middle of May they may be planted out in the open ground, and by the end of July they will have formed graceful specimens 12 feet to 18 feet in height. The racemes, usually branched, often attain a length of 12 inches to 18 inches, and on some of the largest over forty flowers have been counted. It may also, it is said, be increased by cuttings. It was named in honour of Don Francisco Xavier Mina, a Mexican Minister, of which country it is a native. D.

ORCHARD AND FRUIT GARDEN.

NOTES ON STRAWBERRY CULTURE.

APPARENTLY Strawberries have passed through the long spell of cold weather without sustaining much injury, though some of the outer leaves on old plants are dead or dying, the worst offenders in this respect being Sir Charles Napier and British Queen, and the least affected Vicomtesse Héricart de Thury. Young plants generally or those put out last autumn are looking as fresh and green as ever and promise well. Doubtless the covering of snow served to protect all the Strawberry beds, and if we hear of any cases of badly injured plants it will most probably be from districts where little or no snow fell either before or during the prevalence of cold weather. The frost has loosened the young plants considerably, and seeing that a firm root-run is most desirable, the ground about them ought at once to be well trampled, this being repeated should another severe frost be experienced. Warm weather will soon cause the plants to start into active growth, and before much progress has been made either above ground or by the roots, whatever transplanting is necessary ought to be completed. Strawberries can be moved more easily now than at any other period of the year. Strong plants may be moved and fruited with every prospect of good crops being obtained. For instance, a number of frames or pits might be planted with Noble, Vicomtesse Héricart de Thury, Auguste Nicaise, James Veitch, Sir J. Paxton, or any other early or second early variety, and good supplies of fruit be obtained long before any in the open are ripe. Frame and pit culture of Strawberries greatly relieves the strain in forcing houses, the gardeners in charge of which are called upon to provide abundance of fruit, say, from the end of March till the outside crops are available, plants in pots under glass being a great nuisance, especially late in April and during May. If pits and frames are prepared for batches of plants brought in from the open any time during February and March, it is advisable to provide a gentle hotbed, formed, say, of a mixture of partially exhausted leaves and manure, with a little fresh added. This should be made firm and have a layer of short manure placed on the surface, on this being disposed at least 6 ins. of good loamy compost.

It being of the greatest importance that Strawberries under glass receive plenty of light and sunshine, it follows that the beds should be raised so as to bring the plants when first put out almost close to the lights, sufficient head room being obtained later on owing to the settlement of the heating material. In heated pits it ought to be possible to gather ripe fruit from lifted plants by the middle of April or even earlier, but in unheated pits and frames the crops will generally ripen during the month of May. In each and every case the preference may well be given to strong young plants or those layered last July, and these should be moved with a moderately large ball of soil about the roots and firmly replanted. Crowding would be a great mistake, but seeing that this method of culture entails staking up the clusters of fruit, there is no reason why the plants should not be disposed about 12 inches apart each way. These must never be allowed to become at all dry at the roots, abundance of water and clear liquid manure, or, better still, a surfacing of some kind of special manure, being given directly the crops are set. During the flowering period air ought to be given freely, and if necessary artificial setting be resorted to. Dusting with tobacco powder, followed in the course of a few hours by syringing, is the best remedy for green-fly. Frequent overhead syringing will keep down red spider.

It may not be possible to adopt the foregoing practice in every case, but that is no reason why some other method of forwarding Strawberries should not be resorted to. Raised borders at the foot of sunny walls are capital positions for growing a few early dishes of Strawberries. Naturally, the plants would do better if already established in such warm quarters, but they may be moved to them and good crops gathered from a week to a fortnight earlier than can be obtained in more open spots. We had ripe fruit of Noble from plants at the foot of a south wall during the third week in May last, or about a week in advance of those grown on a sloping south border near at hand. A flat-topped ridge formed with rich loamy soil 6 inches deep and 1 foot wide is ample, and the Strawberry plants can be put out and grown in these for a few months without detriment to the wall trees. Young plants, in addition to being easily moved, are the earliest to flower and ripen fruit. In many places there are spaces against the south front walls of forcing houses, vineries and such like that might well be utilised for the production of early crops of Strawberries. All that is necessary is to form a raised bed of rich soil about 8 inches deep and 3 feet wide or thereabouts, little or no heed being paid to the nature of the ground underneath. Plant the Strawberries firmly in this in three rows, mulch with strawy manure, protect from frosts when in flower, and keep them well supplied with water in hot or dry weather. For these early crops young plants of the earliest varieties are, as before stated, the best, these only being retained one season. We have a well established lot of Noble against the front walls of a vinery and Fig house, but should have no hesitation in bringing strong young plants from other parts of the garden to the same position if need be, having done so in former years with the best results.

Late dishes of Strawberries are quite as much appreciated as are early ones, and it behoves every gardener to prolong the season to as late a date as possible. Much may be done by varying the sites of the beds, the latest gatherings being naturally had from the plants in the coolest quarters. North borders are sometimes utilised for the production of late Strawberries,

but they will not always succeed in such positions. Either the plants refuse to grow strongly, or else fail to flower freely and a poor crop results. When, however, a number of plants are grown in the open and transplanted to the north or other cool borders, they rarely fail to produce good crops which ripen after all the fruit grown in the open is over. Last season we had several good gatherings from about 100 plants of Sir J. Paxton, moved early in the spring to the foot of the coldest wall in the garden. They were planted on a ridge of fresh soil close up to the Morello Cherry trees, and this year still more plants will be transferred to this border. The variety mentioned being of strong constitution and a good bearer, the latest fruits on the plants swelling to a serviceable size, is one of the best for the purpose, but other sorts might well be given a trial. There is no reason why older plants should not be moved to these cool sites. W. IGGULDEN.

MOVING LARGE PEACH TREES.

It is possible that now and again unforeseen circumstances may occur which necessitate the moving of large Peach trees in houses in the winter or spring in the way instanced by Mr. Iggulden (p. 80). Where a reasonable amount of forethought is exercised, and preparations made the summer previous to removal, there need be no deficiency in the crop the next summer, provided the trees are not past the age and size to admit of removal, and are in a satisfactory condition as regards health and strength. When work of this sort has to be done I give the roots of the trees to be moved a thorough soaking immediately the fruit is off, and at once open a trench round, and cut back the whole of the roots, filling up the trench in the ordinary manner. In the majority of cases where Peach trees require to be moved in houses in the way under notice, it is early or midseason varieties that have to be dealt with; consequently the crop is cleared in time enough to enable the trees to push a healthy lot of young roots after being cut round that will admit of removal, whilst the leaves are still in a condition to help root action and to mature the buds for another season. When the trees are prepared by cutting back the roots in the manner described, and the necessary care is exercised in taking up and planting, they do not feel the removal so much as when there is no preparation. By shading the roof for a week or two and keeping the house a little close and syringing the trees overhead, the leaves are not thrown off to such an extent as to interfere with the maturing of the wood.

Doubtless the nature of the soil in some cases has something to do with Peaches being shorter lived in some places than in others in the way that Mr. Iggulden speaks of. More than one place that had this character, both in houses and on open walls, has come under my charge, but copious applications of water to the roots and keeping the tops thoroughly clean have remedied the evil. I should advise Mr. Iggulden, when he thinks he has given his trees as much water as he supposes necessary, to let them have as much more, and see what effect that has. To a certainty it will do no harm, provided the drainage is right. In a good many cases that have come to my knowledge, the application of water to an extent that many would think unnecessary has stopped or greatly reduced the dying off of large branches. Peaches, in speaking of which it is needless to say Nectarines are included, are water-loving subjects to an extent that no other fruit-bearing trees equal. To do justice to them, it is not alone whilst top-growth is going on that the roots like moisture, but they are also benefited by much more in the winter than they often get when their roots are in inside borders. The Peach, more than most deciduous trees, is never wholly at rest. In proof of this, one has only to notice the way the fruit-buds keep on moving, especially when grown under glass, from the time the leaves fall until they begin to show colour

in houses where no heat at all is applied till the bloom is about to open. Yet it often happens that from the time the wood is beginning to mature in autumn until the bloom is near expanding, little or no water is given. The result of this is that the soil does not contain anything approaching the amount of moisture the roots should have. Not that I for a moment suppose that Mr. Iggulden allows his Peaches to get dry in the winter to the extent I have instanced. Yet there are plenty who do, and still manage to get fair crops for a time, but the trees are generally short-lived. Where the surface soil at all approaches a light nature and the subsoil is open or porous, as a natural consequence the trees require the most water, and suffer most from any deficiency. To mildew, aphides, and red spider, which Mr. Iggulden speaks of, are attributable a good many of the failures that take place in Peach growing, especially on open walls. But injury from these pests can be prevented, and should not be allowed to occur.

T. B.

TEMPERATURES—DISBUDDING VINES.

IF "Pot Vine" has ever had any experience as a calendar writer he must be well aware that it is not possible within the limits of a short paragraph to state the "why and wherefore" for every hint given, and there are other disadvantages under which the writers have to labour. Whether under the circumstances I am justified in departing from the orthodox lines is a moot point. Evidently "Pot Vine" is of the opinion that the proverbial, yet vague advice of giving a "chink of air on all favourable occasions" ought not to be departed from, though doubtless he would have me further vary this by adding "more or less" after the word air. I have been a calendar writer for a considerable number of years, and during that time have always been prepared to defend any remarks that have fallen from my pen, especially when a critic quotes fairly. This, however, "Pot Vine" has not done. What he contrived to do was to jumble up advice given in two distinct paragraphs relating exclusively to the earliest Vines, than which nothing could well have been more unfair, as it would lead readers to infer that I advocate treating Vines generally the same when they are in flower as prior to that critical stage. Admitting a little air is advisable in the morning, or say from 11 o'clock to midday, during the flowering period for the purpose of drying the pollen, but even this is not absolutely necessary in the case of Black Hamburgh and other free setters somewhat hard forced. The value of a change of air has long been much overrated, especially in the case of all heat-loving plants. A current of cold air passing over delicate plants is most harmful, and I fail to see what good purpose it serves. In a house where pot Vines are grown there is every probability of there being more ammonia in the atmosphere than there would be outside, and what else of any value can be admitted? Who can prove that "sweet air" is either required or beneficial in this case?

It may be a surprise to "Pot Vine" and others to hear that it has been my lot to have charge of early vineries the ventilators of which were never opened till the ripening period had arrived, and yet no fault could be found either with the state of the wood and foliage or the colouring of the berries. What the foliage requires and must have is plenty of light, and if high night temperatures and a less free use of fire-heat are avoided, the foliage will be stout enough for anything. Surely "Pot Vine" must be well aware that some of the most successful Cucumber growers never open their ventilators, yet no fault can be found with the state of the foliage on their plants. He will find if the plan is given a trial, that finer leaves are produced by plants grown in houses kept rigidly closed than are usually to be seen in houses where air more or less is admitted on all favourable occasions, while there can be no comparison as regards the rapidity with which the fruits are grown, or of their superior quality. Nor is it necessary to give air to a great variety of stove plants, including Stephanotis, Allamandas, Eucharises, Pancratiums, Ixoras,

Dipladenias, Crotons, Dracenas, and Pandanus, provided these can be kept well shaded during the hottest part of the day. We never open our Peach houses after they are once closed till the flowers are opening, and the earliest permanent Vines are very similarly treated, fluctuations being perfectly harmless and even preferable to any hard-and-fast line, and which may necessitate the use of much fire-heat or the admission of fresh air in considerable quantities. If all houses were similarly constructed and heated, fixed rules would be more safe and satisfactory; but, under the circumstances, what may be perfectly correct and safe in one case may be faulty in another.

When we come to the disbudding question, I must confess that he has met the case fairly and well. I do not withdraw my remark to the effect that "not much disbudding is needed by pot Vines," but would supplement this by a few further explanatory remarks. What I meant was simply this: There are no old spurs clothed with several shoots on pot Vines, as is the case with those permanently planted, though many of the joints frequently do push two shoots from one bud. The weakest of these I certainly do remove, but not another lateral growth is ever wholly removed by me, nor ever will be. It does not follow that all are left to a considerable length, but when the bunches are selected the other laterals are shortened to the third or fourth joint, and I am firmly of opinion that their retention is beneficial rather than otherwise. Our earliest Vines, whether in pots or planted out in narrow pits, are all trained up the roof, and not being unduly crowded, plenty of light reaches the bunches. The "multitude of shoots" alluded to by "Pot Vine" were never yet seen on pot Vines, while if he follows the plan of going to the other extreme and leaves only a few more lateral growths than there are bunches on the Vines, I can quite understand why so few fresh roots are formed. Vines in pots, properly attended to, ought never to flag. According to the theory propounded by my critic, hard disbudding is resorted to in order to save the watering-pot.

PRACTICAL.

Apricot Moorpark and others.—I can assure Mr. J. Hinton, THE GARDEN, Jan. 31, 1891 (p. 104), that many others are in a similar position as regards canker in the above variety. I have tried several so-called remedies, but the trees soon go wrong again. It is impossible to arrest it in the case of old trees, and the best remedy was to allow them to make more wood, that is, to grow freely and not prune so much. I believe canker is often brought on by excessive pruning, as I have observed that in the case of young trees allowed to grow rapidly to cover a large space there is no canker so long as the trees are allowed to make an abundance of wood. Strong manures encourage it, and thus a coarse growth is secured only to become a victim to the disease. A well-ripened sturdy growth often resists canker, as many Apricots canker badly as soon as the growth is checked by excessive top pruning. The question is also asked if there are other varieties as good as the Moorpark, but less subject to the disease. I do not say that the flavour is quite up to that of the fruit of the Moorpark, but it is not far behind in the following varieties: I have for years discontinued growing Moorpark, and have substituted New Large Early and Peach (Grosse Peche of catalogues), and am pleased to say that I have good crops and scarcely any canker. New Large Early gives good-sized fruits, earlier than Moorpark and of a rich flavour. When living in Gloucestershire and on a loamy soil, as described by your correspondent, with abundance of lime, I could not grow Moorpark, and tried Large Early with good results. I also tried several other kinds both in a case and fully exposed, but could not succeed with Moorpark for any length of time. No doubt there are other varieties as good, but I prefer the two named, and if planted in good loam, lifted every two or three years, and the manures placed on the surface so as to keep the roots at the top, much may be done to check canker (if the knife is sparingly applied).

Lifting will check a too robust growth and prevent disease. Disbudding can take the place of excessive pruning, a point often overlooked in Apricot culture, as by equally distributing the flow of sap the trees will be healthier and a proper degree of vigour maintained. Summer stopping or pinching also tends in the same direction.—G. WYTHES.

FRUIT IN UNHEATED HOUSES.

I FEEL sure if more space under glass could be given to the culture of Pears and Cherries (also Plums in the far north) the crop would well repay the outlay. When spending a few days in the north last September I paid a visit to Dalkeith Palace Gardens, and the Plum house there presented a splendid sight—a long lean-to unheated house with trees trained to wire trellising at the back wall, and others at the front trained about halfway up the house, were in excellent health and full of fruit. They have never failed to give a crop of fruit of the best quality. These trees, Mr. Dunn remarked, gave little trouble, and only required occasional lifting when they grow vigorously. Having the roots under command near the surface they can be fed and thus produce abundant crops. I observed that these trees are all on the common Plum stock and growing in ordinary soil, that is, the natural soil of the garden, the best of the kinds being Early Transparent, Jefferson's, Kirke's, Transparent Gage, Coe's Golden Drop, and Reine Claude de Bayay. The first-named bears fruit of exquisite flavour. I feel sure that this selection of good dessert Plums would be difficult to beat. To get such fruits every season, even in years when the outside supply is a failure, should commend this system of cool house culture to those with means, and who desire a good supply of choice Plums at little cost and trouble. The soil at Dalkeith is of a light sandy nature, the subsoil being gravel, therefore not the best for Plums, but it is surprising to see how well these trees do with good cultivation, liberal manuring and plenty of moisture. The greatest difficulty in growing them under glass is the attention they require in the way of moisture; therefore to do them well this must be taken into consideration, as where there is neglect they soon go wrong, so that in the case of a deficiency of labour it is useless to attempt to grow Plums under glass. I certainly think that Pears and Cherries should be grown in preference to Apples and Plums in those places north where the crop is precarious. I much admire the grand fruits of Apples often exhibited, but think if I had the room, Pears and Cherries would find the first place, and I should say give a better return. Some time ago I had a cool lean-to house on a west aspect devoted to Pears, and they well repaid outlay and gave us splendid fruits, far superior to imported examples both in flavour and colour. Often a wall devoted to Pears could be covered in with a glass case, and would in a few seasons repay the cost by the quantity and quality of fruit produced. In many instances in cold Peach houses a small space could be devoted to cordon Pears and Cherries, and though I am no advocate for mixing these hardy fruits too much, owing to the difficulty at blooming and finishing at different times, still with care much can be accomplished in cool houses. Those who have seen the Cherries produced by Mr. Rivers annually in unheated houses will see the difference in the finish, size, and flavour of the fruits to those produced in the open on walls. No doubt much of this finish is due to better culture, thinning the fruits more severely than in the open, and feeding. Still when under glass much better results are secured and the wood gets well ripened; thus a good set is secured to a large extent independent of climatic influences.

Much can be done in the way of trees in pots, thus prolonging the season, but these absorb a great quantity of moisture when in active growth, and to do well need repotting frequently, shortening back the large roots, and exposing in the open for a time. Plunge the pots in ashes or some suitable material. I consider trees planted out in proper houses, or even a lean-to case against a wall, much the best and give least trouble.

A good loamy soil of fair depth and free from

stagnant moisture is what these fruits like, and when it is of a heavy nature, burnt soil, charcoal and mortar rubble well mixed with the heavy material, adding some half-inch bones, will bring it into condition, as when too much manure is used it only encourages a sappy growth. All feeding must be from the top so as to keep the roots near the surface. The trees will often thrive for a time in unsuitable soil if well drained. Still much can be done to assist the roots and encourage them to the surface. A well-prepared border at the start will go a long way to prevent canker and gumming. Much can be done to prevent too vigorous growth by lifting and getting the roots near the surface, and by timely attention to details. A cool house for the production of the above choice fruits will give real pleasure besides being a profitable undertaking.

GEO. WYTHES.

LATE DESSERT PEARS.

It is gratifying to find oneself so nearly in unison with such authorities as "T. B." and Mr. Bunyard (pp. 82 and 83) upon the subject of late dessert Pears. There can be no doubt that an enlarged interchange of the opinions of practical, observant growers may be relied upon as a means of diffusing sound knowledge, interesting and profitable to not a few readers. There appears to me a fine open field for hybridisers in the direction of raising late Pears, and the man who first succeeds in raising a race of Pears having the qualities of midseason kinds, in conjunction with long, late keeping qualities, will realise a fortune thereby. The great drawback is the length of time required to prove the seedlings. Of course raising Pears is perhaps a slower process still than the planting, hence the reluctance to embark in an enterprise whose results appear so remote. It requires very considerable enthusiasm to undertake a work so uncertain, and which in all human probability life is too short to complete. Nevertheless, my optimistic opinions are sanguine enough to look upon this matter as being within the range of not far-distant probabilities, seeing the skill and energy that are being developed on every side in this great hardy fruit-growing question. It appears somewhat strange that nearly all our late Pears possess French prefixes and names which appear suggestive of their having been raised in France, and that French raisers only had hitherto been engaged in hybridising late kinds.

If my surmises are right, it is fairly reasonable to doubt their suitability to the conditions of our climate; therefore we are on the wrong tack. Ever since the days of Knight, more than half a century ago, I am unaware of the identification of any English raiser's name in connection with late Pears that have made any stand, or come up to the required standard, although the names of Rivers and others appear amongst the early and midseason sections.

The uncertainty of a gardener's tenure of office also prevents the whole body of gardeners from entering the field as hybridisers of late Pears. Respecting the serving of late Pears with "the chill off," and the preparation of the fruit in a warmer temperature before using, there is a good deal in this, and a very amusing illustration was given by Mr. J. Wright at the Pear Congress at Chiswick in 1888, and how an employer failed to recognise his own Pears, so improved were they by the above treatment. I grow nearly 100 kinds, including nearly all those kinds enumerated by Mr. Bunyard, principally as bushes, as west or south walls cannot be found for that number, except as cordons on Quince, and they are not quite satisfactory. At all events, the experience gained does not yet warrant my recommending his supplementary list. I am rather sorry he classes *L'Inconnue Van Mons* as being too small, and I send herewith a fair sample. This kind crops well, is of good flavour, doing well as an open standard on our strong clay loam, being a fit companion for *Josephine de Malines*, but later. The tree is a more erect grower than *Josephine de Malines*, and in appearance the fruit is much like that of *Beurré Rance*, perhaps smaller, through heavier cropping.

Knight's Monarch is nearly always a failure with me, owing to premature dropping, and this is not owing to any dryness at the roots. So far I have been baffled to know the reason why the fruit persists in falling so early. The fruit seldom ripens up properly, but shrivels and becomes extremely tough.

W. CRUMP.

Madresfield Court.

* *L'Inconnue Van Mons*, as received, was of medium size, the flesh being firm, juicy, and rich.—ED.

PRUNING YOUNG VINES.

I HAVE reason to think that many cultivators make a mistake in pruning Vines for the first and second year after planting. As this is the season to carry out such work, a note on this subject may not be out of place. Except in special instances—such as planting Vines for a temporary crop of fruit—Vines are planted with the idea that they will last in bearing condition at least fifteen years, and in many cases good fruit may be gathered from them for double that time if treated properly from the time of planting. But where a number of houses can be devoted to Grapes with a view rather to produce show bunches for a few years and to remove the Vines and border, planting a new set of canes, the pruning may be carried out differently. The mistake is made in pruning young Vines the first year after planting by not cutting the rod low enough, too much of the previous season's growth being left, which renders the base growths very weak the next year. I have seen young Vines allowed to extend 4 feet and sometimes more up the wires, the result being that three or four of the growths at the point grow vigorously and those buds near to and at the base break slowly and grow indifferently the following season. The general system practised in planting young Vines is to cut them back to one or two eyes at the base close to the soil, or to prune to within a couple of feet and disbud afterwards to the basal eye. The next and what is the first growth after planting is restricted to one shoot, which is encouraged to grow as far as possible up the rafters. It is in the cutting back of this shoot or cane that mistakes so often occur. What I hold to be the correct method is that of allowing merely for the provision of a pair of side shoots and the leader beyond the first or bottom wire. Pruning of this kind would require that three eyes only should be retained beyond the wire, which is generally arranged to be from 1 foot to 2 feet above the border and at about 1 foot from the front lights. Keeping in view the idea that the said Vines are to continue in bearing over a number of years, it would not be wise to allow them to produce many bunches of fruit. My plan is to allow one bunch for the first year just to prove that the variety is true to name. The leader, through being cut back so far, generally breaks strongly and maintains a vigorous growth during the whole season. The next or second pruning the Vines will require is equally important. The cane or leader should be pruned to a length which will allow of two pairs of shoots on each side as well as a leader, making in all five promising buds. It sometimes happens that the previous year's growth was very short-jointed—so much so, that if every bud were allowed to grow, the following season the side branches would be too much crowded; therefore an extra pair of eyes must be allowed to the cane, removing those growths below by disbudding when it is seen that they are likely to be too thick for future development into fruiting spurs. It is a very great mistake to allow the side shoots too little space for development. The way in which certain varieties grow in different localities must determine this, as I have seen *Black Hamburgh*, for instance, grow very much stronger in one locality than it does in another, owing presumably to something contained in the soil which was better suited to its requirements than in another district. Local circumstances will somewhat guide the cultivator in determining the number of side branches to leave in a certain space on his Vines. The great point to bear in mind is to allow sufficient room for the foliage to develop fully, two or three full-sized, and in consequence

thoroughly matured, leaves being of far more use to the Vines than three times that number, but small and cramped. As regards the regulation of the shoots, this depends greatly upon the manner in which pruning is carried out. With regard to cropping the Vines, no one would think of allowing each Vine to carry six bunches, which would mean one to each side shoot. It is a recognised plan not to allow the leader to bear any fruit at least for the first five or six years. Four bunches instead of six would be ample for Vines two years planted, bearing in mind, of course, the ultimate period over which the Vines are supposed to carry fruit successfully. If then four bunches are considered to be a good crop for Vines so young, under the method of pruning which I have recommended we have choice of six shoots to each Vine to obtain the four bunches of fruit, as every shoot can be depended upon to show a bunch each, and in nearly all cases more bunches show on one shoot than are required. Often as many as three will form on one shoot. I ask, then, what is the use of allowing more length of rod than that advised to obtain the number of bunches which most people will consider a good crop? I have seen plenty of instances this year where young Vines have been spoilt through mismanagement in this respect. One case in particular came under my notice where the Vines had been allowed to extend the second year of pruning to even 6 feet, and in some instances 8 feet of leader had been allowed to remain, the idea of such a method of pruning being to cover the trellis quickly. The Vines in question had broken so weakly, that the gardener in charge was afraid that he would not obtain a crop at all from them, and could not understand the cause. Vines thus pruned never grow so strongly in the stems, nor so uniform their whole length as those which are subjected to a more moderate system of pruning. Many bare, or almost bare spaces could be traced to faulty pruning in Vines at ten or a dozen years old. There are certain parts of the Vines which do not break so regularly nor grow so uniformly as other parts of the same Vine, for the reason that their strength has been crippled in the early days of growth, many of the shoots being weak and spindly, due to no other reason than faulty methods of pruning. Many growers are too anxious to see the rafter space covered in the quickest manner possible, which I hold to be a great mistake. I have here a house of *Muscat of Alexandria* Grape which was planted eleven years since and pruned in exactly the same way as I have here explained, and which has never failed to produce good crops of fruit, promising also to continue as many more years.

E. MOLYNEUX.

Plum Oullin's Golden.—Given a fair trial, this variety is sure to give satisfaction. It requires a rather warm position to bring it to perfection, but it merits favourable treatment owing to its earliness. Exhibitors, whether of collections or single dishes of fruit, are often at a loss for a good dish of Plums during the first fortnight, but those in the more southern districts will not often be so situated if they plant two or three trees of the variety under notice. A south-east or west aspect suits it well, and it is one of the best for either fences or the walls of living houses. The habit of growth is distinct and pleasing, the branches being sturdy and not very plentifully produced, while the foliage is bold and not so much liable to be overrun by aphids as other varieties that could be named. Quite young trees bear well with us, the fruit swells to rather above medium size, in form somewhat resembling the *Gages*, and attains a rich golden colour. The quality is first-rate, and all things considered, it is one of the very best dessert Plums in cultivation.—F.

Fruit prospects.—It is yet somewhat early to discuss the probability of fruit generally being very abundant during the present year, but everything points to that desirable consummation. I never saw the Pear trees both against the walls and in the open better furnished with fruit buds, and a similar remark has been made in my hearing by several others interested in fruit culture. It yet remains to be seen whether or not these buds have been

injured by the long spell of severe frosty weather. Some of them were very forward last autumn, in some instances bursting into flower, and it may be those not so far advanced have been damaged. I do not like the colour of the centres of some of the buds I have tried, but in any case there is every likelihood of plenty escaping uninjured. Apples, where not heavily cropped last season, are also very promising, and in this case I feel confident the buds are sound enough, though many of the spurs may have suffered. Apricots are beautifully set with fruit buds. Peaches are in a fairly satisfactory state, and there is a good promise of bloom on the Plums generally. At present the Gooseberry buds are undisturbed, fewer bullfinches being seen than usual. Cherries never seem to fail to bloom well, and all are studded with flower-buds this season. Even the Filberts are flowering abundantly, these being among the first of either trees or shrubs to show colour. Unfortunately, the catkins are damaged by frosts.—W. I., *Somerset*.

MADRESFIELD COURT GRAPE.

"RURAL" does well to draw attention to this noble Grape, but when we come to consider its defects, such as that of the cracking of the berries and the difficulty some experience in colouring the berries properly, then Madresfield Court will not compare with that old favourite Black Hamburg. I have seen instances of the berries of Madresfield Court cracking to a greater extent when grafted upon Black Hamburg than when growing upon its own roots. This occurred in the same house, both Vines being subjected to exactly the same treatment; still the grafted plant gave much the poorer result, and was eventually cut out in consequence of this defect. We have Madresfield Court growing with Black Hamburg and Buckland Sweet-water in the early vinery, and in the late vinery along with Alicante, Lady Downe's, Mrs. Pince, and Gros Guillaume, and in neither house do the berries crack, the same treatment being accorded to one variety as to the other. "Rural" says, "The fault is really atmospherical." He also says, "The same treatment which will swell up a Hamburg to its full size causes cracking in the Madresfield." These reasons may be right, but in our case they are not, because the fruit of Hamburg which we are able to grow in the same house with the Madresfield has been good enough to win many prizes; still the Madresfield has not cracked. My opinion as to the true cause of cracking is that the skin of the berries of this variety is so thin as not to be able to bear the pressure put upon it when the Vines are vigorous. I know places where this variety has been tried in all manner of ways as far as the atmospheric conditions went, but with the same results—cracked berries yearly. In one particular case I noted the sublaterals were kept closely pinched in. I advised then what I have always thought and proved to be the best preventive of cracking, viz., an unlimited run of sublaterals just at a time when the greatest strain appeared to be put on the Vines—when the berries commenced to colour. I have never seen the berries crack before that period or much after. Certainly this variety is one of the best to cultivate on the extension principle, the growth being rapid. A house can soon be filled with one Vine by laying in additional canes each year.

Some years since this variety succeeded so well on the extension system that it quickly filled the whole house in which it was growing, and to give more space it was allowed to run through the partition of the adjoining compartment, which if I remember right had an eastern aspect in the then famous vineyard at Garston, near Liverpool. The bunches there were not remarkable for their size, but the berries were. I do not mean to say that the treatment recommended by "Rural" relating to the atmosphere and the cautious regular manner in which air is admitted to maintain the air in a buoyant state is not the correct treatment, but what I mean is that this is not the only remedy by which the cracking may be prevented. As I have pointed out, atmospheric treatment only will not in some cases prevent the mischief being done. Therefore,

I would advise all who have hitherto been troubled with the cracking to allow the sublaterals free extension at the time when the berries commence to colour. No harm can possibly be committed by following this advice. Although this variety is a vigorous grower, it is surprising what fine bunches and a number of them are produced by comparatively small wood. There is no doubt but that thorough ripening of the wood has much to do with the finishing of the berries both in colouring and other respects. E.

Plum de Montfort, though seldom met with, is yet a valuable early variety, and with us proves an admirable companion for Oullin's Golden. It is not nearly so sturdy in growth, but no fault can be found with its productiveness. The fruit, of much the same shape as Jefferson's, is of a bright purple colour, the bloom being thin, and ripens from the beginning to the middle of August, or according to the season. Quality and keeping properties both decidedly good.—W. I.

American blight and canker.—Mr. H. Smythe, of the Centurion and Dyke Road Nurseries, Brighton, writing on this subject to the *West Sussex Gazette*, says:—

I am sorry to hear daily complaints from other fruit growers concerning a terrible enemy we are troubled with on fruit trees, viz., the well-known American blight and canker. If these two evils are taken in time they can be destroyed, or rather prevented. This is the proper time to do so, by using this lotion as prescribed: 7 lbs. fresh lime, 4 lbs. sulphur, 7 lbs. soot, 2 pints paraffin, 1 pint boiled oil, 1 oz. nux vomica, put into a tub and well stirred in boiling water to the thickness of paint, and allowed to stand until cold. Paint the tree all over where the blight is, and see that the mixture penetrates into the cracks. It is advisable to keep this through the season and use at any appearance of the blight. In the case of the canker a sharp knife is required to clean out all the dead bark, until the appearance of the green and healthy wood, a mixture of cow manure and sulphur with a little boiled oil being placed over the cuts. This prescription I used some years ago, and cleared the orchard at The Wick, Hove, in less than two years.

CHRYSANTHEMUMS.

THE REGISTRATION OF NEW CHRYSANTHEMUMS.

A SHORT time previous to his death the late Mr. William Holmes consulted me, as the secretary of the National Chrysanthemum Society's Catalogue Committee, upon the advisability and possibility of instituting an official register of new Chrysanthemums. It was felt that if nurserymen, importers and raisers of new varieties could be prevailed upon to send in the names and descriptions of the new flowers they proposed to offer for sale, there would be the advantage of some official sanction to the names adopted, and thus the multiplicity of reduplicated names might in the future be effectually stopped. In addition to the mere question of nomenclature, absolute identity might by this means have been established. Under the present system the floral committee have little or no opportunity of satisfying themselves that the varieties submitted for adjudication are really those sent out under the names in which the exhibitor stages the flowers. It often happens that a popular name is appropriated by several growers unknown to one another; whereas if application were previously made to a central body like the National Chrysanthemum Society, such a thing could not be allowed to occur. A rule to the effect might perhaps have been necessary, but it would, of course, only have been binding upon members. The advisability of some such understanding among seedling cultivators is apparent, and its possibility depends solely upon a combined action of American, English, and French Chrysanthemum growers. This seems to me an arduous task for anyone to endeavour to bring about. The labour involved in working out the scheme suggested, the heavy correspondence it would have involved, the checking and comparing of the lists of names submitted for approval I could never have found time for, and so the entire proposal, although meeting with my approbation,

was allowed to lapse. At the present time there are probably 500 new Chrysanthemums announced for distribution for the year 1891, and on looking over the preliminary lists, but especially the French ones, it is, after having laboured some years in the cause of Chrysanthemum nomenclature, almost heartrending to find that matters seem to be going from bad to worse.

The English nurserymen seem to me to be the most likely to suffer, although the amateur grower cannot hope to escape. We have already many instances of flowers being called after ten, twelve, or even fourteen members of the same family, with perhaps merely a slight shade of difference in the Christian name or initial. It is in practice impossible to guard against little clerical errors in writing such names, and then, of course, the trader who supplies what is ordered, but not what is really meant, gets blamed for not acting honestly in his business. To recapitulate instances in the past is of little service, because nearly all discoveries of the nature complained of have already been noted and accurately entered in the new centenary edition of the National Chrysanthemum Society's catalogue. The fresh instances to be pointed out this year are, however, just as numerous as ever—probably more so. The first French list I take contains thirty-two new sorts, ten of which have names long in use before to designate other varieties. Among new names there are two M. Dupanloup, two M. Maxime de la Rocheterie, but these are comparatively trifling when we discover in another list four flowers named after people called Devered, five flowers after the Briailles family, four bearing the surname of Lionnet, and three that of Cassagneau.

It must not be thought that I have pointed out anything like the whole of the cases where reduplication has occurred; the catalogues have only just become to come in, and I have merely quoted a few of the worst first fruits. From a correspondent in America I learn that upwards of 200 new seedlings have been registered with the American National Chrysanthemum Society. It would be instructive as well as interesting to learn something about that society which over here is known merely by name at present, and in what way their register is managed. C. H. P.

Chrysanthemum Frank Wilcox.—This has been described in various catalogues, including that of the National Chrysanthemum Society, as an amber-coloured flower belonging to the reflexed section, but the description scarcely does justice to its bright and distinct shade. The petals are really light crimson with a peculiar metallic lustre, while they turn up slightly at the edges and show the yellowish reverse; thus each petal appears to have an edging of that tint. As far as I have seen, they are too short and the centre not sufficiently filled for it ever to become popular as a show flower, but as a bush plant it is very beautiful, and would also be useful for cutting, for the blooms are of a decided tint, of a useful size, and, what is of great importance when used for vases, the stems are stout and maintain the flower in an erect position without support of any kind. It is an American variety, having been sent out two or three years since, but it is never likely to become very popular, as the merits of these purely decorative varieties are generally overlooked.—T.

Chrysanthemum Golden Gem.—This Chrysanthemum stands without a rival as a late yellow. The cuttings were propagated at the end of March in a little warmth. When well rooted they were potted singly into 3-inch pots and returned to a garden frame, which was kept close, giving them more air as growth increased. When the pots were full of roots the plants were potted into 6-inch pots, and as soon as established they were removed to a warm, sheltered spot in the open air. These pots were filled with roots by midsummer, when they were shifted into 8-inch size, and placed with the rest of our collection. After these plants got established in the pots, about the middle of July the shoots of each plant were stopped. This caused them to give several breaks. All of these were allowed to grow untouched from this time, and they did not get disbudded, except

it was a very small bud down the stem. All our plants were housed at one time in a cold Peach house. From here they were brought into a greenhouse as they became forward enough. We keep the worst frost out of the Peach house with an oil stove till well into December. I have now a dozen good blooms of this kind.—J. CROOK, *Forde Abbey*.

ROSE GARDEN.

ROSE CHESHUNT HYBRID.

THE annexed woodcut gives a good idea as to the fine habit and free blooming character of this hardy, handsome, and useful Rose, the specimen represented being an example of the fine effect to be obtained from a well placed plant of this Rose. Cheshunt Hybrid was one of the first hybrid Teas. I think La France was the first hybrid Tea that came out. The latter, however, was sent out, and is still classed as a Hybrid Perpetual; therefore, I think I am correct in stating that Cheshunt Hybrid was the first Rose actually sent out as a hybrid Tea, and therefore the original representative of the newest departure in Rose raising which has been the means of developing such fine sorts as Lady Mary Fitzwilliam, Grace Darling, Viscountess Folkestone, &c.

As the name indicates, the first hybrid Tea owes its origin to Mr. George Paul, from whose famous Rose gardens so many good and beautiful Roses have been distributed. Cheshunt Hybrid is certainly one of the most useful Roses we have; it is good alike for covering a wall or fence, makes a handsome pillar Rose, and succeeds well as a cut-back either in the form of a standard or bush, producing in great abundance large, rich carmine-coloured flowers, which from the bud to the half expanded stage are very beautiful. Amongst its other good qualities this fine Rose has the additional virtue of thriving in the neighbourhood of towns and smoky districts, while its only failing is that of not being such a continuous bloomer as one could wish.

Like all Roses with a dash of Tea blood in their veins, this variety thrives best on the seedling Brier stock, upon which it makes large and long-lived plants. As an exhibition Rose it does not now rank, but if we are to have Roses intended to supply cut flowers for our homes, natural and graceful effects of form and colour in our gardens, surely no lover of Nature would be guided exclusively by what was to be found in the "winning stands" only. I, however, well remember a wonderful stand of twenty-four trusses of this hybrid Tea shown by that famous exhibitor, Mr. Jowett, at the Hereford Rose show in July, 1881; all the blooms were young, and having been evidently cut at the latest possible moment were presented without having lost in colour in the faintest degree, thus giving one an opportunity of seeing what a beautiful Rose even from an exhibitor's point of view Cheshunt Hybrid is when seen at its best.

King's Acre, Hereford.

W. J. GRANT.

SELECTION OF ROSES.

I HAVE carefully gone through Mr. Charles Grahame's article in *THE GARDEN*. It is most difficult to write and make selections of Roses suitable at the same time for exhibition and for those who only want the best garden sorts. I give my views with pleasure, at the same time I have little doubt but that many will disagree with them.

From those named by Mr. Grahame I should omit—

Eugène Furst, E. Y. Teas, Sultan of Zanzibar, Mme. Joseph Desbois (a bad grower), Mrs. Baker (tender and uncertain), Pierre Notting (lucky to get one good bloom a year).

And I would add—

Annie Laxton, Dr. André, Duchesse de Morny, François Michelin, John Hopper, Mme. Isaac Perière, Mme. Lacharme, Mme. Victor Verdier, Marguerite de St. Amand, Marie Verdier, Mons. Noman, Sénateur Vaisse, Star of Waltham, Violette Bouyer.



Rose Cheshunt Hybrid on a wall.

Teas.—Ernest Metz, Souvenir de S. A. Prince, and Margaret Dickson have yet to be grown and seen more before placing them in the front rank.

Perhaps I would not approve of Mme. Lacharme were it not so difficult to find good white Hybrid Perpetuals, and my experience of it has been most satisfactory. One year at Rose show season I gathered scores of first-rate show-blooms off a bed I had protected with tiffany.

I fear that in the current season the blooms of Teas will suffer greatly from the recent severe weather having damaged the trees, as I hear on all sides of grave disaster, more especially to the dwarf plants.

BENJAMIN R. CANT.

Rose Triomphe de Rennes.—This, I think, is about the loveliest Noisette Rose we have for grow-

ing under glass on pillars or walls. When established in suitable soil it grows moderately strong—not rampant, producing in great profusion buds of just the size to be useful for either personal adornment or light decoration, the chaste beauty and delicately-scented primrose-coloured blooms being always admired. Its glossy foliage is also effective, and probably to the sheen on it, it owes its immunity from insect pests in a greater degree than its more tender-leaved brethren.

—J. R.

THE WEEK'S WORK.

FRUIT HOUSES.

MELONS.—The earliest-raised plants are invariably somewhat weakly, but they gain in strength rapidly if properly treated. No pots of seedlings ought to be pulled to pieces for the purpose of obtaining the strongest for potting off, the much better plan being to place a single sound seed in a 3-inch pot. Supposing the earliest sown to be making good progress, great care should be taken of them, a gain of one week being well worth striving for. From the first the plants ought to be kept carefully staked, and directly they are well rooted a shift into 6-inch pots should be given. Use moderately strong loamy compost well warmed through, clean pots lightly drained, potting carefully and firmly, and doing this where the plants are growing. Still give them the benefit of a brisk top and bottom-heat and all the light and sunshine possible. Plants intended for frames on hotbeds, or for low-heated pits should have their points taken out beyond the second rough leaf, but those to be fruited in houses ought not to be stopped, though side shoots should be early rubbed out. More seed may now be sown to afford plants for putting out in succession to the earliest raised.

The preparation of fruiting quarters ought to be proceeded with so that everything may be ready directly the plants are fit to put out. Once allow the plants to become badly root-bound, whether in small or 6-inch pots, and a check will be given from which they will not thoroughly recover. Whether the earliest batch of plants grown in houses shall be fruited in pots or on mounds or ridges of soil must be left to the grower to decide. As a rule, the earliest crops of serviceable fruit can be obtained from pot plants, and the heaviest and best from those planted out. In either case bottom-heat other than from hot-water pipes is useful for promoting a rapid strong growth, nothing answering better than a bed formed with well sweetened stable manure and good leaves in equal quantities. A depth of from 3 feet to 4 feet with hot-water pipes underneath is ample. If 15-inch pots are used, half plunge these in the hotbed and fill with strong loamy soil. For the other system, place small mounds of similar soil about 4 feet apart. When the soil is well warmed through and there is no likelihood of the bed becoming over-heated, the plants may be finally put out. First, however, see that they have a good soaking of water, then turn them out carefully so as to preserve all the roots possible and plant high and firmly. It is important that the latter conditions be observed, for should the stems be much buried canker may result, while solidity of root-run promotes a sturdy, fruitful growth. Very little water will be needed at the outset, but when growing strongly the plants must have an abundance. No shading ought to be necessary. The night temperature should range from 65° to 70°, and the top heat 70° to 75°, with a further increase of from 10° to 15° with sunshine, while the bottom heat may well be near 80°.

CUCUMBERS.—More daylight and sunshine, with an increase of temperature, will have the effect of recovering old plants somewhat from the stagnation of the past few weeks. It is advisable to allow a few young shoots to ramble freely and to gradually cut out the old bearing growths. When the former branch freely, as they soon will do, abundance of fruit will be produced. Overcropping, however, must be guarded against, or a serious check to the plant's progress will be given. Free top-growth will be accompanied by increased activity at the roots, and the latter should have the benefit of a top-

dressing of turf or light fibrous loam roughly chopped up, a little charcoal and some half-inch bones being mixed with this. If either mildew or red spider is troublesome, coat the hot-water pipes with sulphur mixed with either linseed oil or milk to the consistency of paint. In any case, syringe overhead freely towards midday whenever the weather is bright and clear, also frequently damping down the walls and pathways. There is no necessity to give any air for some time to come.

YOUNG CUCUMBER PLANTS ought also to be raised or hurried forward to succeed old plants in some cases, or to afford the earliest crops in others. Telegraph is still the most popular variety in cultivation, but there are other newer sorts well worthy of being grown alongside it. Lockie's Perfection is, perhaps, the handsomest variety in cultivation, but its constitution is not of the best. Veitch's Perfection is a very productive variety, and those who prefer somewhat small fruit of superior quality should give it a trial. Cardiff Castle possesses a stronger constitution, and produces abundance of short well-formed fruit of excellent quality. Model is also a strong grower, but bears freely, and the fruits are fit for exhibition. Much the same remarks apply to Allan's Favourite, a variety that produces extra fine fruit. The finest results, however, are to be had from Tender and True. The seed should be sown and the plants raised much as advised in the case of Melons, but, being more robust, they may be shifted direct from small pots into their fruiting quarters, though rather than keep them a few days in small pots after the latter are filled with roots, a shift should be given. An early crop could be had from plants in large pots while those planted out are gaining in size and strength. Train these up stakes till the trellis is reached, removing side shoots only, then turn them straight up the roof, and take the fruit from the laterals. Pot plants thus treated may be grown 3 feet apart, but those planted out should have much more space, a distance of 5 feet apart being the least that can be allowed. Hotbeds might be dispensed with where there are warm slate benches over hot-water pipes, but the progress made by plants receiving the benefit of a brisk bottom-heat generated by a bed of leaves and manure is by far the most satisfactory. A light turfy compost best suits Cucumbers, and failing fibrous loam, ensure porosity by adding to the best light loam procurable, mortar rubbish, charcoal, charred soil, and bones. Commence with small heaps and top-dress these as the roots spread through it. The temperatures recommended for Melons will also suit Cucumbers, and there is no good reason why all should not be grown together in the same house.

PLANTING VINES.—It is not yet too late to plant ripened canes, and the smaller these are the greater the likelihood of their doing well. In some positions moderately strong canes are absolutely necessary, this being especially the case when they have to be brought through from an outside border, or have to travel some distance before they come well into daylight. Vines intended to be permanent ought not to be allowed or expected to bear any fruit during the first season following planting, and the smallest are the least likely to long remain stationary after the stored-up sap is exhausted. In each and every case they should have their roots carefully separated from the soil, and this can best be accomplished by soaking the balls in a tub of water a short time. Avoid deep planting, but instead of this spread out the roots to their fullest extent, cutting away all damaged portions, and then lightly and evenly covering with fine and rather light soil, the collar of each Vine being only just covered. Cutting back at this late date will inevitably be followed by bleeding, though this does less harm than might be expected. Those who think otherwise may resort to disbudding, the uppermost buds or all down to the lowest point consistent with the surroundings being rubbed out as fast as they push. In the case of quite small Vines planted inside, these ought to be cut down or disbudded to the lowest joints. If the roots in either outside or inside borders are started with the aid of a slight hotbed, they will grow away

well from the first. The least that can be done is to cover the former with strawy litter.

PRACTICAL.

THE KITCHEN GARDEN.

TOP-DRESSING ASPARAGUS BEDS.—To secure strong and succulent shoots of Asparagus, the beds will now need attention in clearing off any weeds and top-dressing. The mode of procedure will depend principally upon the formation of the beds and the course of treatment they have hitherto undergone. It is an old, but wrong practice to fork over the beds in the autumn and apply a heavy dressing of manure, and at this season of the year to dress up the beds by digging the soil out of the alleys, paring down the sides of the beds, and piling the same on to the tops of the Asparagus. The result of this is that the roots in time are at a considerable depth below the surface and away from the beneficial influence of sun and air, the produce in consequence being very scanty and poor in quality. Digging the soil out of the alleys and paring down the sides of the beds cannot but have a very weakening effect upon the roots and succeeding crops. Unless in cold clay soils, raised beds with alleys between often give a scanty return, and, in addition to the roots receiving injury by being cramped and exposed, they suffer very much in times of drought. In those cases where the crowns are not nearer the surface than about 4 inches, and the crop has not hitherto been satisfactory, this may be improved by carefully removing the soil to this depth and spreading over the surface a layer of rotten manure and burnt garden refuse in equal parts to the depth of 2 inches. I should not spread any soil over the top-dressing. An occasional after-dressing of salt, soot, and guano in equal parts at intervals of a fortnight throughout the growing season cannot otherwise than be very beneficial to the succeeding crops. If the site is naturally well drained and the soil of a sandy nature, I should fill up the alleys level with the surface with rotten manure, burnt garden refuse, and soil in equal parts. Into this the roots will ramify, and in succeeding years the crop will be much improved.

BEDS ON THE LEVEL.—This is the best system in which to grow Asparagus, as the roots are equally over the surface and not liable to suffer from extremes of drought, or even by injury to the side roots. Beds on the level are generally very productive, especially where a top-dressing of rotten manure and burnt garden refuse is applied annually. On very light and sandy soils the burnt refuse might be omitted, but I have proved its value beyond doubt on a very heavy and wet clay soil. On cold clay soils, if planted directly on the natural level, the roots are apt to perish during cold and wet winters, and however beneficial moisture may be in the production of a good crop, when allowed to remain stagnant about the roots it kills these off wholesale. To overcome the difficulty on a cold clay soil and still have the bed on the level, the whole surface of the bed in our case was raised 18 inches above the natural surface of the garden, and better produce there could not possibly be.

FORMATION OF NEW BEDS.—Where there are not sufficient established beds, others should now be prepared, either for sowing seed where this course is decided upon, or for planting one or two-year-old roots. Of course it is too early either for seed sowing or planting crowns, as these latter more often than not fail to grow if planted before starting into growth. Where the site is well drained and the soil a light or sandy loam, trenching and working in a good dressing of decayed manure are all that is really necessary, and just previous to planting fork in a fair dressing of burnt garden refuse, or even good dry road scrapings. Ditch or pond clearings when sufficiently pulverised are excellent for working into Asparagus beds. Thick planting should be avoided, this alone very often causing weak growths. The plants should be 2 feet apart and the same distance between the rows, and between every second and third row 3 feet.

RHUBARB—ESTABLISHED BEDS.—Rhubarb being a gross feeder, a dressing of rotten manure should now be spread about the surface around the crowns.

A layer of strawy litter may also be spread over the crowns of the earlier varieties as a protection from frost and cold winds, the supply in this manner being forwarded quite a fortnight before uncovered crowns. The forcing of Rhubarb is now quite an easy matter, and after this date I do not place any more roots in the Mushroom house or any other heated structure, as a good supply may be forwarded in the open air by covering over whatever roots are necessary with either tubs, boxes, or Seal-kale pots, and surrounding these with dry litter.

NEW PLANTATIONS.—Where it is decided to form a new plantation, or to increase stock for subsequent early forcing, advantage should now be taken to prepare the ground by either deep digging or even trenching where this latter operation would be beneficial, and working in a heavy dressing of manure. The plantation of Rhubarb in many gardens is in some obscure corner or under the shade of trees, and away from the beneficial influence of the sun, but considering the importance of the crop, an open position with free exposure to the sun should be selected. Where early forcing is practised the importance of an open position is very marked, as the crowns ripen off earlier in the autumn and consequently start into growth more freely when put into heat. The best time for planting is just as the crowns commence to burst into growth. Large pieces are not needed these often failing to start into free growth, and at the end of the growing season they would be much smaller than if pieces with either two, or at the most three eyes had been used. Flowering crowns should be rejected, these being easily recognised by their rounder character. Plant in rows 3 feet or 4 feet apart and 4 feet between the rows, placing the crowns just beneath the surface. After planting spread a layer of littersy manure on the surface. Shoots will soon appear, and must be allowed to grow ahead unchecked, without the pulling even of a single stick until the end of the season, or the crowns would be greatly weakened for succeeding crops. The following season a crop may be pulled if the roots have grown freely. It generally takes two seasons' growth to form suitable roots for forcing, but I never had better produce than from one season's roots forced this year.

VARIETIES.—The difficulty with Rhubarb is to get varieties true to name. Hawke's Champagne is my favourite variety for forcing. It is very early, and of a good colour and excellent flavour. Johnston's St. Martin's is also good for early forcing or for early pulling in the open air. For general or later crops I think Victoria is about the best, this also being an excellent variety for making into jam. Just a word on preparing Rhubarb for cooking. Some people take off the outer skin; this is a mistake, as besides depriving it of that rich colour when cooked, the syrup is thin and watery.

EARLY PEAS.—The season for sowing early Peas is now fairly upon us, and there now need not be any fear in sowing a good breadth in the open. Overcrowding the rows is a mistake, as the light should reach freely all parts of the haulm or the crop will be scanty. Where room is scarce, a light crop may be taken off between the rows, this being a favourite position with many people for Spinach. The distance between the rows must be guided by the variety. When drawing the drills they should be formed with a flat bottom by working the hoe flat, so that when the seed is sown it will lie equally distributed over the bottom. When the drills are drawn with the corner of the hoe they are so narrow at the bottom, that when the seed is sown it trickles down together; consequently the rows have a very crowded appearance when the seed germinates. The rows should also run from north to south where possible. Where Peas do not naturally succeed very well, and this is generally in soils which are very light or rich in humus, a dressing of steamed bone-meal or superphosphate of lime lightly forked in will be of great value. Every attention must be given to those Peas which are sown in pots. They must not be coddled up in heat or drawn up. As soon as ready for planting out, and when the ground is in fit condition for receiving them, they must be planted carefully, pressing the soil well

around the balls, afterwards earthing up and protecting with small boughs of Laurel or any Evergreen that there may be at hand. When sown in boxes for transplanting, a neat trench must be cut out with a sharp spade, and when arranging the Peas, some light and fresh soil should be spread about the roots. Peas may also be forwarded in frames where a few earlier dishes are appreciated. The dwarf varieties, such as American Wonder, Chelsea Gem, or William Hurst, are about the best for that purpose. The frame must be placed on a warm sunny border, and the seed sown in drills 2 feet apart, or if previously raised in pots, as they may well be, they should be planted 9 inches apart in the rows, as they will soon spread out and fill up. Small sticks must be placed to them when ready, for if this is not done sufficient light does not reach the bottom of the haulm.

Y.

PLANT HOUSES.

PLANTS FOR FORCING.—In order to succeed with hardy plants for forcing, a previous preparation before this is done is in most cases the best mode of procedure. *Deutzia gracilis*, when thus prepared with well-ripened wood, is thoroughly reliable, and may be pushed along rather briskly where there is a scarcity of flower. *Azalea mollis* and the Ghent varieties, both single and double, are also good plants for forcing. These last better when in flower if established, but some might be potted up at once, particularly the double varieties, which last in good condition for a longer period than the singles. In potting up these, or *Rhododendrons* and other American plants, sufficient care is not often given to the potting. It does not follow that because these are hardy plants that any kind of potting will suffice; far from it. Pot firmly and well, using good soil, and the after results will be more satisfactory and lasting, with less labour eventually in watering. Hardy *Azaleas* and *Rhododendrons* will go on giving good returns for several years if well cared for, the former bearing cutting under such conditions better than the latter.

Lilacs, which are so much appreciated for their perfume, and of which the variety Charles X. is still one of the best, should now be pushed along. The double-flowered Plum (*Prunus sinensis alba fl.-pl.*) is another good plant for early flowering. Of *Rhododendrons*, Early Gem is a first-rate early kind. A batch of well established Tea-scented Roses, after a moderate pruning, should also be placed in steady heat. These are a selection of the best shrubby plants for early use; others will be alluded to later on. Of herbaceous plants, *Spiraea japonica* and *S. astilboides*, the former well known, the latter proving itself to be a worthy companion, with Solomon's Seal and *Dielytra spectabilis*, are amongst the best of their class. All the foregoing should have a moist, growing atmosphere, too high a temperature being weakening. In most cases a Peach house orinery not long started is suitable. The former does well for Roses. In all cases of forcing it can soon be detected if either too much or too little heat is being applied for the good of the plants. Another point to observe is not to have a quantity of any one thing in flower at one time, but rather aim at a succession. I do not advise bottom-heat for these purposes, except in the case of Lily of the Valley.

The hardy forms of *Narcissus* have of late years been more used for forcing. Those who have a stock in pots may now safely introduce any of the following: *Poeticus ornatus*, Sulphur Phoenix, Stella, common double Daffodil, princeps and obvallaris. These should only be put into gentle warmth and as near the glass as possible, keeping them well supplied with water. *Gladiolus The Bride*, also G. Fairy Queen, if potted up early and now well rooted, may be brought along steadily.

Of *Azaleas* belonging to the greenhouse section, the well-known early bloomers should now be useful for cutting. Do not, however, overlook the good qualities of *Deutsche Perle*, *Roi Leopold* and its white variety, *vittata elegans*, *Borsig*, *obtusata* (similar to the old *amœna*, but bright scarlet), and *Model* (a fine kind). Keep a sharp watch for thrips

upon all these plants and guard against its increase by frequent syringing. *Choisya ternata* makes another useful plant for flowering early with but little warmth; so also does *Coronilla glauca*, both doing with less than is given to *Azaleas*.

BOUVARDIAS.—At this season of the year these cannot be considered fit subjects for a cool house; in fact this is the time when most injury is done to them if kept in a cool temperature, especially if they are continuously watered. Where increase is necessary—and in most cases it is so—the most approved sorts should have attention by introducing a few into more warmth after having pruned them so as to induce a stronger break, and consequently a stronger lot of shoots as cuttings. These when fit can then be taken off with a heel. Those who grow on old stools should soon set about potting all the stock, first seeing that they are fairly dry at the roots, so that they may be pruned hard back. Afterwards grow them on in a steady temperature, such as ainery just moving, but by no means keep them in a cold house after potting. When the potting is being done, if any plants are well supplied with vigorous roots, some of these may be cut off and kept for propagation. Those who cannot always succeed in getting their cuttings to strike should adopt this plan; it is, generally speaking, a more reliable way of increase when a brisk heat cannot be had for ordinary cuttings.

PRUNING GREENHOUSE CLIMBERS AND BUSH-GROWN PLANTS.—This is a matter which now requires attention in some instances. It is not advisable always to prune hard back the greenhouse climbers or the other plants too early in the year, but now that fresh growth may soon be expected it needs to be done. Of those which require hard pruning may be named the *Brugmansias*, either when grown in pots or planted out. The Passion Flowers should also be pruned freely where well established and filling their allotted space. If not thus done, the growths will later on be too dense. The *Bignonias* need care or the flowering wood will be cut away, the early bloomers only being thinned out and the later ones moderately pruned. *Mandevilla suaveolens*, a lovely, but much neglected climber, should be pruned and thinned out freely before any growth commences; so also should *Solanum jasminoides*. *Lonicera sempervirens* minor should have the weakly wood only thinned out; the other will flower early on the lateral shoots. All other climbers which flower upon last year's wood should only have that thinned out which gives no promise of bloom. *Habrothamnus elegans* and other kinds I treat to a severe thinning out of shoots which are exhausted and lay in the strong wood. This is far better than in any way pruning the latter, a vast amount of bloom being thus saved. *Lapageria rosea* and *L. alba* may have the weakly spray thinned out where too thick. Whilst doing this keep a sharp watch for both thrips and white scale; the latter insect is particularly troublesome to these plants when once it gets a foothold. Sponging with a fairly strong insecticide is the best remedy. The *Swainsonias* where grown upon walls or as pillar plants will need some pruning when once they have covered up the allotted space. In the case of these all young shoots from the base of the stem should be encouraged the same as one would look after the tender shoots of *Lapagerias*, which come from the soil. As soon as the pruning and cleaning are completed a good watering should be given where any are at all over-dry, provided there is no symptom of bleeding. When this is the case they should stand over for a few days. After being watered, a good top-dressing in the case of all planted out subjects should be given, first removing some of the surface soil, particularly any that is not occupied with roots. Training will need some attention, but in every possible case avoid formality and severe tying in of shoots. Those in pots which require a shift amongst pruned plants should stand over for a few weeks longer, unless it is intended to start any rather early in a little warmth; then potting may be seen to. Do not attempt to pot any of the Cape or New Holland plants of hard woody growth for some time yet.

Most of this work should be done after the flowering season is past.

MIGNONETTE may now stand in need of a shift if the plants are intended to be grown on into specimens for the conservatory. These require to be potted carefully and firmly, somewhat as one would treat pot Strawberries. Use nearly all loam with some mortar rubble added to keep the soil open, and a dressing of fowl's manure upon the drainage. In no case allow the plants to get dry at the roots. Mignonette when in good health delights in plenty of moisture at the root, and does best near the glass. For my own part I prefer to grow it upon shelves, where it receives the maximum amount of light and a free circulation of air. Guano water as a stimulant to pot-bound plants is the best thing I have ever used.

STOVE PLANTS, POTTING OF.—Some of this work should now be seen to, as growth will soon commence amongst plants which have been at rest during the winter. The *Dipladenias* will now be growing, and where any potting is required it is best to do it at once. These plants do not need such frequent shifting as many other things. It is a good plan to let them alone, provided the size of pot is suitable to the plant and the soil in good condition. In such a case top-dressing only will be needed, with an examination of the drainage holes. Young plants which are growing more vigorously and are pot-bound should be potted on into pots a size larger, large shifts not being beneficial to this class. Any reduction of the balls when the plants are to be repotted into the same size has to be done with care, the thick fleshy roots on no account being disturbed. In potting, use nearly all peat with a slight dash of loam only when mellow and full of fibre. Fertilising Moss when used moderately I have found to be a capital addition to the soil for *Dipladenias*. Plenty of sand is needed and some charcoal when the peat is at all spongy or soft. Pot firmly, and do not leave very much room for water. The best I ever grew were in soil nearly level with the top of the pot.

ALLAMANDAS are another class of plants which should now be potted; so also should the climbing *Clerodendrons*. These require nearly the same treatment. A fair reduction of the ball in both cases may be made, more, perhaps, with the first-named. Young plants should be potted on with but slight reduction, otherwise they would receive a check. It is not advisable to allow these plants to stand over from one year to another. They root freely, and when growing require a deal of water to sustain them; thus there is not much nutriment left in the soil at the end of the season. Good turfy loam should be used with about half as much peat. Too much of the latter will incite to woody growth rather than flower in some instances. A few handfuls of bone-meal in a fair-sized heap of soil will be advisable. If good peat is not at hand, then use well rotted leaf soil. If at the time of potting the balls are found to be extra dry, it is best to soak them first in tepid water. This is better than soddening the fresh soil. Pot firmly and leave room in this instance for a good supply of water. *Vincas* need a similar treatment, except that the plants should be started into growth in smaller pots, and afterwards potted on. The bush-growing *Clerodendrons* should also be treated in the same way. Never in either case should they be potted at once into blooming pots, or the root action meanwhile will not be so satisfactory.

JAMES HUDSON.

ORCHIDS.

BUYING PLANTS.—This is the best season of the year to purchase newly-imported plants, and cultivators in these days are able to obtain them in splendid condition as a general rule, very different indeed from what they were some twenty-five years ago. Cattleyas now have the pseudo-bulbs quite plump, and the leaves as green as they were when the plants were put into the boxes. *Dendrobiums* have the stems quite plump and sound buds at their base ready to start into active growth. The *Odontoglossums* are also as fresh as when they were gathered from the trees. Such being the case, there

is no difficulty whatever in establishing them. Immense quantities of the beautiful *Dendrobium Wardianum* have been recently introduced; some large masses, but most of them in the form of small or medium-sized plants that can be purchased at a cheap rate, so that they are within the means of the more humble Orchid cultivators. It is safe to add that the small and medium-sized plants give the most satisfactory results. They are grown in two ways—in pots or in teak baskets. I fancy the best results are obtained when they are grown in baskets. They may be planted as soon as they are received and ought to be placed in a warm house and a moist atmosphere to make their growth. The baskets are suspended near the roof glass, and the plants in pots must necessarily be placed upon the side or centre stages. Some years ago I had an opportunity of proving how much more freely the plants in baskets flowered than those growing in pots. The reason is obvious, as the young growths of the basket plants were made near to the glass roof; in fact, so close, that I had to lower the plants as progress was made to keep the tips of the growths from touching the glass. These short-jointed firm growths were furnished at every node with beautiful flowers; whereas those grown further from the glass did not bloom nearly so well. The plants may be potted or placed in baskets as soon as they are received in the usual compost of fibrous peat, Sphagnum, and clean potsherds. The richly-coloured *Cattleya Percivaliana* has also been recently imported in large quantities and in fine condition. None of these need be planted in baskets; they do much better, or at least they do well enough in pots. They are ready to start off into growth, so they may be planted at once into the usual compost; and it may be useful to remark here that it is a grave error to over-pot any that are newly-introduced. The *Cattleyas* may almost touch the sides of the pots all round. There is no doubt that they start most freely, and make the best growth when under-potted. All newly imported plants should be carefully sponged over with the object of getting rid of any undesirable insect pests that may have been imported with them. None of the imported plants are likely to have new roots, but even if they have they must all be sparsely supplied with water to begin with, and the foliage must not be wetted. We do not know what sort of weather we may have soon; the sun has already been shining very brightly, and after the middle of the month the blinds may be required to protect the delicate blossoms of some Orchids. When the sun shines out brightly after a series of cloudy days the petals may become spotted. There are some Orchids that cannot stand bright sunshine upon their leaves, even in February. Of such are the *Bolleas*, *Pescatoreas*, &c.; indeed, to do these well, they really require a house to themselves. All such Orchids, or indeed all Orchids, can do with as much light as possible, but most of them are injured by direct sunlight, and herein is the advantage of having a suitable scrim canvas to roll up and let down only when it is really needed. The thinnest scrim is used for *Cattleyas*, *Lælias*, &c., and the thicker material for the *Pescatoreas*, and also for the cool Orchids. In all but the warmest house the blinds should be raised above the glass. Some advise 3 or 4 inches. Ours are about 6 inches. These are quite effective as a shade and have the further advantage of allowing a free circulation of air between the shading material and the roof glass. When the shading is close down on the glass this is not possible. We have been thankful for the frequent changes of the wind into the west or south, which have always brought mild weather and allowed of a freer ventilation. Two things are of prime importance, viz.: cleanliness and as much ventilation as can be obtained consistent with the requisite minimum and maximum temperatures; and these are, I fancy, of rather more importance at the beginning of the season.

J. DOUGLAS.

Seasonable floral arrangements.—A good length of stem is an important item in nearly all arrangements, and when such can be had without unduly causing injury to the plants, so much the better. Flowers are frequently cut without any

thought as to their appearance when set up in vases. Thus, for instance, at this season of the year the *Calla Lily* is very often cut with no more than a foot of stem, when in many instances nearly twice the length might have been had. These when used in fairly tall vases are greatly enhanced in effect when upon long stems, and nothing surpasses their own foliage to use with them, nor are they in any way improved by the addition of other flowers which are totally distinct in character. When any contrast is needed, the best to use are the spathes of *Anthurium Andreanum* or *A. ferrierense*. When using vases, the stems of which would look better if entwined with a climber, the long trailing shoots of *Myrsiphyllum asparagoides* would be seen to good effect, and should be used in preference to the climbing *Asparagus* when bold flowers like the foregoing are being arranged. The long drooping fronds of *Goniophlebium subauriculatum*, a splendid basket Fern, might also be adapted to the same purpose. *Habrothamnus elegans* and *H. scaber*, also *Cestrum aurantiacum*, can be turned to useful account for tall vases. These can invariably be cut with plenty of stem, sufficient being taken so that the panicles of bloom may hang gracefully. I am fully aware that these flowers are not good ones to last in water, but the greater the length of stem inserted into it the better they will keep. It is as well to remove the larger leaves, for they soon fade. I have used these flowers for tall epergnes upon the dinner-table with good effect with drooping Ferns and narrow-leaved *Crotons*. The *Acacia* and *Chorozema* are other instances in which length of stem is a decided gain. I am very partial to the latter, when it is cut long, for entwining around slender stems of glass vases. It is both light and elegant, as well as quite distinct in colour from most things. For cutting, *C. Lawrenciana* and *C. Chandleri elegans* are two of the best kinds. When grown as pillar plants or climbers upon arches, it is easy to cut away some without much difficulty. *Deutzia gracilis* when well grown makes most useful cut material, its long sprays of a foot or more in length being quite unique. This and the graceful panicles of the *Lyre Flower* (*Dielytra spectabilis*) look well together, or, failing the former, *Solomon's Seal* would be most appropriate; the latter is not forced so much as it should be.—J. H.

TREES AND SHRUBS.

BUSH HONEYSUCKLES.

(WEIGELA.)

THE name of Bush Honeysuckle has been suggested for the different *Weigelas* to be met with in gardens, and it may, I think, be regarded as a fairly appropriate title, although there is little fear of confounding them with the true Honeysuckles (*Lonicera*). In any selection, however limited, of the best hardy flowering shrubs the genus *Weigela* must certainly be represented, and that in three or four varieties, where there is sufficient scope. Beautiful as many of them are, it is seldom we see them so situated as to display their merits to the best advantage, being usually stuck in a crowded shrubby border. Although they may be planted in various situations, the more vigorous growing varieties are, I think, seen at their best when occupying an isolated position, such as on a lawn or similar spot, and in this way especially the old *W. rosea* and the varieties claiming parentage from it form grand specimens, which when wreathed with blossoms, as they are every spring, are very beautiful. The dark purple or claret-coloured varieties and the white *W. candida* are of a less graceful habit than those of the *rosea* group. If planted in a border or belt of shrubs, overcrowding should be guarded against, each plant being given sufficient space to show its true character. Though perhaps not the best shrub that could have been chosen for such a purpose, I have seen that free-growing rose-coloured variety *Abel Carrière* used for furnishing an unsightly fence, and in spring it afforded quite a floral treat. Beyond an occasional securing to the fence of the more vigorous shoots and the removal of exhausted wood, the bushes received no further attention. Some of the *Weigelas* may also

be flowered under glass in the greenhouse during the spring, but it is useless to attempt to force them into bloom very early. Still, in this way they are very pretty, and quite distinct from the shrubs commonly used. In planting the *Weigelas*, or indeed all other shrubs, the general practice is to put them in without any addition to the soil, whether poor or otherwise. The result of this is in many cases weak shoots and a comparatively poor display of bloom, while a bush which at planting time has been treated to a barrow-load or two of manure will present a totally different feature; in fact these last remarks apply to most of our outdoor shrubs. The old exhausted shoots die, while stout vigorous ones are pushed up from the base of the plant to take their place. Still for all that the weak shoots, especially towards the centre, may with advantage be trimmed out to allow the more vigorous ones to develop. There is now a long list of garden varieties of the *Weigela*, as some of our Continental friends have directed their attention to the raising of seedlings. Among others may be mentioned *M. Lemoine*, of Nancy, who some 12 or 14 years since sent out *W. Abel Carrière*, somewhat in the way of the old *W. rosea*, but with larger and brighter-coloured blooms. It is certainly a grand *Weigela*, and if I had only room for a single one this would be my selection. Other varieties of *Lemoine's* raising are *Dr. Baillon*, a free-growing kind with claret-coloured flowers; *Emile Gallé*, whose shoots are more numerous and slender than those of the rest, and when clothed with crimson blossoms it is a very distinct *Weigela*. Other good varieties among those with dark-coloured flowers are *Lavallei* and *P. Duchartre*. There are several with light or striped blossoms, but they are really far less showy than those of a more decided tint. Of white-flowered kinds we have two, *W. candida* and *W. hortensis nivea*, but they are so distinct in many ways from each other, that their relative merits cannot be considered. The one most frequently met with is *W. candida*, which is I believe a seedling of Continental origin. It is a free, somewhat upright-habited bush, with rather long pointed leaves. The flowers are produced not only in great profusion in the spring, but frequently for some considerable time in the summer a scattered succession is kept up. *W. hortensis nivea*, the other white-flowered variety, is distinct from *W. candida*, being of a loose spreading style of growth, while the leaves are very broad and rugose in character. The fact that *W. hortensis nivea* is not met with to the same extent as *W. candida* is probably owing to its being far more difficult to strike from cuttings, as it is in this respect the most troublesome of all the *Weigelas*, which, as a rule, can be readily struck with a little attention.

Foliage distinctions claim recognition in the case of some varieties, by far the best of them being *W. Looymansii aurea*, whose foliage is of a bright golden tint; indeed, it is among the very best of all yellow-leaved shrubs. Planted in a spot fully exposed to the sun the leaves will continue to gain depth of colouring throughout the summer, not like many golden-leaved shrubs that are seen at their best during the first half of the season. There are several variegated-leaved kinds, but few of them are of any merit, the best I have seen being one with a clearly defined margin of light yellow to every leaf, which in the full summer's sun becomes flushed with pink. It is known as *W. Sieboldi marginata*, and is certainly a very pretty variegated shrub. *Weigelas* are naturally free-rooting subjects that with ordinary care can be shifted without injury, and as most of them can be obtained from our hardy tree and shrub nurserymen in the shape of good sturdy plants, there is really little time lost before they commence to be effective—a very important consideration.

T.

Effects of the frost.—In walking through the pleasure grounds at the Bishop's Palace, Salisbury, I was struck with the amount of damage done to many of the trees and shrubs there. The first to arrest my attention was the *Cork Tree*. There are several of these trees in the grounds, some of which are 40 feet in height, and with a proportionate spread of branch, but all are so badly injured that

they have the appearance of having been burned. Through the early part of the frost in South Wilts the wind blew from east to west for several weeks in succession, and taking this line between the cathedral itself and the palace, the current seems to have swept with unusual severity. Many plants that are quite hardy seem to have almost perished under its scathing influence. For instance, *Hedera canariensis* on one corner of the building was quite browned, while a foot distant this plant was uninjured. The same thing was noticeable in *Quercus Ilex* (the Holly-leaved Evergreen Oak); one half of the tree was seared while the other half escaped uninjured. The same thing was observed in several trees of this Oak. A fine young tree of *Cedrus Deodara* that was planted in 1887 is so badly injured by the biting winds and frost as to be past all recovery, as the bark of the tree is dead to the ground, and a great many of the leaves have already dropped. Other trees and shrubs which have suffered are *Garrya elliptica*, *Laurustinus*, *Buddleia globosa*, *Euonymus*, *Hypericum calycinum*, although nestling among Box and Yew bushes, did not escape the influence of the current above referred to. The plants of *Magnolia grandiflora* have their leaves browned by the frost, and at one time Mr. Smith had grave misgivings as to their condition, but closer inspection does not now confirm those apprehensions. The Sweet Bays, of which there are several large bushes, are not nearly so badly injured as they were in the winter of 1880 and 1881, for on that occasion they were cut to the ground, but all the injury after the late frost is a few of their late growths cut. On the south-west front several comparatively tender plants have been planted. The Box-leaved and broad-leaved Myrtles which climb the old walls are badly injured, but not to the extent they were ten years ago. Many of the branches close into the wall are alive, but all those much exposed will have to be cut away. *Passiflora cœrulea* on the same wall which had made fine growth is killed down to the ground, while the Pomegranate which is growing next it is not injured in the least. I have seen no outdoor garden so far where the late severe weather has left its mark so distinctly as it has done in the one referred to.—C. WARDEN, *Clarendon*.

—The destruction to shrubs by the recent long-continued frost has been very severe, especially amongst Conifers and Evergreens. One nurseryman writes us that his plants of *Azara microphylla* and *Veronica Traversi* have been completely killed, and when at Kew Gardens a few days ago, we noted that the *Deodars*, *Wellingtonias*, *Veronicas*, and many other things had suffered terribly. The bushes of *Veronica Traversi* look as if singed with fire. We do not deplore the injury to the *Wellingtonias*. There are too many Conifers altogether at Kew, and a thinning out will leave space for the planting of many good flowering trees and shrubs.

—You will have plenty of letters on this subject, but I should like to give two notes of warning. First, that it is much too early yet to speak positively either of losses or survivals; and secondly, speaking from experience of other bad winters, I would advise all to be in no hurry to condemn their plants, however bad they look. Be in no hurry to take them up as dead, nor even to cut them back. I shall touch nothing for another three weeks or a month.—HENRY N. ELLA-COMBE, *Bitton Vicarage*.

The Witch Hazels (*Hamamelis*) are a very interesting class of shrubs, and represented at Kew by one of the best, viz., *arborea*, which is in full flower. We wish to draw particular attention to the *Hamamelis*, and especially *arborea*, which is a lovely thing, and its value is increased by the season at which it is in fullest beauty. It is perfectly hardy; a native of Japan, usually attaining a height of 8 feet, though its name *arborea* seems to suggest it assumes more tree-like proportions in its native country. Any soil suits it, but an open sunny position is important. It is best seen when the sun is shining full upon the wiry branches, covered with a multitude of intense yellow flowers, the petals characteristically twisted, and crimson at the base. The shrub at Kew is not blooming so

well this year, possibly due to the recent severe weather, which prevented the buds expanding in their fullness. When good flowering trees and shrubs are appreciated at their true worth, we hope to see this *Hamamelis* planted in bold groups, as it deserves to be. The leaves, which appear after the flowers, are like those of the Hazel. Near to *H. arborea* is *H. japonica*, which is of dwarfer and more spreading growth, the flowers light yellow. Then there are *H. Zuccariniana* and *H. virginica*, which bloom about Christmas; but if only one is wanted, that is *H. arborea*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL. FEBRUARY 10.

THIS meeting was in every respect a very interesting one, affording quite a contrast to that held in January. Orchids were represented in great variety from various growers, *Cypripediums* being present in considerable numbers. There was an excellent display of Apples and Pears, these, with several kinds of Oranges, being the only exhibits laid before the fruit committee.

First-class certificates were awarded to each of the following:—

IRIS DANDFORDIE (a synonym of *Iris Bornmulleri*).—A very dwarf species with yellow flowers, faintly spotted with green. This should be an excellent companion to the well-known and much appreciated *I. reticulata*. From Mr. T. S. Ware, Tottenham.

HAMAMELIS ZUCCARINIANA.—This is an introduction from Japan. A deciduous shrub shown in flower from the open ground so early as this will without doubt prove a valuable acquisition. Its flowers, freely produced upon the wood of the past season, are paler in colour than those of *H. arborea*. From the Coombe Wood Nurseries of Messrs. Veitch and Sons.

CYPRIPEDIUM CREON.—This is a very distinct hybrid between *C. oënanthum* superbum and *C. Harrisianum* superbum. It is of dwarf habit, its most distinctive feature being the dorsal sepal, which is much darker than in *C. Harrisianum*. It carried two blooms upon the one spike. When the plant gains in strength, it will no doubt be seen in still better condition. From Messrs. Veitch & Sons.

CATTLEYA TRIANE PLUMOSA.—This may be considered an excellent form of this well-known species. The flowers upon the plant shown did not appear to be fully developed. From Mr. Thos. Statler, Stand Hall, Manchester.

ODONTOGLOSSUM TRIUMPHANS (Whiteley's variety).—This is a very fine form of this *Odontoglossum*, having flowers of larger size and more intense colouring than the type, the deep golden yellow blossoms being barred with chocolate. A valuable addition to cool Orchids. From Mr. W. Whiteley, Hillingdon Nurseries.

Awards of merit were given to—

CHOROZEMA LOWI.—This is quite a distinct variety from either *C. Lawrencianum* or *C. Chandleri* elegans. As shown in a small state, the plants were flowered remarkably well. The individual blossoms are brighter in colour than those of *C. Chandleri* elegans, but not so dark as those of *C. Lawrencianum*. In our opinion it was worthy of a first-class certificate. Exhibited by Messrs. H. Low & Co.

PRIMULA KENTISH PURPLE.—A superior form of the old purple, with much finer flowers of a more intense shade of colour. From Messrs. H. Cannell and Sons.

PRIMULA KENTISH FIRE.—A great improvement upon the Chiswick Red in every respect. This is one of the best of all the bright coloured varieties. Also from Messrs. Cannell and Sons.

ORCHIDS were staged in considerable numbers, and made quite a display of themselves. Messrs. B. S. Williams and Son, Upper Holloway, had a varied group, prominent amongst which was a fine

specimen of the old *Phajus grandiflorus* with twelve spikes of bloom. Several good forms of the Lady's Slippers, some of the best being *C. Sallieri aureum*, a very delicate form of *C. insignis*, *C. Williamsianum*, and *C. Amesianum*, were in the same collection, and also well-bloomed plants of *Sophronitis grandiflora*, fine in colour. *Odontoglossums* were represented by *O. Alexandræ*, *O. cirrhosum* (a fine spike), and *O. Pescatorei*. *Lycaste Skinneri* alba, *Lælia anceps* alba, and the beautiful *Angræcum citratum* were also shown. An award of a silver-gilt flora medal was made to this exhibit. From Messrs. Sander and Co. came a selection of choice varieties, prominent amongst which were a finely coloured form of *Odontoglossum vexillarium*, *O. Edwardi*, a tall growing species, with small dark-coloured flowers; *O. bictonense* album, a delicate form of this well-known species; *O. bifrons*, a small flowered yellow variety, the flowers being clustered upon the end of a rather long spike; *Lælia anceps Percivaliana*, *L. harpophylla*, with its orange-scarlet flowers, and *Lycaste Skinneri* alba were also represented. A silver-gilt flora medal was also awarded to this collection. Messrs. Hugh Low and Co. showed a well-bloomed example of the dwarf *Saccolabium bellinum* with its beautifully fringed lip. A large collection of small plants of *Cypripediums* (fifty-nine varieties), including the best kinds in season, was sent by Messrs. Pitcher and Manda, United States Nurseries, Hextable, Kent. The best forms were *C. villosum* albo-marginatum, *C. Sallieri*, *C. Cooksonianum* (a distinct species), *C. Leeanum* (Burford Lodge var.), *C. selligerum*, *C. callosum*, *C. Godeffianum* (Boxalli × *hirsutissimum*), and *C. marmoratum* superbum. A silver flora medal was awarded. Mr. F. C. Jacomb, Cheam Park, Cheam (gardener, Mr. W. May), sent a beautiful selection of cool Orchids, including several fine forms of *Odontoglossum Alexandræ* and also *O. Andersonianum*. This, though a small collection, was most attractive. Awarded a silver flora medal. Mr. W. Cobb, Silverdale, Sydenham, sent a small collection of Orchids, including the sweet-scented *Vanda Amesiana* and others. (bronze medal). A cultural certificate was given to a fine example of *Cattleya amethystoglossa* with a densely flowered spike of bloom from Mr. Malcolm S. Cooke, Kingston Hill. The same exhibitor also showed a well-grown plant of *Odontoglossum hystrix* with an extra strong spike not fully developed. *Cœlogyne cristata* was shown in capital condition by Mr. F. S. Mosley, Regent's Park. Several plants of the same species came from Messrs. Geo. Paul and Son, Cheshunt, who had one fine specimen of pyramidal shape, in which manner the spikes of bloom were seen to good advantage. *C. cristata maxima* and the Chatsworth variety were in the same collection. From Sir Wm. Marriott's garden at Blandford came a very superior seedling *Dendrobium*, the result of a cross between *D. heterocarpum* and *D. nobile*. This may be considered a fine variety of *D. Ainsworthi*, which it much resembles. From Messrs. Veitch and Sons, Chelsea, came a splendid boxful of cut blooms of their fine hybrid greenhouse *Rhododendrons* (*javanico-jasminiflorum* hybrids), the best being *Nestor*, a fine rich yellow, large truss and blooms; *Scarlet Crown*, another large-flowered kind; *Vesta*, a pale yellow; *balsaminæflorum* aureum, a semi-double yellow of great substance, and other fine kinds. Messrs. Veitch also exhibited cut specimens of *Hamamelis arborea* from the open. The branches were covered with the small flowers in the same way as a *Chimonanthus* or *Forsythia*.

Messrs. Cannell and Sons, Swanley, Kent, staged a remarkably fine collection of their strains of the Chinese *Primula*. Not only were the plants profusely flowered, but the growth also was most robust, leaving nothing to be desired. Plants of the second year were shown in one mass of flower whilst the seedlings were in splendid condition; the former were of large size, but the latter might be considered the most useful. Besides those previously alluded to, *White Perfection*, a superb Fern-leaved variety with robust habit and flowers of large size and purity of colour, was largely shown. Cannell's Pink is a very delicate shade of pink or blush, with finely formed flowers and

good habit. Peach Blossom, well named, is another distinct kind. Swanley Mauve is, after Holborn Blue, a pleasing shade. To this excellent exhibit a silver-gilt flora medal was deservedly awarded. Messrs. H. Low and Co., Clapton, staged a very finely grown collection of Cyclamens. They were characterised by compact growth, profusion of flower, and the remarkably fine quality of the individual blooms. All shades peculiar to the species were represented, the white flowers not only being of unusual purity, but also finely formed. A silver Banksian medal was awarded to this collection. A group of *Clivias* bearing seed-pods in a profuse fashion upon each spike was shown by Messrs. Laing and Sons, Forest Hill. These were most attractive by their brightscarlet colours; the berries having evidently taken nearly twelve months to ripen, yet the plants were in excellent health. Mr. Ware, of Tottenham, showed *Galanthus Elwesii* in good condition. He also had *Iris reticulata Bakeriana*, a distinct variety of the well known species having lighter markings. Two boxfuls of *Eucharis amazonica* and one of *Ceclogyne cristata* blooms were put up by Mr. Miller, Ruxley Lodge, Esher; these were shown as packed for market purposes. Such exhibits, while exemplifying the system of packing do not in any other way lend to the interest of the meeting when in such a crowded state.

Fruit Committee.

An extensive display of Apples and several good examples of Pears were the chief features. Messrs. T. Rivers and Son exhibited some eighteen dishes of Pears in first-rate condition, being quite fresh and plump. The best were: Marie Benoist, very fine; Mme. André Leroy, and Duchesse de Mouchy, both good; Beurré Alexandre Lucas, very bright; Leon Leclerc de Laval and Easter Beurré, good samples; Josephine de Malines and Triomphe de Jodoigne, also well represented. Of the Apples the best were very fine dishes of Reinette du Canada, Lord Derby, and a most promising kind named Buckingham, in all seventy-five dishes being staged (silver flora medal). Messrs. Cheal and Sons, Crawley, Sussex, exhibited over ninety dishes of Apples and Pears in capital condition. The best included Warner's King, King of the Pippins, Round Winter Nonsuch, Lord Derby, Wellington, Prince Albert, Kentish Fillbasket (silver flora medal). Messrs. H. Lane and Son staged a smaller collection of over forty dishes, prominent amongst which was Prince Albert in good condition (silver Banksian medal).

Included in Messrs. Rivers' exhibits were some fourteen different varieties of Oranges and Citrons. St. Michael's, The Egg Orange of St. Michael's, the White Orange, and Nonpareil were the most prominent of the Oranges. This exhibit was most instructive, showing the value not only as articles of dessert, but as ornaments whilst upon the plants. A smaller collection of Apples was sent by Rev. E. J. Lowndes, Little Comberton Rectory, Pershore, consisting chiefly of local varieties. Examples of Blenheim Orange came from Lord Foley's garden at Esher, Surrey. These had been preserved in an American flour barrel. They were in a fresh condition, but had a taint in their flavour not at all desirable; some also had suffered apparently from frost. Votes of thanks were awarded in each case.

Annual Meeting.

This was held in the council-room at 3 p.m., Feb. 10, when Sir Trevor Lawrence, Bt., M.P., presided; Baron Schroeder, Rev. W. Wilks, M.A., hon. sec., Mr. H. J. Veitch, and other gentlemen being present. Fifty-one new Fellows were elected, being the same as last year. The chairman stated that the increase of Fellows during the past year had been 364. He also informed the members that 56 first-class certificates had been awarded during the year to Orchids alone with a less number to plants and fruits. The Temple show, he also said, had been in every sense a decided success. He regretted that more money was not available for furthering extended experiments at Chiswick. The Journal had been well kept up through the year, and was found valuable to the country Fellows.

Both Mr. Wilks and Mr. Morris received the thanks of the meeting for their assiduous labours in respect to the Journal. The question of continuing the Journal was raised, but the hon. sec. considered it was a means of greatly increasing the income of the society; therefore it was not desirable to take those steps.

Dr. Masters referred to the Shirley Hibberd Memorial, and trusted that a portrait would soon be obtained, and that the desired funds would soon be raised.

The chairman stated that the proposed hall was still engaging the attention of the council. Baron Schroeder said that the scheme relative thereto was not being hard pressed owing to the low state recently of the money market, but that he was ready as ever, and trusted that it would not be long before the remaining £18,000 to complete the £40,000 required was forthcoming.

Mr. Dyer proposed a vote of thanks to the chairman, and congratulated the society upon being free from debt and in a better condition than for years past, at the same time urging the desirability of continuing the Journal.

THE UNITED HORTICULTURAL PROVIDENT AND BENEFIT SOCIETY.

THE annual meeting of this society took place at the Caledonian Hotel, Adelphi, on Monday evening last at eight o'clock, Mr. James Veitch in the chair, there being a large attendance of members. The annual report of the committee sets forth that the society is in a flourishing condition, both numerically and financially. Seventy-four new members joined the society during the past year. There are now 378 members exclusive of sixty honorary members. The sick list is longer than usual, owing to the prevalence of the influenza epidemic in the early part of the year. Thirty-two members came upon the sick fund, the total amount paid being £64 7s. 2d. This amount is covered by *pro rata* deductions from the two classes of depositing members. One death occurred during the year, William Back, of Tottenham, and the amount standing to his credit in the books of the society, viz., £25 10s. 3½d., was paid to his widow, in addition to which a sum of £5 3s. 6d. was advanced from the Benevolent Fund for the purchase of a Singer sewing machine to give her the means of livelihood.

Members' subscriptions during the past year amounted to over £600, and the balance in favour of the Benefit Fund is £4222 4s. 9d. The Benevolent Fund shows an increase of £154 8s., ten guineas of this amount being in the form of a life subscription from the Thames Bank Iron Company. The balance in favour of the fund on the year is £28 9s. The treasurer's account is highly gratifying; the total amount invested is £6000, and the increase during the past year from dividends is £143 9s. 7d.

On the occasion of the annual dinner eleven subscribers' names were added to the list of honorary members, and Messrs. M. N. de Rothschild and Sons generously gave a donation of £25 towards the management fund. Messrs. B. S. Williams and Son, J. Laing and Sons, H. Cannell and Sons, and J. R. Chard are thanked for the plants, flowers, and floral decorations contributed on the occasion of the annual dinner. The treasurer, Mr. James Hudson, read the balance sheets of the benevolent and management funds, setting forth the favourable position of each, and submitted the treasurer's financial statement also, showing on the receipt side the sum of £1036 8s. 6d., including subscriptions, £621 9s. 9d.; from honorary members, £59 17s.; dividends on invested moneys, £143 9s. 7d. On the expenditure side the sum of £750 had been invested during the year, and a balance of £79 19s. 7d. is carried forward. The society has the sum of £6000 invested in the funds, viz., £5500 in Nottingham Corporation Stock, yielding 3 per cent., and £500 in Government Consols. The growth in the number of honorary members is remarkable. Ten years ago there were seven of these only, subscribing one guinea each; there are now sixty-two.

In an able address, which he sketched the ad-

vantages offered by the society, the chairman moved the adoption of the report and balance-sheet, which was duly seconded and carried. Messrs. Cummins, Foreman, Castle, Peerless, and Knowles were elected members of the committee in the place of those retiring; Mr. W. Collins was re-elected secretary by acclamation, testimony being borne to the excellent manner in which the duties are performed. Hearty votes of thanks were given to the trustees, to the committee, and auditors. Notice was given by the treasurer of the intention to make an alteration in the rules, so that the financial year should close on the second Monday in March instead of February, as heretofore. A cordial vote of thanks to the chairman closed the proceedings.

The Midland Carnation and Picotee Society.—A society bearing this title has been formed at Birmingham, and arrangements have been made for holding an exhibition in the Botanic Gardens, Edgbaston, Birmingham, on Saturday, August 8, subject to any change of date which may be necessitated by the character of the season, notice of which is to be given not later than July 15. A very good schedule of prizes is issued, as might be expected, upon the old lines. One good feature is that there are few classes, and from five to seven prizes in each. Birmingham is an old centre for horticultural enterprise, and years ago it not only supported many societies, but also had its own floricultural periodical. Of late years the centre has been elsewhere, but Birmingham appears to be moving again, as a Pansy society is in course of formation. That other societies will follow there can be no doubt. The border Carnations are not overlooked. There are two classes devoted to these, one for twelve dissimilar varieties in bunches, five flowers of each to form a bunch; and another class for six bunches, three flowers to form a bunch. The flowers must be cut from plants grown in the open, and be shown with their own buds and foliage; dressing will not be allowed. The fancy and self Carnations have classes provided for them.

National Dahlia Society.—The annual meeting of the members of the above society took place at the Horticultural Club on the 10th inst., Mr. E. Mawley in the chair. The hon. sec., Mr. T. W. Girdlestone, made a statement as to the financial position of the society, which he considered to be very satisfactory. On the receipt side was the sum of £163 6s. 10d., including £85 14s. members' subscriptions, and £50 from the Crystal Palace Company. A few small sums and the balance from last year made up the total. On the expenditure side the chief item was £118 17s. paid as prizes, leaving a balance of £32 18s. 7d. to be carried forward. The report stated that the exhibition in September last was not so extensive as some which had preceded it, but the quality was good throughout. The number of members was about the same as last year, but there was great necessity for a larger increase. The society had to mourn the loss of three of its principal supporters, Messrs. James McIntosh, Shirley Hibberd, and W. Holmes. The report and balance sheet were adopted, and also a proposal that the minimum subscription should for the future be 5s. per annum. September 4 and 5 next were selected as the dates for the next exhibition at the Crystal Palace. At the close of the meeting Dr. Masters called attention to the Shirley Hibberd Memorial Fund, and asked for it the support of the members of the Dahlia Society.

The Eucharis mite.—I shall be glad to know through your columns if the enclosed *Eucharis* bulbs are suffering from the mite.—C. H.

* * Your *Eucharis* bulbs are certainly attacked by the *Eucharis* mite (*Rhizoglyphus echinopus*). The best thing you can do with the bulbs is to take off all the loose scales and cut out any diseased parts, and then brush them thoroughly with the following mixture: Quarter of a pound of sulphide of potassium dissolved in three gallons of water,

and then soak them in the same mixture heated to 120° Fahr. for at least ten minutes.—G. S. S.

NOTES OF THE WEEK.

Iris reticulata histrioides.—I send you a bloom of *Iris reticulata histrioides*. It is, I think, the largest of the group. The flower sent is from a weakly bulb newly imported. Dried flowers measure 4 inches across.—T. SMITH, *Newry*.

The welcome winter Aconite (*Eranthis hyemalis*) runs the Snowdrop very close as the harbinger of spring, as large patches of this charming flower are already in full bloom. It seems to be everyone's flower, is equally at home on the edge and amongst the shrubberies, fully exposed, and also in the densest shade. No position comes amiss to it, and it annually increases in size and vigour. The pretty Buttercup flowers surrounded by a collar of shining green leaves are very effective in spring, and as it may be planted in the Grass it is not at all troublesome.

Strobilanthes isophyllus.—This is a conspicuous flower just now in the greenhouse at Kew, and deserves a note by reason of its flowering throughout the dull season. The plant is of bushy habit, the leaves dark green, and the flowers of a pretty mauve or light lavender colour. Unfortunately, they are of no use when cut, as they drop quickly, but their delicate colour would otherwise be welcomed for choice decorations. Few things are easier to grow and propagate. Cuttings may be easily struck in the spring, rooting very quickly, and, if placed in a cool house during the year, will bloom freely and continuously in the dark season. We advise keeping the plant as cool as possible consistent with proper cultivation, as then the growth is hardy and the display of flowers profuse. In the Kew greenhouse this and the old *Justicia speciosa* are the two principal things in bloom, besides, of course, the usual forced spring bulbs.

Colchicum crociflorum, bulbs of which were sent to Kew by the late Will Threlfall, is now nicely in flower, and it is one of the prettiest spring flowers of this class I have yet seen. The flowers are quite different in their markings from those of all other *Colchicums*, the ground colour being milk-white, three distinct purple bars running down the back of each segment. It looks altogether more like a *Crocus* than a *Colchicum*. This name and that of *C. crociflorum* have got so thoroughly identified with the old *C. montanum*, that it is difficult to get what you want when you order *C. crociflorum*, and the only way will be to identify the name of Dr. Regel with it, as it was figured and described by him in the *Gartenflora*, 1881, tab. 1035. Dr. Regel at first considered it a distinct genus and called it *Synsiphon*, characterised by the three styles being joined to nearly the top of the tube. Under cultivation, however, this was found to be a mistake, and it was reduced by that author to *Colchicum*. It will be found an easy species to grow. It increases as rapidly as many of the other species, and as a spring flower will be found quite unique.—K.

Lælia superbians.—Judging by the description given of this species by Mr. G. Ure Skinner, who discovered it in Guatemala fifty years ago, it is in its wild condition by far the finest species in this beautiful genus. He describes it as having pseudo-bulbs nearly 2 feet long, and flower-stems 12 feet high, each one bearing over twenty flowers. When it is remembered that these flowers are 7 inches across, it is easy to understand the enthusiasm with which Mr. Skinner recorded its discovery. Although such noble specimens have never been seen under cultivation, it is, even in its warfed condition as represented under glass, an exceedingly beautiful Orchid. The outer segments of the flower are of a lovely shade of rose and are quite 3 inches in length. The lip is three-lobed, the side lobes, which are deep crimson veined with still darker lines, enfolding the column; the central lobe is of the richest crimson-purple at the apex, the disc being yellow, traversed lengthwise by several crested ridges. The species does not flower with the regularity that is characteristic of most *Lælias*; it requires the same treatment as to soil

and moisture, but prefers a higher temperature. During active growth it may be placed in the warm house. A plant is now in bloom in the Orchid house at Kew.

Arabis anachortica.—An extremely curious example of the way in which plants alter under cultivation occurs in the case of this alpine, which, in a wild state and under the peculiar conditions in which it is found, has remarkably thin leaves, resembling tissue paper more than anything else. This plant under cultivation and in the course of two generations from seed can hardly be separated from the well-known *A. alpina*, so common everywhere in the Alps. It will very likely be found that *A. anachortica* is only a geographical form of this old species growing under peculiar conditions. Between *A. alpina* and *A. albida*, as they appear in gardens at any rate, there seems to be no difference. The two names are met with, but, so far, only one plant. Can it be that *A. albida* is also only a geographical form of *A. alpina*, and under cultivation deteriorates? I say deteriorates because it is said to be a much better and showier plant than *A. alpina*.—K.

Colchicum luteum, a native of the temperate regions of the Western Himalayas, is a charming little flower, and well worth looking after. It has been in cultivation for some years, and in ordinary winters flowers from December to the end of January. This season it is, however, later than we have ever seen it, the flowers as bright as those of a yellow Dutch *Crocus*, only showing above ground now. In the Himalayas, where it occurs at 7000 feet, it is described as flowering in June. It is a handsome spring bulb, doing well in any garden border, and well worth securing. C. Bertoloni, from Asia Minor, has also been in flower with us. It was introduced by Herr Max Leichtlin and although in Mr. Baker's Monograph it is placed under *C. montana*, Boissier in "*Flora Orientalis*" gives it specific rank. Among other minor differences, it flowers in autumn, while *C. montanum* flowers in late spring. Although not a particularly showy species, its tiny white flowers are very welcome in late autumn and midwinter.

The Mexican Orange Flower (*Choisya ternata*).—Truly the vagaries of our climate are wonderful, and how some shrubs not accounted hardy, unless in some exceptionally favoured districts, should pass through the severe ordeal of the past winter is to be wondered at, especially when fully exposed to the blast. Here upon a very exposed position amongst the Worcester hills the subject of this note has passed through the ordeal unscathed. After reading your article calling attention to the Mexican Orange Flower I examined our plant to see how it had weathered the storm. I found it as healthy and vigorous as ever. In all probability this is owing to the very open position in which it is planted, the growth made being very hardy. Certainly it does not grow so quickly as when planted in a warmer position. The soil is also a very cold clay. As you truly state, plants with well-ripened and hardened wood never suffer in the same way as those in a gross and ill-ripened condition. It is the same with all our shrubs and trees; growth is slow on account of the exposed position, but very hardy. The colour of the foliage is not of that dark green often met with in more sheltered positions, but, nevertheless, the plants are in a better condition as regards hardiness. Veronica Traversi, again, has passed through unscathed. The rate of the annual growth both in the Veronica and the Mexican Orange Flower is about 4 inches.—A. YOUNG, *Abberley Hall, Stourport*.

Notes from the west.—The scars inflicted on the face of Nature by the recent severe weather are not perhaps so deep with us here, in "the garden of England," as in the more northern counties, but they are plainly visible all the same, and will no doubt become more noticeable as spring advances. Stocks which had been planted out before the iron grasp of winter came have in many cases perished, their fate being shared to a less extent by the more hardy Wallflowers. Veronicas have suffered, as far as can at present be judged, fatally; *Euonymuses*,

Laurustinuses, and *Escallonias* are by no means unscathed, whilst many a lover of hardy perennials and rock plants has found, to his cost, that some of his favourites have been killed. Many people who have hitherto wintered their bedding *Geraniums*, &c., successfully in cellars and Cucumber frames will need a fresh stock in the spring. Large Australian Gums (*Eucalyptus globulus*), many of which have braved the rough blasts of a score of previous winters, have apparently succumbed, and appear but the spectres of their former selves. Large *Mesembryanthemums* which have extended their domains over spaces, in some cases 6 feet or 7 feet square, in our public rock gardens, are now but brown and withered masses. There is a bright side to the picture, however. For instance, I saw the other day a self-sown piece of British Maiden-hair (*Adiantum Capillus-veneris*) growing from a crevice in an exposed wall quite uninjured, with young fronds shooting forth quite thickly. During the last few weeks Nature seems to have repented of her harshness, for the *Crocuses* are blooming with us, and there are shoots on the Rose bushes fully half an inch long. The latter, it is more than probable, will be killed, for we have March and its bitter winds yet to come. The few bright advance courier days of spring, however, tell us that soon we shall know with certainty what through the cruel night of winter has safely slept, and what in sleep has passed away.—FRED. C. SMALE, *Torquay*.

Hellebores from Ireland.—It is a long time now since a blossom from the hillside of Howth has lain on your table. I am anxious you should see some flowers of my seedling *Hellebores*, so send you a few by post. It is their fourth year of blooming, and a bed of their flowers 50 feet long is a sight fair to see, especially at the hour of sunset. They were all dug up and divided a year ago, and I find their roots in that time have gone downward a couple of feet. The foliage of each plant is distinct, and no two flowers are quite alike among the fifty seedlings. They have had no protection nor covering of any kind. All are the offspring of the St. Brigid var.—L. LAWRENSON, *Sutton House, Sutton, Co. Dublin*.

* * An interesting and beautiful gathering.—ED.

Richardia æthiopica Little Gem.—Plants of this now in bloom show its value, the miniature white spathes coming in very handy for many purposes for which the larger ones of the ordinary sort are unsuitable. As a pot plant it is simply invaluable. It can be bloomed nicely in 4-inch pots or 6-inch pots, and appears to be very free. My plants bloomed when quite small in November, and although they have been a good deal disturbed for the purpose of getting the suckers for propagating, they are now carrying several spathes. I would advise all who have the plant or can get it to take care of it, and increase it as quickly as possible, as it is sure to become popular.—E. SALWAY, *The Gardens, Midvale House, Jersey*.

OBITUARY.

Death of Mr. Haycock.—It is with great regret that we have to announce the death of Mr. Haycock, formerly so well known by the splendid examples of fruit he produced whilst gardener to Mr. Roger Leigh, Barham Court, Maidstone. The grand specimens of Apples and Pears which he so frequently exhibited at the metropolitan and other shows made his name a household word amongst gardeners. The samples he grew have rarely, if ever, been surpassed, notably those staged at the fruit conference a few years ago at Chiswick. He was a member of the fruit committee of the Royal Horticultural Society. During the past few years he has resided at Goldings, near Hereford, where he died.

Rose Celeste.—Can any reader of THE GARDEN inform me where I can purchase this Rose? I have failed to obtain it from several of the large Rose growers, and have been searching for it for some time.—S. E.

Name of plant.—*Thos. Bonsall*.—We should say *Rhododendron Countess of Haddington*.

Name of fruit.—*G.*—College Apple.

WOODS AND FORESTS.

THE COMMON OR SILVER BIRCH.

(BETULA ALBA.)

LIKE the Larch, our native Birch is a neglected tree, so far at least as planting it on lawns and in parks is concerned, for rarely do we see specimens of either filling conspicuous positions. This is to be regretted, for the Birch is so graceful and so distinct from all other trees that it might well be ranked amongst the most valuable of them. The silvery-tinted bark, relieved every here and there by patches of darker hues, pendulous spray-like branchlets, and generally pleasing contour, combined with rapidity of growth and acknowledged hardness have all something to do with the high repute in which the Birch is held by almost everyone. For all that we must acknowledge that for ornamental planting the Birch is a rarely used tree. To account for such caprice in tree planting is perhaps not difficult, for we generally find that scarcity or abundance has much to do in the matter. That there are numbers of what might well and truthfully be termed "neglected trees" few persons who have much to do with matters arboricultural will deny. Few trees associate better with the general surroundings of a lawn, garden, or park than the Birch, and to see a well-developed specimen standing alone on the well-kept turf and showing up from under its feathery spray-like foliage the light silvery-tinted bark, oft rugged and flaky, it must be admitted that perhaps no other commonly cultivated tree is capable of imparting so artistic a finish to the situation in which it is placed. At no period of its growth is the tree stiff, formal, or uninteresting, the sapling of only half a dozen summers being almost a miniature of the fully developed specimen, except perhaps in ruggedness of bark. This latter is more or less characteristic of certain trees, some being, even in their old age, smooth and fair of face, while others perhaps growing alongside are furrowed and rugged of bark, and that to even a greater extent than the Cluster Pine (*Pinus Pinaster*). Darwin used to remark on the great thickness of the bark of the fine old Birches in the park at Holwood, and certainly no more remarkable specimens in this way could perhaps be pointed out. Than the Birch few trees increase with greater freedom, in many parts of the country all that is required to get up a plantation being to fence in the ground and prevent the ingress of sheep and cattle. Seedlings will thus shoot up in every direction, and in a very few years a fairly thick wood will be the result, of course assuming that the surroundings are at all favourable. The Birch is almost exempt from insect attacks, while it can grow and produce excellent timber where few other kinds would exist, on the hillside at high elevations and where soil is all but wanting. Then, again, in damp ground it does not refuse to grow, while for covering disused quarry rubbish and where its roots must oft suffer from drought, it is of the greatest value. A pretty effect has been produced in a thoughtfully laid out park near London by planting the Birch in clumps of threes and fives immediately in front of masses of the Scotch and Austrian Pines. There the light flaunting branchlets and silvery bark stand well out and add a most pleasing appearance to the grounds. Even in winter the effect is striking and good. For the lake or pond side the Birch is also well suited. Birch wood, though not very valuable with us, is used for a great variety of useful purposes, it being very light, durable, and easily worked.

Varieties of the Birch are by no means few, there being several cut-leaved forms, an upright-habited tree, and others whose leaves resemble in shape and size those of other species. The cut-leaved Birch (*B. alba laciniata*) is a charming tree, the leaves being cut almost to the midrib, thus adding extra lightness and delicacy of appearance to the specimen when compared with the parent. It is not a common tree, which is to be regretted, for it is a worthy form in every sense of the word. In America this variety is greatly extolled for its airy grace

and beauty. The purple-leaved Birch is another desirable acquisition, the foliage being only comparable to that of the Copper Beech, the tint or depth of colouring being quite as good and as lasting. With its light feathery appearance, this purple-leaved form is a most handsome tree and one that will when better known be widely sought after and planted. True, the common Birch has a decidedly pendulous habit, but in the variety named the Weeping Birch (*B. alba pendula*) the branches seem to have no upward inclination, both these and the branchlets hanging gracefully down, much after the style of those of the Kilmarnock Willow. Let everyone who wants to be the possessor of an easy-habited weeping tree procure this form.

Besides these, there is an American variety named *populifolia* in which the leaves are large and angular, and quickly tapering to the point. It is a form of our native tree, though supposed by not a few to be specifically distinct. The dwarf Birch (*B. nana*), found on some of our Scottish mountains, is a neat little shrub, for tree I cannot call it, of only a few inches in height, and remarkable for its slow growth and stunted appearance. For years I have had it as a rock plant, but though the tiny serrated leaves come and go from year to year, one cannot see any other traces of life, for the upward and lateral growths seem quite at a standstill. Specimens thirty years old are not a foot in height. A. D. WEBSTER.

Ivy injuring trees (*J. P. W.*).—There can be no question as to this. About five years ago I noticed that the fine belt of forest trees from 100 to 200 years old encircling this place were losing much of their vigorous growth and many of their topmost branches. These trees were all covered with Ivy, some of it as thick as my arm. I had every tree stripped of the Ivy, and though deprived of their leafy screens they look less lovely in this dull wintry time, the trees have recovered their vigour and are unquestionably more healthy.—EDWIN NELSON HAXELL.

—There cannot be a doubt, I think, that Ivy will injure young growing trees if it is permitted to ascend and overrun the branches; in fact, I have seen instances where young trees have been dwarfed and stunted by the too close embrace of the Ivy, and that improved considerably after the Ivy had been removed. But in the case of old Oak trees of large size where the growth has nearly ceased, the injury, if any, done by Ivy must be very small indeed, and the Oak and the Ivy associate so well, especially when the Oak is hoary-headed and full of years, that I should like to see all the old Oak trees covered with Ivy, especially in parks and pleasure grounds. Where the trees are grown merely for the value of the timber, I should say, keep the Ivy down.—E. H.

Street trees.—I would advise "Looker-on" and all others interested in this matter to carefully read an article which appeared in the *Manchester City News*, of January 24, entitled the "Story of the Shrubs and Tubs in Manchester." There is some most interesting information in it, as showing the way in which this business of tubs and shrubs and planting has been transacted. Had "Looker-on" known the true facts of the case, or had he read the article referred to, perhaps he would not have been in such haste to accuse me of being in the wrong. According to this article the plants came from Scotland, whether north or south; anyhow there is an item of £110 0s. 4d. for sixty-six shrubs purchased from Lamont and Sons, Musselburgh, and as there is an account for only one tub more than this number, it does not appear that there could have been many from a "black district" near Manchester. Will "Looker-on" kindly explain how this fact agrees with his statement to the contrary? With regard to the statement that "some of the best horticulturists" declined to give advice and assistance, I have authority for saying that all who were appealed to gave all the advice and assistance they possibly could.—W. NEILD, *The Gardens, Wythenshawe*.

Thinning trees.—Upon the subject of thinning trees, some analogy may perhaps be drawn from

the culture of Turnips, in which no farmer of the least experience ever expects to obtain these roots of the full size that they are capable of attaining without thinning them out to sufficient distances, and it can hardly be doubted that the advantage of so doing proceeds from thereby affording the plants ample room to extend both their roots and leaves. Surely the same effect will result from the proper and cautious thinning of trees, but there is this difference between the two cases, that with regard to Turnips the result may generally be observed in so short a space of time as to leave no possible doubt upon the subject; whilst, on the other hand, the growth of all trees is comparatively so slow, as to require much longer time and a series of close observations of the effect of experiments before any satisfactory deductions can be obtained. By such experiments it may probably be made to appear that to a certain extent the removal of any tree will have the effect of ultimately adding to the bulk of its neighbour to much more than the amount of the solid contents of that which has been taken away, though without such process neither of them would have attained to one quarter of the bulk of the tree which was left.—FORESTER.

Elymus arenarius or glaucus.—Under the heading of "Grass for Pheasant Cover," Mr. Wood strongly recommends *Elymus glaucus*, which I presume is identical with *Elymus arenarius*, the Lyme Grass of our sandy coasts. Possibly there are varieties more distinctly glaucous than the common form, but the ordinary one sufficiently justifies the designation given it by Mr. Wood. I am surprised to hear that a high price is put upon it, as it grows in great abundance on the sandbanks of Lincolnshire and other parts of the east coast where sand occurs. It is most valuable in such positions, as its roots (stolons) bind the sand and keep it from being blown about. It is a tall and handsome Grass, but never so happy as when growing in sand enriched by sea spray and freely exposed to the winds that sweep the shore. Like Mr. Wood, I was charmed with this *Elymus* when I first met with it while botanising along the east coast, and I secured a quantity, thinking it likely to be valuable as a decorative plant and useful as game cover. But after a few seasons I was induced to discard it as dangerous, from its habit of producing ergotted seeds of quite a remarkable size and in great abundance, and knowing the injurious effects of ergot when taken by cattle, I thought the risk too great, and have since been content to admire it in its proper and natural habitat, where the objectionable ergot, as far as my knowledge extends, does not appear.—WILLIAM INGRAM, *Belvoir*.

Planting Walnuts.—There is an opening for profitable employment of capital in the planting of Walnuts. Apart from nut culture, the timber will pay a fair percentage in a century or so. But it is this waiting for results that deters people from planting trees. In the case of the Walnut, one might safely calculate that the first twenty years after planting would be a blank so far as the fruit was concerned. The Walnut is a noble looking tree even when young, and it forms a delightful shade, because it is less sought after by flies and other insects than most trees. Without counting the profit of the nuts, the Walnut will make a very effective avenue tree either near the mansion or the farmhouse. I saw a short time ago an old-fashioned farmhouse with an avenue of Walnuts leading up to it, and thought how much the trees added to the appearance of the house, and besides this the nuts had proved in the past a considerable source of income. When the seasons were favourable I have known cases where the nuts on a single tree have realised from £3 to £5, the buyer paying all expenses of gathering. In no other way that I know of could so much be made of the land for so small an outlay. Walnut trees require little or no pruning beyond starting right in the beginning and looking after the leaders afterwards. As regards the sorts, there is a variety named *Juglans fertilis*, of dwarf habit, and which is said to come into bearing much earlier than the old-fashioned Walnut.—E. H.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ORCHARD AND FRUIT GARDEN.

THE PEACH—PRUNING AND DISBUDDING.

THE importance of this work was forcibly brought under my notice a short time ago by observing in a large garden the crowded state of the previous year's growth on some Peach and Nectarine trees in a late house about to be pruned and dressed ready for starting. At least one half of this growth would have to be cut out. Surely there must have been something radically wrong in the method of disbudding pursued the previous summer to necessitate this needless sacrifice of the vital forces of the trees on the altar of what may be called obsolete custom, prejudice, or ignorance. If trees treated in this way could give oral expression to their feelings, what reproachful words they would address to those under whose care they are placed, not only for wasting their forces by leading them into unprofitable channels in the shape of superfluous and useless growths, only to be thrown away when matured, but also for the needless use of the knife in winter pruning, to say nothing of the wasted labour expended in tying down twice the number of shoots required for fruit bearing, and unconsciously weakening the growth left for the ensuing year's crop by preventing its proper development and maturation by overcrowding. Disbudding, although it may appear on the surface of it a very mechanical and simple operation, is really not so, for on the carrying out of the work in an intelligent and rational manner the annual fruitfulness of the tree, as well as its permanent health and development will depend. I believe that the old and historical Royal George Peach, which at one time filled a large house at Chatsworth and gave from 80 to 100 dozen fine fruit annually for I do not know how many years in succession, owed much of its fruitfulness, long life, and development to judicious disbudding and the extension system of culture. There is no rule laid down that I am aware of for disbudding the shoots or thinning the blossom of Peach trees, but the general custom among growers is to pull a few buds off two or three times a week to prevent a too sudden check to the tree, as they allege would take place if more growth were taken off at a time; and with regard to thinning the blossom, the practice, according to my observation, is confined to very few gardeners, the majority preferring to let all the fruit set that will, semi-thinning it afterwards, and leaving the final thinning until the stoning period is over. This practice has ancient custom as its justification, but very few, I presume, would care to defend it on any other ground. It is contrary to all economical laws and to all principles governing good and sound methods of culture that a tree should be permitted to expend its energies at a critical time in its growth in bringing to an advanced stage leaves and fruit which admittedly must be pulled off and thrown away later on.

To give some idea of the strain this practice must place on a tree in a fruitful condition, I may mention that fruit-bearing shoots of the previous year's growth range from 12 inches long to 4 feet, according to the age and

vigour of the tree, and each shoot will usually have from twenty to fifty flowers on, half of which at least, if the tree is healthy and strong, will set fruit if permitted. I ask, Is there any reason why a tree should be allowed to exhaust itself to the extent of setting all this fruit, when at most even on the longest and strongest shoots certainly not more than three or four fruits will be carried to perfection? As bearing on this question and emphasising the importance of thinning the blossom of fruit trees, I may in passing draw attention to the fact which frequently happens in the case of outdoor fruit trees, viz., that when overlaid with blossom the crop is often scanty, and the reverse when only a moderate quantity is on. That good crops of fruit are produced by the practice of deferred thinning of the shoots and fruit, I, of course, admit, but I affirm that heavier crops of fine fruit and in a shorter time can be produced by following the practice of earlier thinning, and I am quite satisfied the trees can be maintained in health and fruitfulness for a much longer period. There is no more difficulty to the initiated in Peach culture in selecting the best and strongest bloom on a shoot than there is in selecting the fruit when set, and as to the progress in the setting and swelling of the fruit on a well-thinned tree compared to one not thinned, the difference is most marked in favour of the thinned one. Before commencing the work of disbudding and thinning the blooms, the operator ought to have it very clearly fixed in his mind's eye how many fruits he wishes each shoot to carry. If a small branch, one will be sufficient, and two, three, and so on, according to the size and strength of the shoot, and when it comes to the final thinning, measure the superficial area which the tree covers, and leave one fruit to every square foot. With reference to the number of wood growths to be left on each shoot, these must be determined partly by the length of the shoots of the previous summer. On a small shoot at the final disbudding two young growths should be ample, one at the base and the leading shoot. The base shoot should be on the uppermost side of the branch. On stronger and longer branches as they are usually wider apart three or four shoots may be left, but the important fact must never be lost sight of that it is a bad and wasteful practice to grow more shoots than will be wanted for the following year's crop.

Disbudding and bloom-thinning should be carried out in a systematic, and not in a haphazard way. We will suppose that the tree is in full bloom, with the wood-buds forward enough to enable us to rub them off. I would take shoot by shoot, going over every one singly, taking off all the weak looking blossoms and shoots, leaving perhaps half the original number when the work is completed. At this stage of the tree's growth progress is very rapid, and the trees should be gone over again in the course of four or five days, still further reducing both flower-buds and growths, taking particular care to thin out the weakest of both as before, and if possible bearing in mind to have both shoots and fruit on the top side of the branches, the Peach in this position being more favourably placed for its full exposure to light and sunshine so necessary for the perfect colouring and finish of the fruit. At the next and final thinning, which should take place in about ten days or a fortnight after the second, the fruit will now be set, and only those should now be left on which it is intended the tree shall carry to maturity. The same with wood growths, only those required for the ensuing year's crop should be permitted to remain.

As to the winter pruning of the Peach and

the Nectarine, your readers will, I think, conclude, from the foregoing remarks, that there is nothing left to be cut away. Such is the case, I can point to many well furnished and fruitful trees on which the knife has scarcely been used since they were cut back in the first instance when maiden trees.

Chatsworth.

O. THOMAS.

LATE PEARS.

MR. GEO. BUNYARD having mentioned Holme Lacy in connection with his article on late Pears in *THE GARDEN* (p. 83), and as he asks how these succeed there, I gladly avail myself of the opportunity of giving what information I can on the subject, having had charge of the collection there for over three years. Almost every variety of Pear with any degree of merit was cultivated, and if of superior merit as regards flavour it was carefully made a note of, and cultivated on different aspects and stocks. During my time there were quite 240 varieties under trial, but out of that number I must admit that only about three dozen were worth cultivating as regards first-class table quality. Of this number only about 18, or at the most two dozen were sent to table, and these of the vinous-flavoured kinds, of which we may take Marie Louise and Winter Nelis as types. It must be only in very exceptionally favoured districts that late Pears may be cultivated in the open as pyramids, bushes or espaliers, and this, I think, is the reason why there are so many complaints of our late Pears being so indifferently flavoured. That they will make fine trees and crop well is not a criterion that the quality will be equally as satisfactory. In some of the more southern counties late Pears may be cultivated in the open with some degree of certainty, but instances are very rare. According to my experience, late Pears should be grown against south or west walls with their intermediate angles, and the more northward we go the more necessary is it to plant against walls with a southern aspect. Warm and well-drained soils are also necessary to obtain high quality, and where these are of a loamy character the quality will advance in a corresponding degree. As an illustration as to how warmth favours the high quality of Pears, take the Chaumontel in Jersey and the Duchesse d'Angoulême in France. These two Pears in England are almost worthless, especially the former.

Confining myself to the later varieties only, I will commence with Glou Morceau. Here we have a Pear of the highest excellence, but to bring out its true character it requires a warm soil and good cultivation, or else it becomes spotted and cracked. After a wet and cold season, even under good culture, it has a tendency to become spotted, especially on any other aspect than full south. Beurré d'Arenberg at Holme Lacy was always of the highest merit. It was cultivated on the Pear stock, and grew against a south wall. On the Quince it will not succeed, and this, I think, is the reason of its being generally poor, both in size and quality. Winter Nelis was most excellent in every respect. Beurré de Jonghe is a beautiful Pear, and if better known would be more cultivated. Josephine de Malines, which was thought very highly of, and considered the best in its season, should be grown against either a south or a west wall. Marie Benoist was also good, but Zephirin Gregoire was, like Fondante d'Automne, apt to go off at the core almost as soon as ripe. Knight's Monarch is a grand Pear, and will last in condition until the end of February. It ripened at Holme Lacy on an espalier. It has a fault, and this a serious one, of having a tendency to cast its fruit before being forward enough for gathering. The late Mr. Cox, when gardener at Madresfield Court, told me that to have Knight's Monarch in superior condition, it should not be placed in single layers in the fruit room, but be packed away in a hamper surrounded with hay, so as to undergo a slight fermentation, when its quality would be much improved. I mention this for what it is worth, as I never afterwards had an opportunity of putting it into practice. Passe Crassane and Nouvelle Fulvie were also very good as late Pears, but Bergamotte

d'Esperen was of the greatest excellence, and invariably ripened well, being very melting and rich in flavour. Olivier des Serres was also passable. Doyenné d'Alençon was rather gritty and insipid, and went off very quickly. Easter Beurré and Beurré Rance were not at all satisfactory. The former was tried under every system of culture. There were old and young trees both in the open and against walls, and also on the Pear and Quince stocks. It came fairly melting, but gritty. Bergamotte Hertrich is a variety very rarely mentioned, but as a late Pear it is well worthy of a trial. It should be grown against a south wall, and on warm soils of a loamy nature is well worthy of a trial, being very late. During the time I was at Holme Lacy it came very melting once, and this was after a warm summer.

The storing of the fruit should be carefully performed, particular care being taken not to gather it until it will part easily from the tree. It used to be far into November before all the varieties were gathered at Holme Lacy. With earlier varieties more limit may be allowed.

A. YOUNG.
Abberley Hall, Stourport.

PEACHES AND NECTARINES.

THE aim of most gardeners is to push forward all planting, root-pruning, and lifting of trees as early in the autumn as possible. This season, however, owing to the early severity of the weather, there can be no doubt that much had to be left undone, and it is only recently that the soil has been at all suitable for finishing the work. The planting of Peach trees, I fancy, will be more extensively practised in the open than has been the case for the last few years, especially where the climate is anything like reasonable for Peach growing. If planted well and the trees are subsequently attended to in the way of thin training, disbudding, root-lifting, &c., I feel confident the results will be highly satisfactory—at all events in the majority of seasons. We have good varieties—early, midseason, and late—some much later than advisable, for unless the season be very fine, warm, &c., the fruit does not ripen satisfactorily. Waterloo, Alexander, and Amsden June are very early, and as these ripen all about the same time, one of the three will be enough for a moderate collection. Hale's Early and Rivers' Early York are very reliable sorts, usually cropping well and of very good flavour. A Bec and Dagmar are useful sorts. Early Louise, ripening later than Early Beatrice, is a larger fruit, though I do not care much for either. Dymond is good. Royal George, too, on cold soils suffers from mildew, but if worked on a healthy stock and in good condition at the root, the trees not only escape this malady, but usually fruit very satisfactorily. Stirling Castle and Bellegarde are good. Noblesse, Alexandra Noblesse, Barrington, and Admirable are all very worthy sorts. I think the above the best of all our outdoor Peaches, and if late varieties are required, Princess of Wales and Mr. Gladstone might well be included, but should be planted on a warm aspect, with their roots kept near to the surface. There is a variety under the name of Falcon grown at Barham Court, and on every occasion I have paid Mr. Woodward a visit during the Peach season the trees have been carrying splendid crops. In planting, care should be taken that none of the roots are in a dry state; far better soak both top and bottom in water for a few hours previously. Many failures may be traced to planting young trees whose roots are not only dry, but whose bark is partly shrivelled. The soil best suited to the Peach I find to be good medium loam with plenty of fibre, burnt earth, and brick mortar, all well mixed together. If the soil is poor, a few bones should be added, but not rank manure. The drainage should also be good and the soil thoroughly rammed tight, so that the roots may have a firm grip. Planting, it is needless to remark, should be pushed forward, so that all may be finished before the buds get too forward. Root-lifting may still be practised, but no time should now be lost. Old worn-out borders and trees which have been planted for years are best rooted out and the old soil replaced with new. Plant young, healthy stuff,

and the cost will quickly be counterbalanced by the quantity and quality of fruit produced.

Mereworth Castle.

H. MARKHAM.

COLOUR IN APPLES.

TO THE EDITOR OF THE GARDEN.

SIR,—In the article on "Colour in Apples," by "A. D.," in THE GARDEN for January 24, he asks some particulars as to soil, form of tree, &c., which produced the highly-coloured examples in my collection shown at the Drill Hall on Jan. 13. Most of the highly-coloured specimens were grown on standard trees in an orchard planted about 20 years ago, the soil being a rather stiff loam inclined to clay, of a good depth, and lying on a gravel subsoil. In this orchard I always get remarkable colour, even on many varieties not usually considered so, Warner's King being often flushed with crimson, so much so as to deceive experts when exhibited. New Hawthornden, round Winter Nonsuch, Dumelow's Seedling, Striped Beefing, Hanwell Souring, Blenheim, and King of the Pippins also show very high colour. Cox's Orange Pippin, too, although small, is often as ruddy as a Cherry. The trees of Mère de Ménage this year were a grand sight with their heavy load of large crimson fruit quite averaging half a pound each; Beauty of Kent and Rymer were also very highly coloured, whilst Yorkshire Beauty and Duchess of Oldenburgh are exceedingly beautiful, and never fail to produce a crop. I send you a few small specimens of most of the sorts mentioned, showing the colour they have on some soils. Some of the other cooking and dessert sorts which I exhibited were grown on bush trees in my trial plantation, and perhaps a few on young trees in nursery quarters, but these were mostly the larger and greener specimens. I could have sent larger examples of most of the varieties, but preferred to show the highly-coloured examples which could be produced on standard trees. I have often given notes in my collections as to the form of trees on which the specimens shown were grown, and did so at the Guildhall show, when I exhibited several baskets of highly-coloured fruit, which were marked as being grown on standard trees. I have now had considerable experience in exhibiting Apples, and I invariably find I get the highest-coloured specimens from standard trees. I can grow them larger on pyramids or other forms of dwarf trees, but I cannot get the colour. Another great thing, if you wish high colour and freshness in your Apples late in the season, is to leave them on the trees as long as possible; even early varieties will be fresh long after the early-gathered fruit from the same trees is gone, and the later varieties will keep fresh and unshrivelled much longer. It is also remarkable what an amount of extra colour a few days longer on the trees in the autumn will give. A large proportion of the Apples in this country are gathered too soon. Soil and the stock on which they are worked have also a great influence over the colour, and even on the saccharine contained in the fruit. All experienced cider makers know the difference in the cider made from the same sorts of fruit grown in different soils even in the same parish.

I originally intended sending up to the Drill Hall a collection of cider varieties only, purposely to show the high colour they attain, but afterwards thought that the committee might like to see some of the more highly-coloured dessert and cooking varieties; the collection was, therefore, packed rather hurriedly, and I had not time to give as full particulars as I should have wished. Amongst the local and cider varieties were several which deserve extended culture if

only for their heavy cropping and ornamental qualities.

Cowarne Queening, an old dessert variety fast dying out, is of really first-class flavour, and preferred by many old farmers to any other Apple. Flanders Pippin is one of the best old Worcestershire cooking Apples, and not a bad dessert variety. College Apple, a showy and good keeping variety, and Broadtail are two of the hardiest and heaviest cropping local Apples we have. Tom Putt, too, is a heavy cropper, bright and good. Cherry Pearmain is one of the most useful farmer's Apples, good for cider or cooking, and may be used for dessert when choicer kinds cannot be obtained. I have still faith in standard trees, and consider they are more suitable than dwarf ones for a farmer who has other agricultural pursuits. Of course, standards do not produce fruit so quickly, but the land the trees are growing on is worth quite as much before they come into bearing as it would be without the trees. I, too, should be sorry to see even cider Apples go out of cultivation, as under certain circumstances and on proper soils they pay as well as the choicer dessert and cooking varieties, and few people, comparatively speaking, know what really good cider is like.

I think there is yet room for all the fruit we can grow, be it on standards, bushes, dwarfs, or any form of tree best suited to the circumstances. I think we can still extend our fruit plantations and also meet foreign competition by increasing our supply of best fruit. There are thousands of acres of land in this kingdom on which can be grown quite as good fruit as that which I exhibited. I should be one of the last to run down the planting of dwarf trees where they can be properly attended to. I say plant bush or pyramid trees by the acre and they will pay you well, and you will get the highest price for your produce if properly managed. It is of no use to grow good fruit unless you know how to market it. Let best fruit go to the proper market, small sour fruit to the jam-makers, cider fruit to the cider mill. There are a demand and a proper market for all your fruit. Never be tempted to market your fruit as grown, or you will rue it. This is where so many fruit growers fail to make a profit. All the fruit, best and inferior, has its proper place, and no man can grow all best. The secret of making fruit-growing profitable is to plant only the superior sorts suitable to your locality and for the purpose you want them for, heavy croppers, and of good size. Take care of the trees when they are planted, grow them well, pick and market the fruit carefully, and I do not think you will then be beaten by the American or any other fruit. When a superior class of fruit is obtained, there is no difficulty in disposing of it at paying prices.

While on the subject of farmers growing fruit, nearly all the press made remarks as to the poor display made by the farmers at the late Guildhall show, but none seemed to know the chief reason, at least as regards the division in which my county is situated, and including the large orchard counties of Devonshire, Somersetshire, Gloucestershire, and Herefordshire; what I refer to was the ridiculous restriction as to having only one acre. I have a pretty good knowledge of the tenant farmers of Herefordshire, and they all have, as far as I know, without exception, more than one acre of orchard in their holdings. No doubt the same remark applies to the other counties mentioned. I suppose the object of this restriction was to

keep the large growers from swamping the small ones, but it did not even do this, for, as a rule, the smaller the holding the greater the proportion of orcharding; it simply shut out the *bona-fide* tenant farmers of Herefordshire, Somersetshire, Devonshire, and the great fruit producing counties. Before concluding, I may say I heartily agree with Mr. Bunyard's suggestions that our fruit exhibitions should state in their rules "that five Apples or Pears should form a dish, and exclude or have classes for fruit grown under glass." It has often puzzled me why six fruits at most of our exhibitions should form a dish. I have already written the secretaries of some of our leading exhibitions before I saw Mr. Bunyard's letter, and have been the means of having it altered at some shows, and invariably found it work well. In my collections put up, "not for competition," I always stage five; at the Guildhall show there were five to a dish, and no one can say they did not look well. Anyone who has had experience in staging Apples must have found how difficult it is to stage six fruit properly, especially of some sorts and shapes. There seems always one odd fruit, and they tumble about in all forms; whereas with five you have four for a base and one for the centre, and they stand much easier. As regards fruit grown under glass, the mistake of showing this and outdoor grown fruit together is obvious. Many tender sorts are staged which cannot be grown to perfection except under glass. The consequence is that would-be growers note these sorts, and it only leads to dissatisfaction with fruit growing. We now have so many really fine hardy sorts, that we do not want to include the tender sorts unless we have an orchard house.

JOHN WATKINS.

Pomona Nurseries, Withington, Hereford.

* * The samples sent are all fresh and firm, and quite bear out both "A. D.'s" remarks and those of Mr. Watkins. We have never seen such highly coloured samples as those sent, the colour of the Wellington especially being noteworthy. The College Apple is a medium-sized, conical-shaped fruit, speckled all over the surface with red, and of very good quality.—Ed.

Black Currant buds.—Of late years we have been troubled very much by the bullfinches taking the flower-buds of the Black Currants. No notice is taken of the buds until they have bursted and begin to show the flowers, and while the bushes are in this stage very great care is necessary to save them from their ravages. It is of no use to dust or syringe the trees with lime or soot and water, or the two combined, until the bushes have reached this stage, but if this mixture is applied just as the buds have bursted, they can easily be made distasteful to the birds. I have for several years netted the whole of the bushes and taken every care to adjust the net so as to make it impervious to birds, but owing to the bushes being in a somewhat quiet part of the garden they effected an entrance. Since that time I carefully watch for the birds making a start on the buds, and then apply the wash of lime and soot. I have tried tying up the bushes tightly with string, but with no satisfactory results. When the lime and soot mixed with water so that it will pass readily through the jet of a syringe is applied at the right time, it is the best preventive I have yet tried.—C. WARDEN.

Wired Peach walls.—At the last meeting of the fruit committee of the Royal Horticultural Society the chairman (Mr. Crowley) showed branches of trained Peach trees taken from a wired wall, which, where the wood came in contact with the wire, had been literally killed through as though burnt. Doubtless because of the excessive heat-conducting powers of iron wire in such exceedingly cold weather as prevailed recently, the effect of contact with the wood had been identical to what

would have taken place had the wire been greatly heated. The fact may well prove worthy of notice to all who grow trees on wired walls, and cause them to take the precaution which most experienced gardeners adopt of untying the branches from the wire and bunching them for the winter, so that no such accidents as those shown by Mr. Crowley can occur.—A. D.

KILLING INSECTS ON OLD WALLS.

In many gardens there are trees trained to old walls, and it is these that harbour insect pests. Though the severe winter will have got rid of many of them, still they always appear in the early spring if not thoroughly eradicated in the winter months. At this season, therefore, every opportunity should be taken to get rid of them. Some weeks ago an excellent note appeared in THE GARDEN on washing fruit trees, and no doubt if this was carried out to a greater extent much of the trouble in the summer months would be lessened. If the treatment then advised was followed out, very little trouble will be experienced during the coming summer. The object of this note is also to show the necessity of now getting rid of these pests by a thorough cleansing of old walls and other materials to which the trees are trained. Much can be done by only using clean shreds and ties and by burning old nails before using them again. I believe shreds do much mischief. It is not always practicable to discard them, but it is easy to renew them. Small willows and twigs can often be used, also raffia and other tying materials that do not harbour insect pests like old shreds. Many valuable fruit trees would finish better crops if not devoured by insects; therefore, in the case of old walls to which the trees are trained, every opportunity should be taken in the winter months to wage war with them, as then they can be got at. This is impossible when the trees are covered with foliage. Both for walls and trees I use soluble paraffin oil, and though paraffin oil has for some time been largely used, it is when mixed in the ordinary way with water (unless thoroughly stirred) that caution is most necessary. Indeed, I have seen Vines and other fruit trees completely ruined by it when used by inexperienced persons. No such difficulty is found in the case of soluble paraffin, as it mixes readily with water, requires no stirring, and thoroughly kills every insect it touches. I mix a quantity in a garden engine and well saturate the old walls, and indeed new ones with the paraffin. I get well repaid for the cost and labour in the freedom enjoyed from insect pests during the summer months. It is also good when mixed with clay and used as a dressing for fruit trees; indeed, for large trees badly attacked by the caterpillar or American blight I know of no better remedy. Mixing the paraffin with clay makes it stick to the trees, and it can be applied as thickly as required. Last season it was used successfully for American blight. Thus employed it is a sure remedy for scale. I had some old Fig trees that could not be got thoroughly clean, but when saturated with the soluble paraffin no further trouble was experienced with scale. I intend to use this simple remedy with water this season on the Cherry trees, as both green and black-fly are most troublesome in some seasons; therefore, if the walls are well done now it will be the means of getting a good start for the coming season. I have several large trees of Royal George Peach that mildew badly, but if syringed over three or four times after the fruit is as large as nuts, it destroys all traces of the pest. For pot Roses it is a safe remedy, easily applied, and not at all costly. For badly infested fruit trees I should advise painting them over, well covering all old bark and rubbing into the crevices. By this means much time will be saved, as during the busy season trees that are in a bad state soon get worse, being often permanently crippled. It was used largely last year on standard and bush Roses, and it answered the purpose admirably both for green fly and mildew. I would certainly recommend its use for that purpose, as many Rose trees are often completely spoilt early in the season by green-fly and mildew. A quantity was mixed up in the garden engine, and after two applications the trees were not again attacked.

Much greater success is secured when this or any other remedy is applied before the trees get disfigured.
GEO. WYTHES.

KITCHEN OR DESSERT APPLES.

In a recent number a correspondent called attention to the judging at the Crystal Palace, and inferred that certain Apples were not properly shown as table fruit. I admit there is a difficulty, but am not aware of any standard by which we can test which Apples are exclusively dessert and the reverse. My idea has always been that where an Apple is pleasant to the taste, sweet and of soft melting flesh, it is admissible as a dessert fruit, while one whose predominant flavour is acid is not so. The real difficulty arises from the fact that it is a matter of taste, and I know some who think that a Wellington is a first-class eating or table fruit, giving a rather wide range from that point of view.

Experts, too, differ in their estimates. For example: Cox's Pomona is described by Dr. Hogg, Messrs. Rivers and G. Paul as kitchen, while I class it K. T. Now it happens that last year Pomona was very fine in flavour and most distinctly (as grown here) a dessert fruit. In fact it is too flat and angular to be considered a model kitchen Apple, and its beauty entitles it to some consideration.

The new Bismarck from the open is an acid kitchen fruit, but under good culture or from orchard house it ranks as a fine dessert Apple, and reasons such as these could be multiplied freely. Lord Derby this season when fully ripened is a very pleasant and sprightly flavoured Apple, ranking near to Calville Blanc—so good in fact that we are eating them.

Again, Alexander, Peasgood's Nonsuch, King of Tomkins County, Washington, and The Queen when well grown and properly developed are worthy of the dessert, but when gathered before they are matured they must be used in the kitchen. My own idea of a good dessert fruit is one that is spicy or aromatic in flavour with or without a pleasant acid, soft and digestible in the flesh and below medium size. The best that come into my mind are Irish Peach, Quarrenden, Summer Nonpareil or Spice, Lady Sudeley, the Mother, Cox's Orange, September Beauty, Blenheim Orange, Scarlet Nonpareil, Old Nonpareil, Beauty of Kent, Wealthy, Pomona, Waltham Abbey, Lady Henniker, Margil, Ross Nonpareil, Claygate Pearmain, Mannington Pearmain, and Reinette du Canada.

I do not consider Golden Harvey, Golden Knob, Van Mons Reinette, Clark's Pippin, Sturmer Pippin, Frogmore Nonpareil, Gipsy King, Ashmead's Kernel, Court Pendu Plat, and such tough fleshed and leathery Apples as really first rate fruit, but they possess distinct flavour, and where people can digest them, well and good, but they are more fit for boys' enjoyment; but tastes differ. I never eat King of the Pippins; many prefer it. There is a class of half toughs that are first-rate, as Egremont and Brownlee's Russet, Ribston Pippin, and Rosemary Russet, the spicy flavour of which is relished, but when well grown, many so-called kitchen kinds develop a fine sugary and aromatic taste. I am strongly of opinion that we do not keep our Apples on the tree long enough, and also that we often store them until they are past their best. I noted a grand basket of Pomona in the Central Row, Covent Garden, in November, and I expect they were quoted at dessert prices; very bright they were with a backing of pink paper. Will some experts give their opinion?

Maidstone.

GEORGE BUNYARD.

SHORT NOTES.—FRUIT.

Moss on fruit trees.—A good wash for destroying Moss on fruit trees, the *American Rural Home* says, may be prepared in the following manner: To a pailful of water add two or three pounds of soft lye soap, half a pint of crude carbolic acid, two ounces of Paris green, and enough of clay to give consistency to make the whole adhere to the tree. Apply with a mop or broom to the trunk of the tree.

Plum for the West Riding of Yorkshire.—I should be greatly obliged if you could give me the

name of a good all-round Plum that would be likely to do well in this locality. We stand 380 feet above the sea level on a light, shallow soil over sandstone rock. The Victoria does pretty well; but several other varieties—Green Gage, Prune de Milan, Jefferson's, Magnum Bonum, and Rivers' Early Prolific—have failed to bear anything, although they have been planted many years now—some as standards and others on a south wall.—AN OLD SUBSCRIBER.

MUSCAT OF ALEXANDRIA GRAPE.

I QUITE agree with all that Mr. Thomas says about this matchless old variety. Taking it all in all, including its vigorous, free-growing nature, the weight of crop it will carry, and the excellence of the fruit when brought up to the condition it can be, it stands unequalled. Mr. Thomas reasonably asks the question why it is not more grown. There is, I think, more than one reason for its not being cultivated to the extent that its merits entitle it to. The all but continuous application of artificial heat, which to bring the fruit right up to the mark is necessary, often entails a fire going when otherwise it would not be wanted. But the chief cause, I fancy, is through its indifferent setting which may often be seen, despite all that is done in the way of rapping the rods, drawing the hand over the bunches, and the other ordinary methods usually advised and employed during the blooming season. Even where there is a full crop, so far as weight is concerned, and nothing wanting on the score of colour, there are frequently more stoneless berries than one cares to see. If the practice of syringing during the time of blooming was adopted and the work done as it should be, there need be no more defective bunches in regard to even setting than there is with the freest setters, such, for instance, as Black Alicante. Not only is the syringing a certain means of ensuring full and even setting with this or any other shy-setting variety, but it takes very little time. All that is necessary is to direct the water with sufficient force to remove the capsules. This is essential, as I have before urged when advising the use of the syringe. Some who have tried it have at the first attempt only had partial success. Simply dewing the bunches is not enough; the water must be directed with a fair amount of force. Showy varieties like Gros Maroc, Alnwick Seedling, and others of similar description that are better in appearance than in quality at the present day, as with other kinds of fruit, are more grown than they deserve. Gros Colman is likely to continue a favourite on account of its keeping properties and large berries, combined with fine colour when up to the mark in this respect. This is evident so far as the general public are concerned, as shown now for a good many years by its realising more money than any other black variety.

There are several black Grapes that are not grown to the extent they deserve, notably Madresfield Court and Muscat Hamburgh. The merits of the former are now generally known; when well finished it is a grand Grape to look at, and alike fine in flavour and texture. When it first came out the mistake was made in describing it as a late Grape suitable for keeping; whereas it is more of an early than a late variety, and will not keep long without shrivelling. Many who from the high character it received got it as soon as it first came out finding that it was not a late sort and would not keep discarded it, but are again taking to it and growing it as a midseason variety, which in reality it is. The only thing against it is that the berries sometimes crack if it is not carefully managed. Muscat Hamburgh, though smaller in berry than Madresfield Court, is a beautiful Grape and excellent in quality, but, strange to say, it is rarely met with, though there is nothing in its cultivation that need deter a good Grape grower from having it.

It is not alone in Grapes that many gardeners now show a preference to good-looking, though indifferent kinds that are more easily managed than others that have the double merit of being both fine in appearance and good in quality. It extends to other fruits as well. In Pines, for instance, although now comparatively little grown, from the

time that Smooth Cayenne became known it took the place to a great extent of the Queen and Black Jamaica, yet even in its best condition it is a long way behind the other two named. Peaches and Strawberries, again, in the case of both coarse, flavourless varieties, are often grown to the exclusion, more or less, of the best well-proved older sorts. T. B.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS FOR A GROUP.

I SHALL be glad if some reader of THE GARDEN will give me advice on the following questions, as I am anxious to grow some plants to form a group at our next show.—W. H. B., Bedford.

1. *How many plants ought I to grow for a group to fill a space of 20 square feet?*

This puzzles many amateur cultivators of Chrysanthemums. As all the plants which are grown will not come up to exhibition form, it is necessary to provide against casualties by growing a few extra plants. Thirty would be a good number of plants to cultivate for the purpose named.

2. *The names and number of each I ought to put on one side for that purpose?*

The Japanese kinds are more suitable for grouping on account of the variety both in colour and form of flowers obtainable in that family. The greater difficulty there is in obtaining good incurved blooms influences the judges, who take into consideration the extra labour required to obtain good flowers. Incurved sorts cannot therefore be entirely ignored in making up a list of varieties. The following will be found suitable for the purpose: Cullingfordi (2), Avalanche (3), Val d'Andorre (2), Mons. Bernard (2), Edwin Molyneux (2), Sunflower (2), Mme. C. Audiguier (2), Ralph Brocklebank, Mme. J. Laing, Mlle. Lacroix, Lord Alcester (2), Jardin des Plantes (2), Empress of India, Princess of Wales (2), Lord Wolsley, Jeanne d'Arc, Miss M. A. Haggas, King of Crimson, and Jeanne Délau.

3. *Ought I to grow them on the cut-down principle? If so, the date to cut each sort down, to be ready for a show about the middle of November?*

Plants for grouping where quality of the blooms is especially a consideration should be cultivated on the cut-down principle; in no other manner can the plants be had so dwarf, and carrying such good foliage and fine flowers. Those naturally flowering late, such as Ralph Brocklebank, for instance, of the list given above, and Jardin des Plantes in the incurved, should be cut down about the 20th of May in "W. H. B.'s" district, so as to arrange their growth to correspond with that of the earlier sorts, such as Avalanche, Mlle. Lacroix, Edwin Molyneux, and Lord Wolsley, which should be cut down by the second or third week in June, cutting them down at intervals between the two dates to have them in flower about the middle of November.

4. *How many stems should I leave to each plant, and how many flowers to each stem, my aim being to get large blooms of good quality? What size of pot should they be flowered in? I have rooted cuttings taken in November and December of nearly all the leading sorts.*

To obtain the best blooms the plants should not be allowed to have more than four shoots to each, each stem being confined to the production of one bloom only. Pots 9 inches in diameter are large enough for any of those named. One or two of the weaker growing kinds will succeed equally well in 8-inch pots.—E. MOLYNEUX.

Hardy Chrysanthemums.—The yellow blossoms in your plate of February 7 are those of Aigle d'Or, which I have grown as a border plant for about thirteen years. It is a good outdoor flower, and requires no especial care or culture, but is best severely divided every second year. With me it usually grows about 3 feet high, and blooms in October. The best white for out of doors in my experience is Sœur Melanie, which is of very vigorous growth and a profuse bloomer. It throws up a

wonderful amount of new shoots from the roots, more than almost any variety I know of, so that a large stock is quickly obtained. Julie Lagravère is also a grand variety for the border and never fails to bloom freely. President is another exceedingly useful sort, somewhat taller than either of the foregoing; colour lilac-magenta, good for cutting. Of the Cedo nulli varieties I prefer the lilac. Its colour, rosy-lilac, is quite distinct from that of all others, and the variety is free-growing. Dick Turpin, an Anemone pompon, magenta rays and yellow centre, is a reliable sort, and looks well amongst cut flowers. For length of blooming period none equals Mme. Piccol. Its individuality is well marked, for in spring it looks as if it never would start again. But gradually it throws up weakly-looking shoots with spare foliage until it branches out into a neat bush, and for many years it has begun blooming the first week in July, continuing until the end of October. As our failures are as instructive as our successes, I may chronicle a few. One is Fiberta. It is a very pretty canary-coloured flower, but I have never had a plant to grow again the second year; its constitution seems too feeble. Flora, an orange-yellow flower, is nearly as bad. Scarlet Gem is stronger, but the flower-stems are so weak that they are unable to hold the flowers up properly, and therefore it is disappointing. I have a notion that the propagation of cuttings in heat is the predisposing cause of all this, just as it was the accepted cause of the Hollyhock disease. I feel sure if cuttings were struck in the open ground they would do better even if they were later. I may mention that I find it better to leave the old stems uncut all the winter, as they help to protect the young growths.—T. J. WEAVER, Crouch End.

Chrysanthemum Mrs. Alpheus Hardy.—I have seen a suggestion that we may have more than one variety of this Chrysanthemum, as a form seems to have been obtained which produces at least fairly good foliage, and does not become so diseased as that usually met with. Whether such is the case I cannot say, but I notice that the introducers of Mrs. Alpheus Hardy, among their novelties for 1891, announce an improved form of that particular variety. If it be, as stated, "more vigorous, of a better constitution, dwarfer, and the flowers even more perfect," it will be indeed an acquisition; but I see an announcement to the effect that the firm in question has lost nearly the whole stock of it, so that we shall not have an opportunity of testing its merits during the coming season. The pink coloured variety with the peculiar hair-like growths—Louis Boëmer—will doubtless create some interest.—T.

—Although rather late in the season for Chrysanthemum notes, thinking it might interest some of your friends, I send you herewith a very poor photograph of Mrs. A. Hardy. There is so much complaint about this much-advertised variety, particularly in England, that my experience may prove of value to those interested in this flower. This plant was grown in a 12-inch pot, was 5 feet in height, and over 5 feet in diameter at the top. The blooms were each from 5 inches to 6 inches in diameter, and there must have been over 300 flowers on the plant. At the annual exhibition of Chrysanthemums of the Massachusetts Horticultural Society my gardener was given a silver medal for this plant. In my small collection this was the only one of the variety grown and is not the pick of a large number. This plant was grown under glass the whole season, and also a plant of L. B. Bird which was considered a wonderfully fine specimen. My other plants were all grown out of doors, but I feel sure, at least in this country, that many of the Japanese varieties would be much improved by being grown under glass.—WALTER HUNNEWELL, Boston, Mass., U.S.A.

* * The photograph showed a remarkably fine specimen, but, unfortunately, too poor for engraving.—ED.

Cure for mildew.—In THE GARDEN for August 23, "W. S." informs us of his success in keeping mildew down with sulphate of copper and lime. I should feel obliged if he would tell me the time and method of the application and the proportions of the mixture.—T. R. B.

CORDYLINES OUT OF DOORS.

THE engraving depicts a remarkably fine specimen of *Cordyline australis*, which is growing at Bosahan, in Cornwall. Although the species is a very common one in conservatories and greenhouses, both in a large and small state, and is also frequently used in sub-tropical gardening, it is only in the mildest parts of England and Ireland that it can be grown permanently in the open. In the neighbourhood of London it has occasionally been tried, but although it may survive an unusually mild winter, it would certainly succumb during such an one as we have just experienced. In the Isle of Wight, and from thence along the shores of Devonshire and Cornwall to the Scilly Isles, it succeeds well, forming a prominent feature in even cottage gardens, whilst in some of larger size whole avenues are planted. What an effective addition it is to the outdoor vegetation of these favoured localities the illustration admirably shows. Judging by the numerous specimens growing in the temperate house at Kew, the species is a very variable one, some forms having gracefully arching leaves, whilst in others they are straight and comparatively rigid, giving the plant a somewhat Yucca-like appearance. In some varieties, again, the foliage is of a decidedly glaucous hue, whilst that of another type is bright green. This variation has given rise to great confusion in names, many of those that have received specific names being no more than varieties. Others of reputedly hybrid origin are also common in these southern gardens. The genus does not appear to have ever been thoroughly worked out, and I believe that in New Zealand—the native country of *C. australis*, *indivisa*, &c.—the same confusion in nomenclature exists. *C. australis* does not flower in a small state, and I have not seen plants under 10 feet in height in bloom. Adult plants, however, flower with great freedom, as may be judged from the picture. The racemes are 4 feet to 5 feet long, pyramidal in outline and many-branched; the flowers are white and thickly crowded, and although individually insignificant, the effect of the whole raceme is very striking. Indoors it is usually at its best in June and July. Until it commences to flower it grows up in a single straight stem, the leaves being 2 feet to 4 feet long, and forming a rounded head. The check caused by flowering frequently, but not always, induces the growing point to divide, and large specimens like that illustrated form in consequence a huge many-branched mass of foliage. One of the most beautiful varieties known in gardens as *C. indivisa* Veitchi, but quite distinct from the true *C. indivisa*, has the midrib and sheathing bases of the leaves coloured a beautiful rich red. Whether the plants will retain this character beyond the flowering stage I do not know, the largest I have seen being under 6 feet in height.

A species which will certainly prove as hardy as *C. australis*, and it may be harder, is the true *C. indivisa*. As has been pointed out, some confusion has arisen with regard to this name, which has been given to several other plants. The true *C. indivisa* is a distinct and very handsome species, of which a large number of plants have at different times been in cultivation; owing, however, to their having been treated as tropical or semi-tropical plants they usually proved short-lived, with the result that it is at the present date a comparatively rare plant. One of the finest specimens in the country is growing in Mr. Rashleigh's garden at Menabilly, Cornwall. At Kew several plants are cultivated in the temperate and other cool houses. The species has also been tried there

in the open, but although one plant passed through the winter of 1889-90 unharmed, so far as can be judged at present the recent severe frost has irretrievably injured it. However it may behave as far north as London, it will certainly prove a valuable addition to outdoor plants in more favoured places. The leaves on plants which have not yet begun to form a stem are 2 feet long and 2 inches wide at the base, tapering gradually to a point; they are marked distinctly with longitudinal ribs, and are of a

growth that plants old enough to have become numerous branched have not attained a height of more than 3 feet or 4 feet, but form low spreading bushes. Even in the greenhouse it displays the same stunted appearance. The leaves are each 6 inches to 9 inches long, pointed, and dark green, forming a compact, rounded head, that may be compared to the stiff-leaved variety of *C. australis* in miniature. It is also a native of New Zealand.—B.

The following notes relative to the specimen



Cordyline australis in the garden of Mr. A. P. Vivian, Bosahan, Cornwall. Engraved for THE GARDEN.

here figured have been kindly sent us by Mr. A. P. Vivian, in whose garden the plant is growing:—

The *Cordyline* figured was planted out from a small pot in 1878 and has now attained a height of 16 feet. The stem, which at the ground line measures 2 feet 7 inches in circumference, runs up straight and clean to about 10 feet. The head, which is much divided, measures 11 feet through, and this season produced twenty-one beautiful flower-spikes, varying from 5 feet to 6 feet long and thickly studded with white bell-shaped flowers. This plant is also very interesting and pretty

glaucous green. It may be accounted the handsomest of greenhouse *Cordylines*.

One more species, of very distinct appearance and undoubtedly hardy near London, remains to be mentioned. It is as yet very uncommon, and not having flowered under cultivation, no name has up to the present been given to it. Probably the largest specimen in the country is to be seen in Messrs. Veitch's nursery at Coombe Wood. A plant has also been growing for some time on the rockery at Kew. Its habit is rather remarkable, being of so very dwarf

while the seed is passing through the various stages of ripeness, from white, pale pink, to dark brown, and the fertility of it is proved by the many fine specimens to be found here that have been raised from it within the last few years. It also throws up suckers, which, if carefully divided, do very well. As a pot plant for house or table decoration it has few equals, and with a little attention it will last in good condition for many weeks. Another object of interest here is the fine old Apple tree supposed to be the largest in England. It measures 86 feet through, the huge under branches being supported by poles. One

year, seventeen Cornish bushels of Apples, from which five hogsheds of cider are said to have been extracted, were gathered from it. This fine old tree is still in perfect health, and annually produces a very fair crop of Apples. The garden is of recent creation, but the flora of warm temperate regions is well represented. Amongst others may be noted Tree Ferns, some 30 in number, including *Dicksonia antarctica* and *Alsophila excelsa*, with stems from 2 feet to 9 feet; also a great variety of Veronicas, Hydrangeas (the common japonica and stellata), Benthamias, Eucalyptus globulus, New Zealand Flax, Pampas Grass, Oleander, &c. Against the house (erected some four years ago) the following climbers are doing well: *Passiflora cœrulea*, *Cassia corymbosa*, *Habrothamnus elegans*, *Magnolia grandiflora* and *M. conspicua*, *Solanums* (some 25 feet high), Sweet Verbena, Myrtle, and *Ceanothus Gloire de Versailles*. A tree of *Eucalyptus globulus* has attained a height of some 40 feet against the wall in the four years. The house itself stands some 240 feet above the sea and is in the Tudor style.

FLOWER GARDEN.

GALANTHUS FOSTERI.

MR. T. SMITH, of Newry, seems to me to try to dethrone *Galanthus Fosteri* from its high estate, and when he has done that according to his own ideas, he puts the crown upon its head again with both his hands (see page 133). In other words, he thinks it is not the finest of all the Snowdrops, as it was said to be, because it is inferior in size to the good forms of *Elwesi* or *Imperati*, and then he proceeds to enumerate quite a cluster of excellences which it has, such as very few other Snowdrops, if any, can show. Unless I am much mistaken, Mr. Smith makes the common mistake of referring everything to the standard of size. If it is the biggest, then it is the premier Snowdrop of the day. If it hangs its head with a sort of conscious inferiority in this respect, then its rightful position is disallowed. But I cannot follow him in that at all. If I were judging oxen for Smithfield Market, I might peradventure give some value to bulk; but when we are considering one of the most fragile, tender, and modest little things in the world, I dissent from it altogether. The only thing that *Galanthus plicatus maximus* or any other such Brobdignagian brings before my mind, as compared with *G. plicatus* or *G. Imperati*, is that it costs six or seven times as much as the others to procure it, but that is not exactly the principal feeling one desires to have about a Snowdrop, albeit I am very glad to possess it, because it is scarce and it helps to complete my collection. On the other hand, I venture—*pace* Mr. T. Smith—to believe that if *Galanthus Fosteri* is tried by any true Snowdrop test, it will come out of it well. Take, e.g., that of shape, and shape has a great deal to do with the merits of this particular flower. I never can put *G. Elwesi* in quite the first place, because I never can see that its formation is so good as that of some others. It is a delightful acquisition, no doubt, and our gardens are much indebted to Mr. Elwes for its discovery, but it is too “floppy,” if I may use such an ugly word at all, and the true Snowdrop idea is not fulfilled in it to the very uttermost. The following are the words of Dr. Forbes Watson, who tells us so expressively what a Snowdrop ought to be:—

When the flower is closed and the fitness of its name most manifestly seen, how the white corolla, so narrow where it leaves the ovary, lets its fineness run down into the tip, so as to give the form of a dew-drop just parting from the stalk which bears it.

I was looking at *Galanthus Fosteri* just now in my garden, and these words came full before

my mind. Mr. T. Smith is quite right when he says it is “very shapely” indeed. Another Snowdrop was blossoming by its side which seemed to me too thin and cylindrical to be unexceptionable in point of shape—there was no dewdrop there. Some others, as I have said above, are too fat and full, but the lines of *Galanthus Fosteri* are perfect, and could not be improved; the most severe criticism could not say where they fail, nor suggest an amendment of them. No doubt tastes do differ more or less in matters of this sort. I can only say for myself I should be content to crown *Galanthus Fosteri* on account of its shape. Then, again, take its striking purity of colour. Of course, many other Snowdrops are its equal in this respect, but they would not be so if the refreshing green of its strong broad leaves be taken into account together with the snowy whiteness of its corolla. The one sets off the other, and there is a most striking combination of the freshest green and purest white. I am so much in love with my little flower, that there is one point in which I should like to agree with Mr. T. Smith, but I must declare myself unable to do so. Perhaps my olfactory nerves are at fault, or *Galanthus Fosteri* may be more sweet-scented in Ireland than it is in the Isle of Wight, but neither I nor anyone else here can discover that it is so very strongly scented. But both Mr. Smith and I can shake hands over the following condition. I should say *Galanthus Fosteri* will always hold high rank, because it is the precursor of all the others in winter-time. That is a very great point with a Snowdrop, because it seems thereby to fulfil its mission entirely. I put small estimate on the so-called *Galanthus æstivus*, for who wants a Snowdrop in summer-time, or even in late spring, which is more nearly its season? And even *Galanthus octobrensis* is more valuable as a curiosity than anything else. It always seems to me out of place when Virginian Creepers are reddening on the walls of my church, and *Nerines* are all aglow in the greenhouse with a blaze of fire. But give me the Snowdrop that conducts itself just as *Galanthus Fosteri* has done—breathing of hope and brighter days when my whole garden was very nearly a wreck, and I confess an obligation to it which no gaudy flower, with its flaunting hues, can for a single moment command, and its preciousness is not to be measured by these feeble words at all. I have a Snowdrop kindly given to me by a friend which is marked Boydi No. 1, which opened very soon this year, but with that exception *Galanthus Fosteri* is quite the first in the race, and has beaten all its companions and congeners. Nothing could be prettier than the way in which it left the ground and then showed its leaves and its milk-white bells after the late hard frost. It was quite the *perce neige* of the French, and while *Galanthus plicatus*, *Imperati*, *Elwesi*, and all the rest of them are more or less slumbering on or only just now waking from their repose, *Galanthus Fosteri* has done its work well, and has gladdened us when we wanted it the most. Whether it be right to call it the Snowdrop king or rather queen I do not know, but if I were shut up to the possession of a single species of this invaluable little flower, I should choose *Galanthus Fosteri* beyond all doubt. As Mr. Smith rightly admits, it is a recent acquisition in this country, and it will be even better than it is now in a few years' time. —HENRY EWBANK, *St. John's, Ryde*.

P.S.—Since writing the above a few days ago, I have almost come to think that I can approach nearer to Mr. Smith's ideas in one particular than I had imagined before. I refer to the sweet scent of *Galanthus Fosteri*. It can, I think, be detected in a warm room, but not

when it is handled in the open air. This certainly, if it is so, adds another jewel to its crown.

—*Galanthus Fosteri*—and I believe I have the true plant—has not developed as I was led to expect; indeed, so far, it appears nothing more than a slightly glorified *G. latifolius*. I may be impatient and the bulbs may not have attained full size, but I must confess that I expected to see flowers more nearly resembling those of *G. Elwesi* than ordinary forms of *G. nivalis*, as they certainly are. The bulbs of *G. Fosteri* were imported from Amasia, in Asia Minor, by Dr. Foster. The leaves are bright green, broad, and exactly resemble those of *G. latifolius*. *G. Imperati* and the forms of *Melvillei* are just now opening, and from their general appearance they seem to have enjoyed the long winter. My especial favourite, *G. pucilliformis*, is a charming Snowdrop. Its segments are all of the same length and shape, and the flowers are very pure.—K.

ROOT PROPAGATION OF PERENNIALS.

THIS is one of those operations which for obvious reasons is best performed when the plants are at rest, because at this particular season the great variety of subjects which lend themselves to this mode of increase may be lifted and some of their roots detached without the plants feeling their loss to any great extent. Another reason for performing it at this season is that the pieces of roots thus detached remain for a long time plump; whereas in the summer-time they would quickly shrivel. The plants, moreover, could not in themselves endure being denuded of their roots, or even a portion of them, at a time when all their energies are required in the developing of the plant. In the remarks concerning the above subject I do not propose to give a full and complete list of those plants which with advantage may be increased from root cuttings, because many of these speak for themselves by the way their main roots are studded with young breaks that would speedily form plants were they detached and properly cared for while yet unable to take care of themselves. Among those which are most prolific in thus reproducing themselves are the varieties of *Anemone japonica* and some of the *Heleniums*, particularly *H. pumilum*, autumnale, *Bolanderi*, and others, though it not infrequently happens that such kinds may be freely and plentifully increased by division, so the necessity for adopting other means does not arise. Its greatest use, therefore, is among those plants which do not exhibit any tendency to start naturally from the main roots in the manner above mentioned, though when subjected to artificial treatment and assisted with slight warmth they send forth breaks with comparative freedom. The subject is full of interest, and the only real way to obtain information on the point is by continuing experiments with all such as are difficult or slow of propagation by other means. For example, we might take the *Gaillardias*, plants in themselves which may be raised abundantly from seeds, but the seedlings cannot be depended upon to come true. An individual plant, again, frequently exhibits marked superiority over the majority, and flowering as it does amidst many varieties and but little chance of perpetuating it other than by division, it is welcome news to know that such an one may be freely increased by root cuttings. These cuttings in *Gaillardias* must be selected from the moderately firm, though fleshy roots, avoiding those having any tendency to become hard, i.e., wiry, for these are useless and only waste the time of those engaged. From an all-round point of view the operation is a very simple one, though a little care will be needed in carrying out the details, and whether few or many are required, the best plan will be to lift as many plants as may suffice from the border and carry these, roots and all to the potting shed. Here the roots may be severed from the plant, always taking care that that part of the roots which was uppermost when attached to the plant should still occupy the same position and be thus inserted as cuttings, otherwise many of the cuttings will be inserted upside down.

For convenience the root may be cut $1\frac{1}{2}$ inches

in length. This is best done by laying the roots on the potting bench, keeping them evenly in position, and gently drawing the knife across them, repeating the operation till all are ready. The next thing necessary will be some well-drained pots, prepared on the same lines as for ordinary cuttings, and some very sandy soil. Above, you have the length of the cuttings given, and instead of filling the pots with soil as for ordinary cuttings, fill them to within $1\frac{1}{2}$ inches of the rim, making the soil moderately firm, and giving a sprinkling of silver sand for the base of the cuttings to rest upon. Now arrange the cuttings in a nearly perpendicular manner around the interior of the pots, allowing the apex to be just above the rim. The root cuttings may be placed sufficiently close, that in a 5-inch pot, according to the size of the roots, from twenty to fifty cuttings may be inserted, and when completed the centre may be filled with soil and the cuttings duly labelled, continuing the operation with as many kinds as occasion may require, or as far as experience will permit, though, as I have before suggested, there is a wide field for education still in this direction. When all are ready, the next thing will be to find a place for them, and I know of nothing more suitable than beneath the stage in a moist warm greenhouse, but not in proximity to the pipes. In such a place the semi-darkness will for the time being be the best, giving a good watering at the time of insertion. In large gardens and nurseries bottom-heat may be secured, and if these roots can be accorded not more than 65° as a maximum, so much the better. It is, however, not absolutely essential, while an excess is decidedly injurious. Among prominent subjects which may be thus increased may be mentioned many species of *Primula*, the whole of the *Sieboldi* group included, and though these may in the majority of instances be increased by division, it is also well to know that they lend themselves to this method. Then there are such things as *Dodecatheons*, the *Statice*s, both hardy and tender kinds, of which excellent plants may quickly be formed more quickly than by seed, while division with these is practically impossible. *Stokesia cyanea* rarely, if ever, produces seeds, by reason of its late flowering. It is a very unsatisfactory plant to divide, but yet may be increased by the hundred from root cuttings, and that quickly, although its clear white fleshy roots show not the slightest symptoms in this direction. Almost on a par with this one is *Senecio pulcher*, a very rare and shy seeder, but which may be increased to any extent from its roots. The same may also be said of *S. Doronicum*, though this may be increased by division also. *Echinops ruthenicus* and all the *Eryngiums* succeed well by this mode of propagation, as do also the *Acanthuses*. Poppies of the Oriental and allied forms, when once planted, will continue to spring from the roots for a long time. Some of the *Symphytums* are veritable weeds from the same cause. Others, and in particular *S. officinale foliis argenteis variegatis*, refuse to throw anything but green tops from root cuttings of the variegated plant, a fact which clearly indicates that all the variegation is confined to the crown buds. I have repeatedly tried this plant with the same results. I refrain from any mention of the many weedy subjects that produce stoloniferous growths freely, and also of those that may be divided or rooted freely from growth cuttings; still, I trust sufficient has been said to be of interest to some of the readers of THE GARDEN.

E. J.

Primula rosea for spring bedding.—A real gem of the spring is *Primula rosea* with its brilliant pink flowers. It is as easily grown as a Cabbage, always provided the soil is not too light and that it is well cared for in summer when it likes a damp cool place. I have worked up a large stock of this *Primula*, which has taken me years to do, and I use it plentifully for spring bedding. A carpet of mossy *Saxifrage* is advisable. With bushy fibrous roots *P. rosea* can be moved about as easily as chessmen, and by keeping reserves in the kitchen garden in different aspects ready for removal to the front, I am able considerably to prolong the

brightness of the beds. This is important, as it cannot be called a long-blooming plant. I have come round, like many others, to the conviction that instead of aiming at collecting a great variety of plants it is much better to make a careful selection of good things and grow plenty of them. But how is this to be done without a long purse? Supposing, for instance, that I want 100 *Anemone blanda*; what am I to do? I object to paying at the rate of 1s. each for the morsels which many nurserymen would send. What is wanted is more specialists who will grow largely certain first-rate plants and let us have them cheap for a quantity. This, nurserymen at present will rarely do. *Primula rosea* is a case in point. A shilling each is no uncommon charge for this plant, and then the complaint is made that there is very little demand for it.—EDWARD FISON, *Allington House, Ipswich*.

WINTERING OF DELICATE ALPINES.

TO THE EDITOR OF THE GARDEN.

SIR,—I am greatly obliged to Mr. J. Wood and "E. J." for the advice given in your issue of the 7th inst. Of course no place near a large manufacturing town in the north of England can be really favourable for alpine. What I should have said is that I have much better chances than most people who live in such a district. Our Didsbury soil is a light and sandy one (not stiff loam), and though the north and north-east winds bring the Manchester smoke, as these are the dry winds, they let the smoke rise and get away. Gardeners on the other side of the town have a heavy clay soil, and they have Manchester smoke brought to them by the south and south-west winds, which, being moist, keep the smoke down. Moreover, I am in an outskirt bordering on an open pastoral and agricultural district, whereas they are in the centre of a region of mills and coal mines, and whichever way the wind blows it brings smoke. Again, my own garden has special advantages. It is on a gravelly slope formed by the bank of the ancient tidal estuary of the Mersey. It faces south-west, and is protected from north and east winds, not only by its own slope, but by high walls at the top—walls on which Peaches can be made to grow, and fruit, and ripen without protection. I have, I think, been successful so far with a considerable number of plants, which are not classed among the hardy ones suitable for bad districts, such as *Alostroemeria aurantiaca*, *Androsace carnea*, *Campanula pulla*, *Dianthus alpinus*, *glacialis*, and *capitatus*, *Draba brunnifolia*, *Eriogonum alpinum*, *Gentiana verna*, *Paeonia Moutan*, *Soldanella minima*, *Saxifraga oppositifolia* and *Sancta*, *Sedum dasylphyllum* and *brevifolium*, *Sempervivum arachnoideum* and *Laggeri*. I mention these matters because I am hopeful of having still further suggestions from your columns; and I do not wish correspondents to be deterred from making them by an impression that my attempts are absolutely absurd. Mr. Wood is perfectly right in reminding me that in gardening we should select plants appropriate to the locality. This I am endeavouring to do, but there can be no harm in indulging in a little venturesome experiment also. Of course I have some smoke, but it is really very little, and I am sure a great deal may be done with alpine, even with a little smoke. In fact, a friend of mine living near Leeds (westerly side) has been most successful with alpine, although he is in an atmosphere of smoke, and has the Farnley Ironworks (which Mr. Wood will know) belching it out from a number of chimneys close to him. How he manages it I cannot tell. Perhaps it is because he is on high ground, and the air blown across the Yorkshire moorlands is lighter and

drier than ours, and the smoke does not cling much to the plants.

I am still disposed to think that the wet quite as much as the smoke is my difficulty, and the question seems to be how to prevent the plants suffering from the wet and yet have ample ventilation. Mr. Wood agrees with my suggestion that taking up and potting must be injurious to many of the alpine. He appears to approve of bell-glasses, if not kept too close (I may mention that I always press the upper edges of my winter bell-glasses well into the soil, so as to stop the rain water which runs down the face of the rockery, and prop up the lower edges with bits of stone so as to let in air), to disapprove of my plan of an alpine frame, and to advise a simple covering of glass above the plants, but not all round them. This last-mentioned plan gives ventilation; but though it protects the plants from rain from above, it does not protect them from the perpetual sloppy wash down the rockery and the raw saturated atmosphere which surrounds them. "E. J.," on the other hand, seems to advocate a winter frame over the plants, provided there be ample and constant ventilation, and suggests a method very similar to what I had already contemplated. He appears to attach more weight to ventilation than to the exclusion of damp. I am much struck with his suggestion of a wall, a suggestion which I may say has also been made to me by M. Henry Correvon, of the Jardin d'Acclimatation at Geneva.

How would such an arrangement as the following answer? Build a strong vertical wall of bricks, say 6 feet high. This is intended as a support only. Build a rockery wall of rough stones, leaning against the supporting wall, and sloping at a varying angle, the steepest part being, say, 65° or 70° from the horizontal. This wall is for plants. Fill the space between the two walls with suitable compost. During winter have protecting lights, resting upon a small movable wall of wood in front of and parallel to and about 1 foot away from the base of the rockery wall, and with their upper edges resting against the top of the support wall. The small wall to be, say 1 foot high. Let the two ends of the system be closed, so that there shall not be too cutting a draught passing through it. But make the support wall about 1 foot higher than the rockery wall, and let the upper exposed part of the support wall and the whole of the small wall in front be pigeon-holed, as suggested by "E. J.," so as to give free ventilation (the current of air passing upwards over the entire surface of the rockery). The rockery wall would be of rough stones, shelving irregularly, so as to give little ledges, and would be openly made, so that the plants could send their roots in between the stones; and the stones themselves could here and there be fixed to one another with cement, or, what would perhaps be better, with a mixture of lime and soil, so as to make the structure firm. The nature of the stones and of the compost could be varied. For example, one portion of the rockery might be limestone and have some lime rubbish mixed with the compost behind it. It appears to me that some such arrangement as this would combine many of what I understand to be the requirements of the case.

In summer if the weather were dry the plants could have plenty of water, and this and the rain of wet days would all run away, none of it lodging on the tufts of the plants, and none of it remaining stagnant about the roots. In winter the plants would be protected from the weather, they would be near the glass, they would have free ventilation, and they would, I

think, be kept fairly dry in spite of our bad climate. As regards weather, on specially bad days matting might be hung over the pigeon-holed walls, to be taken off again at the earliest possible opportunity. If the dryness proved insufficient, might not the experiment be tried of placing pans of, say, chloride of lime on the strip of ground in front of the rockery, but under the glass (taking care not to let them get near the plants), changing and drying from time to time as the chloride of lime became saturated. A little burnt loam or dry ashes might also be sprinkled round some of the plants, as suggested by Mr. Wood. There is one other point which I have not mentioned, and that is the question of light. I can well appreciate Mr. Wood's warning that we cannot reproduce the darkness of snow, but should have thought that the full light of day ought to be modified. On this matter I may say that a gentleman has written to me from Sussex as follows: "I have found the best imitation of the Swiss greatcoat of snow and frost to its alpine plants to be two plates of glass with Cocoa-nut fibre between them." He evidently approves of a modification of the light.

I fear I have trespassed too much on your valuable space, but I am anxious for further suggestions, and think they could not fail to be interesting to many of your readers.

ROBERT W. WILLIAMSON.

The Croft, Didsbury.

NOTES ON HARDY PLANTS.

Hellebores.—The first day of February has been preceded here by just a week of fine weather after what may be fairly termed an eight weeks' storm. Owing to the ice-bound state of the soil since the last week in November, the white-flowered kinds or Christmas Roses could not come forward, and the result is that we have now the Christmas and Lenten kinds brought pretty well to the same date, for, oddly enough, the latter section does not appear to have been proportionately retarded by the cold, compared with the niger section. The coloured sorts have made rapid progress during the past week, and some are opening. I never saw the garden so nearly flowerless on the 1st of February as this year. Besides the Hellebores, I can see nothing else but a chance blossom of Elwes' Snowdrop, *Iris alata*, and *Leucojum vernum*. The Hepaticas have been thoroughly checked. I have almost always had a fair sprinkling of these all winter in other years, especially on the lighter and blacker soil.

Daffodils.—These are now asserting their pent-up vigour. These are pleasing signs to see after what we have had, and we may be sure if very severe weather does not set in again, that our gardens will now soon be attractive. I have just been examining several beds of Daffodils planted in the latter half of November, and just before the storm began. These bulbs have hardly made a move, and no doubt what little progress they have made will have taken place since the storm broke—a week ago. The bulbs could scarcely have done more than "plumped up" before the frost bound them. This shows the importance and value of early planting, though sometimes one may not be able to do it. There are always great risks and really no counterbalancing point in planting the hardy spring-flowering bulbs later than early October. Likely enough, these late-planted batches will develop foliage without a due complement of roots, and if so, the sunshine and dry winds soon to follow will brown their tips and otherwise injure both flower and root crops.

Montbretias.—In speaking of the hardness of these, I refer more especially to the newer hybrids of Lemoine as distinct from the hybrid *crocosmiaeflora*, and so far as I can see they are not proving nearly so hardy as the last named. I may yet be in good time with this note, but I am convinced that many plants of the former set are killed

by frost. Moreover, I am speaking of established plants, as it is well known that for test purposes of hardness newly planted roots that have not become strong and well established are not suitable material to judge by, and it is also well known that autumn planted roots that have not got established are liable to be killed, though otherwise known to be perfectly hardy. This is especially the case with Tritomas, some *Anthericum*s and *Asphodels*. I mention these as instances because I believe it will be risky to plant the newer *Montbretias* in the open until spring. I am not forgetting that they commence growth early, but that condition could be met by planting them in small pots in the meantime.

Adonis vernalis.—A friend of mine always speaks of this homely species as one of the most beautiful of all hardy flowers, and it may be said to be worthy of its name when seen in large luxuriant patches of dark green and deeply divided foliage beset with the big golden cups. Like many other *Ranunculads*, however, such as *Anemones*, *Ranunculi*, *Hellebores*, &c., it does not flourish in every garden, and, what is more, if you see it flourishing in stiff loam in one place you do not get corresponding results by planting it in stiff loam in another garden. These facts point to the supposition that these are essential conditions needful for success, and where it happens to get them either by accident or design, large specimens are very showy. I have experimented with the plant in half a dozen ways in the same garden, and it has never grown with me with that luxuriance that I have seen in other places, where the soil has been a deep, rich and retentive loam. I know many who cannot grow it, and many more that have it doing so finely without care that they are amused at the failure of other people.

Houstonia cœrulea.—Plants of this left out during winter, and that were well established tufts, and which, moreover, had never been allowed to flower, so as in the usual way to almost kill the plants by the time winter set in, and which were simply pretty little hillocks of deep green foliage, the picture of health, have succumbed, whilst by their side are plants of the white variety that have received corresponding treatment in every way evidently in perfect health and vigour. Here we appear to have an instance of a white variety possessed of a stronger constitution than the typical form, and as I have met with other instances of a similar nature, the fact may sometimes be a useful one to keep in mind, especially by the hybridist.

Spring flowers.—Some few days have elapsed since the foregoing notes were made, and as the weather has been fine every day, spring-flowering plants have made rapid progress. Flowers are shooting forth in delightful variety. There are *Hepatica angulosa*, always the earliest; several kinds of *Snowdrops*, *Leucojum vernum*, *Primroses*, *Anemone blanda*, *Saxifraga Burseriana*, the *Winter Aconite*, *Cyclamen coum*, *Iris reticulata*, and *I. alata*, and the *Hellebore* flowers are really only just beginning, even the Christmas flowering section. *Dondia Epipactis*, *Ficaria grandiflora*, *Crocus* species, *Ranunculus anemonoides*, and a few more are all but open. Recalling the ice-bound condition of the weather so short a time ago, we learn how ready the earlier flowers are to respond to a little warmth.

Woodville, Kirkstall.

J. Wood.

SHORT NOTES.—FLOWER.

Phyteuma comosum (*H. B. G.*).—The specimen you send, collected in the Tyrol, is this plant. You did well to keep it during the winter in a cold frame, as if put in the open ground it would not have become sufficiently established to withstand the weather we have had. This *Phyteuma* is perhaps the most beautiful of the family. *P. Sieberi*, *P. betonicifolium*, *P. humile*, *P. hemisphaericum*, and *P. paniculatum* are all pretty plants for a rockery.—W. H. G.

The Narcissus fly.—Our experience of a bag of *Narcissus* bulbs is perhaps worth a note. A lot of two hundred of a desirable species appearing in a sale catalogue, I sent to buy it. The bag remained in our hall through the long frost till the ground was fit for

planting. When the bulbs were turned out, my gardener noticed something wrong, and we counted eighty, most of them full grown, grubs of the *Narcissus fly* (*Merodon clavipes*).—GEORGE F. WILSON.

MARGARET CARNATIONS.

THIS new race of Carnations has become very popular, and the seeds are in great demand. Though nothing definite has, as far as I know, been placed before the public as to the origin of these early blooming types, probably a cross was made with the *Heddeewigi* or *imperialis* sections which imparted to the new *Margaret* varieties their annual character. What has been seen of them goes to prove that the plants can be had in bloom four months or so after sowing, that they bloom profusely, that the colours are varied and some brilliant, and it is said that but few of them are pod-busters.

There appear to be three types of these Carnations; one is known as the tall double *Margaret*, the varieties of which are of various colours, scarlet, carmine, rose, white, purple, violet, salmon, striped, &c.; the habit tall and slender, the plants developing rapidly, branching freely, and flowering profusely. It is said of all the types that the plants are strong enough to support themselves without stakes, but the tallest plants should have a little support if in a position exposed to winds. A rather dwarfer and more vigorous growing strain is that known as the intermediate double *Margaret*. It is from this type in all probability Messrs. Veitch and Sons and others have cut the flowers they have publicly exhibited on several occasions. A large percentage of the flowers come double, which is no more than could be expected from the finest strains of *Dianthus caryophyllus*, the ordinary *Carnation* of our gardens. This is the type all who are interested in these flowers should grow. There is still another section known as *flore-pleno nanus* or *Tom Thumb*. These, while vigorous in growth, are very dwarf, growing it is said to only 6 inches or 8 inches in height, while the flowers are represented to be larger than the blossoms of either of the foregoing sections. It is also said of the type that the colours are richer than those of any other.

A good light loam enriched with some well decomposed manure, leaf soil and grit suit these Carnations exactly; they need a freer compost than the ordinary varieties. The situation should be open and sunny, and they are likely to do best where they can have a free circulation of air. A bed of them makes a charming object when in full bloom. As they seed more freely than the ordinary Carnations, a little seed should be gathered from the finest varieties, and sown for another season's blooming. It is by careful selection that the strain can be improved, and growers should aim to secure so desirable a result.—R. D.

—I grew this for the first time last year under the distinctive name of *Margaret*, but whether *Marguerite* or *Margaret* is correct matters but little so long as a good stock of plants of it is raised. In my opinion it fully merits all the praise bestowed upon it by the raisers or vendors, as the case may be, and this, in these days of glowing descriptions non-exemplified, is praise indeed. From one packet of seed I obtained two dozen plants, and these were flowering strongly within six months of the date of the seed being sown. What is even more remarkable for seedling Carnations, there was not one single flowering variety among the lot, the blooms all being very double, yet not given to pod-splitting, were finely fringed, sweetly scented, and comprised several colours. There is, however, a lack of brightness in the varieties I have, this being more observable perhaps by those who, like myself, prefer rich and decided colours and selfs to mixtures. The cultivation of this new race of Carnations is simple enough, and, what is most satisfactory, can be attempted with every prospect of success by amateurs or those having greenhouses and frames, as well as by those who have plenty of heat and other conveniences at hand. *Carnation* seed generally germinates more surely in very gentle heat and close frames or hand-lights than it does when subjected to a higher temperature. Sow the seed either in pans or well-

drained pots filled with light and fine loamy compost, cover with more fine soil, give a gentle watering, set either in a close frame, or on a slight hotbed, or even on a greenhouse shelf, cover with a square of glass and keep the soil uniformly moist—not saturated—and darken or shade heavily till the seedlings appear. When strong enough the latter may either be potted off singly into 3-inch pots, or be pricked out into boxes of light loamy compost, returning them to a warm greenhouse shelf or other fairly light and not very cold position. During the early part of the summer they will thrive best if kept in cold frames, and before those in small pots become root-bound they ought to be shifted into the pots in which they are to flower. Any in boxes may also be transplanted direct to the flowering pots, this being done when each plant can be moved with a good ball of soil about the roots. Our strongest plants were flowered in 6-inch pots and the rest in 5-inch pots, and all received a compost consisting of two parts of light turfy loam to one each of leaf soil and old Mushroom bed manure, sharp sand being freely added. The drainage was good, but not excessive, and the

HARDY PRIMROSES.

EARLIEST amongst the early of hardy spring flowers, yet even hardy Primroses are late in blooming this season, having, in common with other vegetation, found the power of the frost of such long duration to be a force which would not be denied. Ordinarily, garden Primroses bloom more or less all through the winter. It is not at all uncommon for them after an autumn of rest to break up into vigorous growth in October and bloom from November little or much, according to the weather, all through till the end of April. The true garden Primrose strain is ordinarily fully a month earlier to bloom than is its congener, the garden or border Polyanthus. Admittedly the line which divides the one from the other is very small, yet it is distinct so far as relates to the general features of the respective forms are concerned. The true Primrose is known by the production of blooms on single stems which come direct from the crown. It blooms earlier because these short single

Breaks of colour, when they have occurred, have generally been of a reddish and usually of a pale red tint, so that even the wild Primrose may have originally descended from a red-flowered species. The great feature of the present strain of coloured garden Primroses is to produce very deep colours and generally rich ones. Whites come out clear and very abundant. The pure white form is as easily fixed as is the primrose of the wild variety, but it is far more pleasing and useful. Mauves are pretty also and common. One of the prettiest of all the mauves was the variety originally termed *Primula altaica*, or later known as *Primula vulgaris grandiflora*. This capital and robust form was one of the progenitors of myriads of the fine colours now so plentiful. Reds, crimsons, purples, violets, &c., are in abundance, as also are many bizarre or variously marked flowers. Abundantly as hardy Primroses bloom, they do not always seed in proportion. There is better hope for a seed crop when the bloom is delayed than when it is early, and at times seared with sharp hoar-frosts. It is depressing to find plants 12 inches over and literally one mass of flowers absolutely devoid of a seed-pod later, not from any inherent defect, but because of excessive rains or repeated sharp spring frosts. Even the later Polyanthus suffer sometimes in the same way, and give a very poor return in seed.

Where it is so needful that strains should be maintained by means of repeated sowings of seed, naturally the production of this is of the first moment. To obtain a stock of plants the very best course to take is to sow seed. That may be done with newly ripened seed so soon as saved and in the open ground in light free soil, which may be slightly shaded in hot weather, or in a frame, or in shallow pans or boxes in the spring. The seedling plants from the autumn sowing turn out strong deep-rooted ones to dibble out where to bloom in March, and they make extra strong plants to bloom the following winter and spring. Primroses are accommodating, but like a cool, deep holding soil best. A hot dry place where

the sun shines fiercely upon them in the summer is productive of thrips and spider, and the foliage suffers severely. It is of the first importance that the foliage should be retained, and in hot dry seasons in the south some artificial shading and watering are often needful to produce that result. Once the foliage is lost it is rare that the crowns throw up so strongly again. Primroses like the margin of cool rockwork very well because the soil is usually deep. They will do very well beneath trees for a year or two, but the tree roots all too soon eat up all the soil nourishment and the Primroses die. Of course, in specially favoured districts they will thrive for years beneath trees, but that will hardly be found the case in ordinary gardens where the soil may be shallow. Primroses come from self-sowing also. That may be very well in Nature, but it is not gardening. When seed is sown with knowledge and experience, every seed has its chance; so also has every seedling plant, especially when dibbled out thinly. Then the weak ones have an equal chance with the strong ones, and happily so, as



Seedling Polyanthuses.

soil rammed rather firm. When well established in the fresh soil, the plants were set on a bed of ashes in a sheltered spot, and housed before cold rains or early frosts damaged the fast expanding blooms. I did not succeed in growing such dense well-flowered plants as are to be seen illustrated in various seed catalogues this season, but they were dwarf and fairly free-flowering in September and October, and have continued to give a few flowers ever since. I intend to raise a fresh stock of seedlings every year, the seed being sown any time during February. Apparently *Carnation Marguerite* was distributed with the idea of its being good for the borders, and there is no doubt about the possibility of a useful late supply of flowers being had with its aid. I hope to give it a good trial in the open this season, planting some out on a well-prepared border instead of shifting them into flowering pots, but shall not let that interfere with the batch of pot plants, the latter being of the greatest value where many cut flowers are needed in the autumn.—W. IGGULDEN.

Flowers of West Australia.—Can any reader of THE GARDEN tell me which is the best book on the above subject?—OLD SUBSCRIBER.

stalks are not so long in developing, and it is an odd fact that, so far as experience goes, the true strain never produces yellow flowers. That is all the more odd because the hue of colour of the native Primrose flower is a very pale yellow or sulphur, but I have never met even among tens of thousands of seedlings one which produced really yellow, golden, or orange flowers, as border Polyanthuses do. The fact that yellows are so common in these latter flowers indicates pretty well the original Cowslip parentage, for even from the best strains sometimes what are little better than ordinary Cowslips result. Whether the present fine-coloured strain of garden Primroses owes much of its existence to the common or wild Primrose seems to be somewhat doubtful, as it might naturally be expected that with such parentage the production of yellows should be common. Still, it is well to remember that even in Nature it is doubtful whether any seedling has ever been produced the flowers of which are of deeper hue than are those of the ordinary Primrose, with which we are all so familiar.

the sun shines fiercely upon them in the summer is productive of thrips and spider, and the foliage suffers severely. It is of the first importance that the foliage should be retained, and in hot dry seasons in the south some artificial shading and watering are often needful to produce that result. Once the foliage is lost it is rare that the crowns throw up so strongly again. Primroses like the margin of cool rockwork very well because the soil is usually deep. They will do very well beneath trees for a year or two, but the tree roots all too soon eat up all the soil nourishment and the Primroses die. Of course, in specially favoured districts they will thrive for years beneath trees, but that will hardly be found the case in ordinary gardens where the soil may be shallow. Primroses come from self-sowing also. That may be very well in Nature, but it is not gardening. When seed is sown with knowledge and experience, every seed has its chance; so also has every seedling plant, especially when dibbled out thinly. Then the weak ones have an equal chance with the strong ones, and happily so, as

very often the weak ones produce the richest coloured and most beautiful flowers. When Nature sows Primrose seed, much of it finds no foothold, and is left high and dry on the Grass or Moss surrounding the plants. Even when germinated, the density of the seedlings tells against even growth, and the weakest in the struggle for existence die. That, according to some sort of philosophy, may be proper, but it is not gardening. The work of the gardener is found in so caring for the weak equally or even more so with the strong, so that through much care many of Nature's most beautiful floral products are saved to us, and our gardens are benefited in consequence. However, it is a fact that, as a rule, hardy garden Primroses are pretty robust. That such is the case is specially evident when the seed is sown in the summer, and the plants standing in the seed-bed all the winter are dibbled out thinly the following spring. Then the product is in all cases one of great robustness. When seed is sown in the spring and the seedlings are dibbled out into the open ground, perhaps in the month of June, they have all the heat and drought of summer to contend with, and in such case no wonder if some of the weaker plants die. Heat will kill Primroses wholesale, but cold never does. The foliage may wither under the repeated attacks of frost and biting winds, but the plants will soon come again as robust as ever. When a sowing of seed may yearly produce an abundance of plants, so that flowers are never lacking in their season, it is indeed negligence if gardens do not possess every spring a charming show of hardy Primroses. A. D.

Alyssum alpestre is well worth cultivation in the rock garden. It is the neatest and one of the most profuse flowering of the genus. It rarely exceeds 2 inches or 3 inches in height, and although close and compact it has a free, spreading habit, and soon makes nice healthy tufts, interesting at all times on account of the pretty silvery foliage. A near ally of the above which we received under the name of *A. serpyllifolium* is one of the prettiest trailing alpine we have yet seen. Planted on the edge of a rock, its long silvery branches are very effective, and in summer these are covered with bright yellow flowers. We have not been able to verify the name, but it seems to resemble some of the Oriental rather than the European species. *A. spinosum* is an extremely interesting plant. At first it will be found covered with long sharp spines, as its name denotes, but after some few years in cultivation it loses almost all these spines, as many other plants do under similar circumstances.—D. K.

Iris and Lily roots diseased.—I enclose a piece of Iris and the dead stalk of a Lily dug up in two different parts of the same flower bed. They are both infested with a pest which is new to me, and which I cannot destroy. Can you give me any information as to how I might rid my garden of it? It attacks all kinds of roots and plants—Rose trees, bulbs, Carnations—always working under the soil. It scoops out the hearts of Anemone tubers, leaving them hollow cups, and works inside Carnation stalks; beginning at the root, it works up the stem. With Roses it is the same, attacking the bark of the stem and getting into the pith. It is an old garden, and until the last two or three years it had not been much moved, but both last and this winter it has been dug up loosely to enable the frost to penetrate it. Last winter it remained unplanted till the spring and was moved several times. The manure put upon it consists of a dressing of ashes from the dust-bin (sifted), a dressing of peat manure from the stables, and a light dressing this winter of farmyard manure well decomposed. The pest has certainly increased, and all my plants seem to suffer.—REV. A. DUNCAN FRASER, *The Vicarage, South Weald, Brentwood, Essex.*

* * * The Iris root and Lily stalk which you sent

me are infested with one of the spring-tails (*Lipura* species, probably *ambulans*). This creature has not had much attention paid it as a garden pest, but I should recommend you to stir the ground slightly round the plants which are attacked and water with lime water or a strong solution of salt or nitrate of soda. If the pests have worked into the roots of the plants I am afraid no insecticide will reach them. I do not think from what you say that your Roses and Carnations have been attacked by this insect; they may be present on the plants, but something else has probably caused the injuries.—G. S. S.

THE WEEK'S WORK.

FRUIT HOUSES.

THINNING PEACH BUDS.—Healthy and not over-luxuriant Peach and Nectarine trees are apt to form and retain far more flower-buds than are needed. True, there are various accidents or incidents in their culture that frequently cause them to shed a considerable number of these prematurely, and which at this time cannot well be prevented. In such cases, therefore, the grower would like to be able to put on a few buds rather than take them off; but where the trees are moderately strong, have not suffered for want of water at any period of the year, and have not been first excited and then checked during the winter, there is, as a rule, little or no bud-shedding going on, and thinning out might be practised with advantage. Better do it before the buds are opened and strengthen those reserved than delay thinning till after the majority have become fertilised and the fruit is swelling off. In order to have well-formed, beautifully-coloured fruits, the crops should be wholly borne on the upper surface of the trees either trained up the roof or over a semi-circular front trellis, while those on the trees against the back walls ought to face outwards. There being abundance of buds swelling fast, none of these will drop prematurely, and those on the underside and back of the branches may well be swept off wholesale. The only exception to this rule would be in favour of trees in unheated houses. It sometimes happens that severe late frosts destroy many of the flowers on the upper surface of the trees in such structures, and for this reason it is unwise to remove either the buds or tiny fruit till it is seen all risks from frost are past.

STOPPING AND DISBUDDING PEACHES.—In many instances the shoots on trees in the earliest houses are now quite forward enough to stop, while disbudding or the removal of many superfluous wood-buds might well be proceeded with in successional houses. It is not advisable to complete this important work at one time, those in charge being content to spend a little time among the trees daily. Wherever there is space for a growth to be laid in, reserve a shoot as much as possible on the upper side of the branch. It is a usual and good practice to lay in a shoot at the base of a fruiting growth and another at the point, the former not unfrequently being intended to take the place of the parent growth when the latter is cut out at the autumn pruning. More young shoots may be laid in from extra long and strong fruiting growths, that is to say, if required for furnishing, and on either side, this also being a good method of checking grossness and furnishing a tree with more healthy growth. All intermediate shoots should be either pulled off or stopped at the joints where a fruit is set and reserved at the third or fourth joint, it being a great advantage to swelling fruit to have a few leaves to foster them, so to speak. When the fruits are being finally thinned out, this also being a gradual operation, the stopped shoots should also be pulled off with them, a much-crowded leafy growth being carefully guarded against. When the fruits are swelling the night temperature may be kept at about 50°, rising to 65° in the daytime, an extra 5° being allowed with sunshine and air, closing early and syringing freely.

APRICOTS, PLUMS AND CHERRIES.—Neither of these will bear hard forcing, and the two former

especially are somewhat shy in setting. Comparatively low temperatures ought to be kept at the outset, the aim being to expand the flowers as much as possible without unduly weakening them. Up to the flowering period from 45° to 50° by night, and from 55° to 60° by day, with a slight increase when the sun shines, is ample, the syringe being freely used in the mornings and again at mid-day or when the house may be closed. When in flower raise the temperature 5° all round and resort to artificial fertilisation towards midday or as soon as the pollen is quite dry. If the attempt is made to force either of the kinds of fruit under notice too rapidly, the chances are scarcely any fruit will set; therefore give air freely in the daytime, and above all avoid high night temperatures. All succeed best either in separate houses or else in airy well managed orchard houses, the buds in the latter case being now only just on the move.

WATERING VINES AND FRUIT TREES.—There ought to be no fixed periods for watering any of these. Everything should depend upon the state of the border. If at all dry at the roots when they are first started into active growth a good soaking ought to be given, the surface in all cases where not already done prior to top-dressing being loosened lightly with forks, the better to facilitate operations. Cold water will do very well if there is no means of warming it, and if the borders are somewhat impoverished, liquid manure may be given with advantage both at the outset and at all other subsequent waterings. That obtained from mixed farmyards freely diluted is perhaps the best, but, failing this, use any other kind, only not too strong. Special manures used as advised by the vendors have much to recommend them, and are very handy for those who either object to strong-smelling liquid manure or cannot procure anything of the sort. Soft water is always preferable to that which is hard, as it to a certain extent enriches the borders, while the latter impoverishes them. When next the borders are found to be approaching dryness give another good soaking, though not sufficient to saturate them—too much water sometimes doing more harm in the long run than an insufficiency. This time, and while the forcing is being carried on, some attempt ought to be made to warm the water and liquid manure to about the same temperature as the house. Figs, when in full growth and with their roots confined to narrow borders or brick pits, require to be watered very often, and Vines and all other fruit trees and Grape Vines in shallow or narrow inside borders should also be frequently examined and watered before the soil becomes dry and crumbles in the hand.

MULCHING FRUIT BORDERS.—A mulching of some kind acts beneficially in various ways. It saves the watering-pot considerably, it attracts the roots to and keeps them active near the surface, and in some instances it charges the houses with ammonia, while the juices are washed down to the roots. Anything that will keep the surface moist and yet not exclude the air from the borders is to be preferred. Half rotten horse manure answers well, but the manure obtained from cowyards is most unsuitable, as it binds badly and excludes the warmth and air from the border accordingly. Pure leaf soil, or that naturally formed in the woods and ditches, attracts the roots to the surface more quickly than any other mulching material, and might with advantage be more often employed than it is. Where pebbles or small flint stones are available in sufficient quantities, these are very suitable for covering fruit borders. They present a very tidy appearance, do not shut out warmth and air, and conserve the moisture to a surprising extent. Watering is a simple matter when the borders are thus covered with stones, and though not novel, there is yet much to be said in favour of this method.

AMMONIA in the atmosphere of forcing houses, if excessive, may easily do much harm. For instance, if the borders are mulched with covered yard manure, this being the strongest and most valuable of all forms of solid or animal manure, it is liable, when the houses are rather warm and close, to give off ammonia to such an extent as to badly

injure the tender foliage of either the fruit trees or of any pot plants being forced in the same house. Such manures must be used in great moderation, the proper course to pursue being to mix them with equal portions of fresh loamy soil. Extra strong artificial manures, if recklessly spread on the surface of a border, are liable to behave in a somewhat similar manner. Malt or kiln dust, this being obtained from places where barley is malted for the brewers, is also a stronger manure than many are aware of. Applied as a surface dressing after the Vines or fruit trees have formed leaves, it is liable when the houses are closed and damped down to generate sufficient ammonia to badly spot and injure the foliage, and it ought therefore to be used in moderation and covered with soil. A little ammonia in the atmosphere is very beneficial, but it may easily be made too strong.

PRACTICAL.

THE KITCHEN GARDEN.

AUTUMN CAULIFLOWERS.—Unless plants are raised under glass on a slight hotbed, the heads do not turn in sufficiently early. Where only a few plants are required, a little seed may be sown thinly in a box of light soil and placed in a gentle heat to germinate, and as soon as the seedlings appear through the soil the box must be removed to a lighter and cooler position. Careful watering is very essential, or the young stems will be apt to damp off level with the soil. I much prefer sowing thinly in drills on a gentle hotbed of leaves, or even on a spent hotbed. As soon as large enough, the young plants must be pricked out into other frames, or any rough shelter for the time being. The lights need only remain over the plants until they are established. Sometimes a grub will attack the roots, and in some seasons to a serious extent. To prevent any such attacks the roots, before the plants are pricked out, should be dipped in a mixture of soot, lime, and soil, the surface also being dusted over with soot. If sown at the same time, Eclipse precedes the Autumn Giant, and as a succession to this Veitch's Self-protecting Autumn Broccoli. This latter should be sown on a sheltered border early in March for succession.

AUTUMN-SOWN CAULIFLOWERS.—Where adequate protection was afforded during the past severe weather, these have wintered very well. Our plants were not uncovered for fully six weeks, but now they are as healthy as they well could be. The surface soil should be stirred to promote a healthy growth, but no attempt at coddling must be attempted, or else there is danger of the plants becoming too large before they are permanently planted out. The lights should be removed daily, except during frosts or cold easterly winds. Unless the plants can have the protection of handlights or cloches on a warm border or in an open sheltered position, it is a mistake to plant out early, for upon the least check the plants will button prematurely. In some gardens, to form a succession, Autumn Giant is sown at the same time as the summer Cauliflowers and wintered with them in frames.

BRUSSELS SPROUTS.—To secure Brussels Sprouts with good stout stems the seed must now be sown. This also must be sown under glass. Heat is not necessary for raising the seed. Sow very thinly in drills, and as soon as the seedlings are through the soil draw off the lights during fine days. As soon as large enough, prick out on to a sheltered border 4 inches apart and 6 inches between the rows, giving a rough shelter for a few days. The plants must not be allowed to become too large before they are planted out, or they may unduly suffer. To secure plants capable of affording good solid sprouts, and also for withstanding a severe winter, ample room must be afforded. When planted too thickly and on loose soil, instead of forming solid sprouts of medium size, the plants are drawn and weakly. For a later supply a sowing should be made about the middle of March in the open air. This being a very important crop, an open plot of ground should be selected. There are several varieties now in the market, but those which form small and solid sprouts only find most favour on the dining table.

SHALLOTS.—To secure good well-ripened bulbs of

Shallots it is necessary to plant early in an open sunny position. Before planting, it is necessary to make the surface firm by treading evenly over the ground; the bulbs should then be pressed about half-way into the soil. Plant in rows 12 inches apart and half the distance in the rows. Garlic should be planted in the same way as Shallots, but be pressed deeper into the soil. To prevent it running to seed press over the tops early in June.

FRENCH BEANS.—It is an easy matter to force French Beans at this season of the year, but where they may be grown will depend upon the conveniences at disposal. I do not favour growing them in either Peach houses or vineries, as the further they are away from these the better. But in a house with Tomatoes, for instance, they may be grown well. When grown in pots abundance of water and liquid manure will be necessary. Where there are convenient heated pits, so that the plants may be grown in a border, the labour will be reduced to a minimum. French Beans may also be grown on hotbeds, and where there is material at command this system answers admirably. It is during a season like the present, when open-air vegetables will be scarce, that it is advisable to keep up a supply of such a useful vegetable as the French Bean. There is no more productive variety than Ne Plus Ultra. It is very essential to keep the Beans gathered closely, for if allowed to remain on the plants they prevent others coming into use.

POTATOES IN FRAMES.—Potatoes in frames will need attention by carefully ventilating and protecting from frost and cold winds during the night. As the early crops advance, a little fresh soil should be placed around the stems to prevent any of the tubers becoming green by exposure. Water must also be applied of a warm temperature where there is any danger of the soil becoming too dry. Additional supplies should also be planted where at all likely to be required, and at this date there is not the need of a great depth of fermenting material. Potatoes in pots must not be kept in too hot or close a temperature, or the stems will become unduly drawn. It will also be necessary to loosely tie the haulm to sticks to prevent it falling over and so weakening the produce.

RADISHES AND CARROTS IN FRAMES.—These are now growing fast, but care must be taken not to allow the roots to suffer for want of water, or either unduly force them on by keeping the lights too close on fine and genial days.

PLANT HOUSES.

STOVES.—POTTING.—In continuing my remarks upon this department, I will next allude to the potting of Ixoras, these being when well grown amongst the very finest of all stove flowering plants. Ixoras are frequently lost, or at least allowed to get into a sickly condition, through want of proper attention to potting. Taken as a whole, nothing suits them so well as peat; in this they grow freely and flower well. Loam, when rich and mellow, with plenty of fibre in it, may be used, but not if it is of a heavy character. I have seen good plants of the old Ixora coccinea thus grown in nearly all loam, but it is exceptional. I prefer a sound fibrous peat, with it also a good quantity of sand and some charcoal in pieces, according to the size of the plant, when the peat is not of the best quality. For extra large plants I would not object to a little loam; it will in such a case prevent the mass of soil from becoming too close when watering is required somewhat freely during the summer season. In potting Ixoras, the soil should be made as firm as possible, as loose potting tends to retain too much water about the roots. Plants which will bear a shift should be moved into pots a size larger only, or at most not into anything with more than an inch of fresh soil all round the ball. Those who already possess plants in pots large enough for their purpose may slightly reduce the ball and place them back into the same sized pots again. This, however, is only recommended for large specimens, and must be done cautiously or too much check will be caused. When potted, the Ixoras will be benefited by a

gentle bottom-heat, but the temperature of the fermenting material must not exceed 85°. A strong bottom-heat is injurious not only to the roots, but it acts as a decomposing element to the fresh soil around them. Where the stock is short, a few promising cuttings should be put in. These should be struck singly in small pots in a propagating pit, or, failing the room or the pots, the cuttings may be put into jars (such as those used for jam) with water only and potted when a sufficient amount of roots has been made. A steady bottom-heat for the plants recommended to be potted last week will assist them, but it need not be looked upon as absolutely essential. All other potting should be looked after as closely as possible, for later on time will be more pressing in other ways.

Amongst other useful flowering plants now needing attention in this respect are the autumn-blooming Aphelandras, the balls of which should be sufficiently reduced to allow them to go into smaller pots, a shift onwards later in the season being then easily effected. These plants thrive in peat and loam, or, failing the former, some good leaf soil will suffice, with plenty of sand. I often wonder why these fine plants are not more grown than they are for flowering from September onwards to Christmas. Bougainvilleas, where grown in the stove proper, should also be potted; afterwards they may advantageously be kept at the cooler end, but not given any bottom-heat; rather keep them as near the glass as possible. A preponderance of loam will suit them, potting into the blooming pots for the season and in a firm manner. If it is desired to retard the growth of Bougainvilleas, the plants may be safely kept in a rather cooler temperature for some weeks to come. In fact if kept dry at the root, *B. speciosa* is quite safe in a warm greenhouse, but *B. glabra* is rather more tender and needs more care. Young plants of *B. glabra* may be grown on freely, in order to make the most of the season. Francisceas, when well grown and kept free from mealy bug, are beautiful flowering plants for the stove. Their flowers are always useful in a cut state, whilst the colours of the same (blue and purple) are all too scarce. These may be grown well under the treatment advised for Ixoras. One or two varieties, it is true, are often cultivated in a cooler temperature, but the flowers are seldom so fine under those conditions. Young plants of Gardenias should not be allowed to suffer for want of a shift, but larger ones now, or soon to be swelling their flower-buds should stand over till the first flowering term is passed, when young growth will be more active. These are rapid growing plants, thriving well in a rich soil; some decomposed manure with the compost will, therefore, be an advantage. Old plants of the Impatiens or stove Balsams should be potted after a slight reduction, and some cuttings taken for a young stock as soon as they can be obtained of sufficient length. Later on these cuttings will form the better plants of the two and supplant them for keeping through the next winter season.

GLORIOSA SUPERBA makes a splendid plant for climbing upon wires or pillars, whilst its unique flowers are always attractive. This ought now to be potted before growth commences. It may be shaken entirely out, as it always loses its roots and starts afresh from its tubers. Do not put it into a great amount of soil at first, but wait until a fair growth is made, then give it a shift into its flowering pot. Where *Urceolina pendula* is grown, attention should be given to the bulbs soon. I like to repot about every other year, then any offsets can be removed and potted up singly if of good size; otherwise it is best to put them in a pan for the first year. Strong bulbs may be potted on into larger pots, but it is never advisable to go beyond 6-inch or 7-inch ones at the most. The same soil as for *Eucharis* will suit them well. For winter flowering this is an attractive and elegant bulbous plant, and one not sufficiently known.

EUCARIS.—Where the stock of this valuable bulb requires any repotting and rearrangement of the bulbs, this is about the best time of the year to see to the work. I prefer to shake out a part of the stock every spring about this time. In doing this, I

assort the bulbs into three or four sizes and pot them accordingly. Six large ones are sufficient for a 9-inch pot, about the same number being put into smaller pots according to their size. As many roots as possible should be preserved and the best of the leaves also. Before potting, it is a good plan to sponge the leaves where this work is in any way needful. After potting, some support should be given to the foliage. The pots for such treatment should be drained rather more liberally to avoid any excess of soil. This will afford more room for root action after the next shift another season. Plants which only need potting on should have a moderate shift only, say an inch all round. For soil I prefer a mixture of good peat and turfy loam; the latter will correct the decomposing elements of the former and prevent the mass from getting too close. A few half-inch bones or some charcoal are an assistance; a free use, too, should be made of silver sand. Moderately firm potting is preferable to a loose state of the soil. In some cases no potting will be needed, for where plants are doing well and not too much crowded, it is not advisable to shift every year. For such, a top-dressing will suffice and be a great assistance. In the case of the shaken-out plants, a few weeks or even months in bottom-heat will greatly assist them. These will also require more careful treatment in the way of watering for some time to come. When the leaves of such droop during bright sunshine, a few sheets of newspaper should be laid over them for the time-being.

In potting stove plants some growers make it a practice to shake off nearly all the soil from the roots; this I neither adopt, nor do I recommend it in any case. It results in a loss of more foliage amongst the evergreen section, and has a weakening tendency upon the others. It may suit trade growers where the stock has to be kept in small pots, but even then I would prefer to grow on from cuttings. After the potting is all completed, be very careful for some weeks with respect to watering. The daily syringing will suffice to keep many of the plants sufficiently moist until it is seen that root action is again freely on the move. One good watering is needed after the potting, but unless the plants are lovers of an extra amount of moisture at the roots, it is far best afterwards to proceed cautiously. With regard to temperatures, a slight rise should be given, but on no account attempt to force a rapid growth at present, or the ill effects will be apparent later on when the sun gains power. A rise of 3° or 4° at night will suffice for the present; slightly higher records during the day in comparison with the night temperatures will do no harm. Be cautious with ventilation when an easterly wind is blowing; at such times sufficient fresh air will in most cases be forced into the house between the laps of the glass for the next few weeks.

GREENHOUSE.—Where *Pteroma elegans* and other Melastomads are grown, should any of the stock become unduly tall and bare at the bottom, now is a good time to cut them down to secure a fresh growth from the base. In order to prevent bleeding, the plants should first be dried off, even to producing a limpness in the foliage. Then they may be safely cut hard back and still kept dry, but placed as soon as convenient in a gentle warmth to encourage a free break. After one good watering has been given, so as to well soak the ball when fresh growth is apparent, then they may be repotted. In most cases a reduction will be needful. When doing this work with such fine rooted plants, I prefer to cut away the needful amount rather than break it off with a stick; the roots left behind are not then in any way torn or injured. A few weeks in a gentle growing temperature will soon start them into active work again. The plants must not, however, be exposed in a cool house, at any rate before May. Cuttings of *Pteroma elegans* may be struck from the tops of the cut-down plants. For these, use nearly all sand with a little peat only, putting the cuttings around the sides of a pot, which afterwards should be plunged in another pot with a bell-glass fitted over, so as to nearly exclude air. But little water will be needed in this way until roots are being made. A medium temperature

is the best for this purpose, and where there is not any excess of moisture also.

JAMES HUDSON.

ORCHIDS.

THE long-continued and severe frosts have had no bad effect upon our plants as far as we can yet judge. I have now seen several large collections, and the plants are very healthy indeed. The weather since the frost gave way has been unusually favourable. In recent years we have very often had to fight against long-continued and cold winds blowing steadily from the north and east for weeks at a time during the months of February and March. If we escape these the winter will soon be forgotten. The late Mr. Joseph Spyers considered the time from the middle of February to the end of March, or from the middle of September to the end of October, the best season to repot cool Orchids, and did not approve of repotting any of them during the summer months. I used to advocate spring potting, and had not then, nor have I now, much objection to repotting them in the summer. Certainly Orchids may be repotted now, using good fibrous peat and clean Sphagnum Moss in about equal portions. Clean pots and also clean drainage are very important considerations. One cultivator told me he would not use flower-pots a second time. He always broke them up; indeed, this is necessary in the case of Cattleyas and other Orchids, of which all the best and most active roots are found clinging to the pots. I was to-day repotting a *Cœlogyne Massangeana*, and the pot in which it was growing had to be broken into pieces before the plant could be safely removed from it. But cool Orchids, such as *Odontoglossums* and *Masdevallias*, do not cling so firmly, and they can be turned out easily. I am not yet convinced that it is safe to fumigate the cool house, at least with tobacco smoke. Perhaps it will be found that some of the new fumigating materials may be sufficient to kill the green-fly without causing the leaves of the *Odontoglossums* to fall off. Any fumigating material that would have this effect would be of the greatest value to Orchid growers. We have pretty well got rid of all the green-fly by constantly looking out for it, and washing it off with a sponge dipped in soft soapy water. Any plants that need repotting should be seen to at once in any of the houses. I have been repotting a number of *Cypripediums*, including such as *Spicerianum*, *Leeanum* and some others. The two I have named are amongst the most beautiful in cultivation and very easily increased. *C. Spicerianum* is not easily reached in its native habitat, and the collecting and importing of it are very expensive. The plant itself can be easily propagated by division. A plant I had about six years ago has now increased to eleven plants, and I could make thirty of them if I cared to break them up now. An increase at this rate does away with the necessity of importing. *C. Leeanum* and the finer variety *Leeanum superbum* grow quite as freely as *C. Spicerianum*. These fine hybrids have been produced by crossing *C. Spicerianum* with *C. insignis*, the variety *superbum* being an illustration of the better results of crossing the finer forms. None of the above like to be stinted for pot room, and I find they succeed best when about half the potting material is composed of good loam and the other half of fibrous peat, with a due admixture of potsherds and charcoal to keep the compost open. Other *Cypripediums* will succeed well in good fibrous loam mixed with the peat. The very beautiful *C. caudatum* certainly does so, and the same may be said of the *C. niveum* type. I alluded to repotting *Cœlogyne Massangeana* and free-growing plants of this type, such as *Cymbidium Dayanum*. They soon increase, the latter not so freely as the former, but when they are too large they ought to be divided, as large plants do not produce so many spikes in proportion to the size of the plant. I allude more particularly to *Cœlogyne Massangeana*. It is easily divided, succeeding well either in baskets or pots, but is seen to the best advantage as a basket plant, the spikes drooping gracefully over the sides. A word here on the best method of dividing these and similar plants. It is easy to

sever the mass of roots with a knife, and to cut through amongst the bulbs in the same manner, but this is in some cases a very grave error. I never use a knife when the fingers will do, and in no case ought the roots to be cut. The first thing is to gently disentangle the roots with the fingers, carefully avoiding breaking any. As a rule, the plant can be parted where it is required with the fingers, but if it will not do so, cut through between the pseudo-bulbs with a sharp thin-bladed knife. The well-known and useful *Cœlogyne cristata* and its varieties are now in full beauty, or may have passed out of bloom. As soon as the flowering period is over, repot them, using pots the diameter of which is 3 inches more than the plants were in before. In their case also, some good loam should be added to the peat, with a very small portion of quite decayed manure.

J. DOUGLAS.

GARDEN FLORA.

PLATE 793.

PASSIFLORA RACEMOSA.

(WITH A COLOURED PLATE.*)

THE accompanying plate represents one of the most lovely warm-house climbers in cultivation. It is comparatively an old garden plant, its introduction dating back to 1815, and although its beauty is already fully appreciated in many gardens, yet it eminently deserves bringing into prominent notice. Although introduced and figured under the name of *P. racemosa* in the *Botanical Magazine* and the *Botanical Register*, its appearance in the famous Hackney nurseries of Loddiges resulted in a second name for it, viz, *P. princeps*. This was in 1817, when Loddiges figured it in his *Botanical Cabinet*, justifying the name by the statement that as the flowers were at their highest perfection when the amiable Princess Charlotte, "the hope of her country, was consigned to the tomb, we feel a sort of sorrowful pleasure in paying this tribute of our unfeigned respect by dedicating a magnificent plant to her memory." Curiously enough, Loddiges' name for this plant has almost supplanted that previously given, and it is generally known as *P. princeps* in gardens to-day.

The prevailing colour in the flowers of almost every one of the 120 known species of *Passiflora* is purple, green, or white. We have the cream of the genus in cultivation, a very large proportion of the species having no claims to beauty. Of red or crimson-flowered species there are few known, those in cultivation being *P. vitifolia*, *P. kermesina*, *P. alata*, *P. cinnabarina*, *P. coccinea*, and *P. racemosa*. The pick of this half dozen is unquestionably *P. racemosa*. It grows with vigour, has handsome, glossy green leaves, branches very freely, every branch and branchlet terminating in a raceme of large bright crimson flowers and buds. Planted in a bed of well-drained rich soil, and trained against the roof of a stove or intermediate house, it will cover 5 square yards of space in a year, and continue to expand its handsome flowers from April to November. It may also be grown in

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, Sept. 20, 1890. Lithographed and printed by Guillaume Severeys.



PASSIFLORA RACEMOSA

a large pot, its shoots trained on a balloon trellis, as it used to be grown in the days when it figured at exhibitions among flowering stove plants. It prefers a light, but not very sunny position. According to the collector Gardner, who found it in abundance in Brazil, it grows only in the shade of woods, thickly festooning the trees with its branches clothed with brightly coloured flowers. It is a favourite flower with the Brazilians, who call it "*Martyris cachudo*"—the bunch-flowered *Passiflora*. When in vigorous health *P. racemosa* produces racemes which ultimately attain a length of from 18 inches to 2 feet, and bear from twelve to twenty flowers. These expand usually in couples. To be accurate, we should not call the flowers racemose, for they are not borne in a distinct raceme as the *Wistaria* blooms are, but they have that appearance owing to the abortion of the leaves from whose axils the flowers spring precisely as in the ordinary *Passion Flower*.

Next to *P. racemosa* the most useful species among the red-flowered *Passifloras* is *P. kermesina*. This has small three-lobed leaves, dull green above, dull red below, loose straggling branches, and numerous axillary flowers of elegant form and coloured rich carmine. Trained to the roof of a stove or Orchid house, positions for which this species is admirably adapted, it makes an effective display throughout the summer. Then there is *P. vitifolia*, whose only fault is its shy-flowering nature; otherwise it would be the perfection of a stove climber. It has large, hairy, three-lobed leaves, not unlike those of the Grape Vine; the flowers are as large as those of *Taesonina Van Volxemi* and coloured bright vermilion-scarlet. The shoots grow freely and strongly, but they are not prolific in flowers. *Passiflora alata* is one of the big-fruited species with four-angled stems, large, entire, oval leaves, and large, fleshy, fragrant flowers, coloured crimson, the conspicuous ray formed of thick filaments prettily banded with white and purple. *P. cinnabarina*, with scarlet flowers each nearly 3 in. across, is remarkable as being a native of Australia, but it is not a good garden plant. *P. coccinea* I have not seen in cultivation. A hybrid of considerable value as a greenhouse climber has been obtained by crossing *P. cœrulea* and *P. racemosa*. It flowered at Cobham Park in 1853, and was figured by Loddiges. The flowers are purplish-lilac in colour, somewhat like those of *P. cœrulea* in form and size, and they are abundantly produced on the ends of the shoots. This plant has been a conspicuous object in the conservatory at Kew for many years. Other hybrids between *P. racemosa* and other species have been raised, but they are not known to exist in gardens now. The satisfactory result obtained by crossing *P. cœrulea* with *P. racemosa* might be improved upon by crossing the latter with the white-flowered kind known as *Constance Elliott*, as it is probable that the result would be a pink or red-flowered *Passion Flower*, with the robust hardy constitution of *P. cœrulea*.

The *Passion Flowers* already represented by

coloured plates in *THE GARDEN* are as follows: *P. vitifolia*, March 13, 1880 (p. 242); *P. Watsoniana*, March 3, 1888 (p. 194); *P. cœrulea* var. *Constance Elliott*, May 7, 1887 (p. 420). The plant previously known as *P. insignis*, under which name a plate of it appeared in *THE GARDEN* in 1876, is now included in *Taesonina*. W. W.

ORCHIDS.

ONCIDIUM BRUNLEESIANUM.

THIS rare species, now flowering with Mr. Sander at St. Albans, belongs to the *O. sarcodes* group of Orchids; indeed, the pseudo-bulbs are very similar to those of that species, but they are, I think, somewhat stouter at the base than in that plant. Hitherto this Orchid has not produced a very long inflorescence, but when strong and well established it may develop a long dense raceme which cannot fail to please, from the strong contrasting colours of the flowers—colours, too, which are unusual in the genus, viz., canary-yellow and black. This Orchid, I believe, has hitherto been grown in the Brazilian house, but it is said to be a companion of *O. varicosum*, and this species grows best under much cooler treatment. Nevertheless, if only one plant is possessed, I can quite understand that its owner will not care to risk the chances of its standing unharmed in the *Odontoglossum* house. It thrives well if potted in rough fibrous peat and *Sphagnum Moss*, and, as I have before stated, the soil in all cases should be made open and free by the introduction of nodules of charcoal during the process of potting. Care should be taken not to use too large pieces, because these prevent the soil from binding down into a firm and solid mass. Orchids potted in a loose manner can never succeed satisfactorily. During the growing season, which is during our spring and summer months, a continuous supply of moisture is necessary both in the air and at the roots. During the autumn and winter months less moisture and less heat should be given, but by no means should the resting or drying be carried to the extent of shrivelling the pseudo-bulbs or leaves, as this will in all probability cause the loss, or at any rate prevent the full development of the flower-spike, which usually appears in the months of February and March. The flowers are not large, more or less canary-yellow, the sepals and petals slightly converging, the petals being transversely streaked faintly with reddish-brown; the lip three-lobed, side lobe erect, bright yellow, not covering the column; front lobe large, deep velvety black. It is a very pretty plant and deserves a place in every collection of Orchids.

WM. HUGH GOWER.

Zygopetalum leopardinum.—This is a fine hybrid of Mr. Seden's, now flowering in the collection at The Dell under the care of Mr. Ballantyne. It is the result of a cross between *Colax jugosus* and *Z. maxillare*. The ground colour is white, crossed with numerous broad bands of madder-lake. The lip has somewhat the shape of that of the *Colax* at the base with a broad front of bright blue variously streaked with lines of white. It is one of the most pleasing and beautiful Orchids that I have ever seen.—W. G.

Dendrobium Wardianum giganteum.—I am in receipt of a flower of this variety from Mr. Buchan, of Southampton. The flower sent is very beautiful, the sepals and petals being broad and of good substance, heavily tipped with magenta-purple. The whole of the base of the lip is yellow; in front is a zone of creamy-white, the front slightly recurved and tipped as in the petals. It is a very

fine form. The typical plant was first flowered by myself when I had charge of the Messrs. Jackson and Sons' collection at Kingston, in Surrey.—W. H. G.

ORCHIDS AT CLARE LAWN, EAST SHEEN.

CONSIDERING the unfavourable character of the weather during December and January, the display of Orchids in flower at Mr. Wigan's establishment was, during a recent visit, unexpectedly good. Not only is there a large quantity of flowers, but some of the plants represent the finest and most valuable varieties. The *Phalenopsis* stand out the most prominently, the numerous plants being in unusual health and vigour. It is probable, now that Mr. Partington's famous collection has been dispersed, that no finer nor healthier set of plants is to be seen in the neighbourhood of London. This genus is notoriously one of the most difficult and wayward with which the Orchid grower has to deal, but here they grow as freely as *Cypripediums*. The house in which they are grown is small and low, and every means is adopted by Mr. Young to secure a permanently moist atmosphere, which is undoubtedly one of the most important points in the cultivation of these plants. Under the central stage Mr. Young has made a bed of leaves, which, in fermenting, serve the double purpose of giving off moisture and ammonia. All the plants are grown in baskets, most of the roots hanging in free air and forming by themselves a rather striking picture. The side stages are planted with *Fittonias*, *Selaginellas* and similar subjects, which do much to add to the pleasing appearance of the house. *P. Schilleriana* is in flower in large numbers, some of the spikes bearing over thirty flowers. *P. Stuartiana* is also in good form, and other species are rapidly pushing on their spikes. In this house is a collection of *Cypripediums*, examples of the robustest health. *C. Lawrencianum*, as it is seen here, is well worth growing for the beauty of its foliage alone, the whole leaf being a tessellation of yellow and dark green. *C. Elliottianum*, although not in flower, is also a most effective plant, the rigid leaves being of the glossiest green. Two rare and beautiful *Saccolabiums* were in bloom—*S. bellinum* and the white variety of *S. violaceum*. In the intermediate house the most noteworthy species in bloom is *Lælia anceps*, which is represented by some fine varieties both of the white and purple forms. The loveliest is the variety *Sanderiana*, whose beauty indeed it would be difficult to rival at this season. Its flowers are of the purest white with a blotch of pale yellow on the middle lobe of the lip and several stripes of purple in the throat. Of the colour varieties, the one called *Morado*, after the locality where it is found, is perhaps the finest, the lip being large and the colour a soft, deep rose-purple. One fine specimen of the ordinary type with over fifty pseudo-bulbs is growing on a block of Apple tree, where it is perfectly at home; it carries twelve spikes of bloom. *Lælia præstans*, a perfect little gem, and *Cattleya Walkeriana* are in flower. The latter is a handsome and uncommon species which does not flower from the top of the ordinary pseudo-bulb, but pushes from its base a small leafless growth, which flowers and then dwindles away.

Several of the deciduous *Calanthes* were in good condition. *C. Regnieri*, now reduced by Messrs. Veitch to a variety of *C. vestita*, was represented by a remarkably fine form; the sepals and petals are flushed with rose, and the lip is also rose coloured, whilst a blotch of crimson-purple stains the base, and suffuses, more or less, the whole of the front lobe, and renders the flower one of the richest coloured in this group of *Calanthes*. *C. bella*, a pretty hybrid of Veitchian origin, was also in bloom. This late blooming section of deciduous *Calanthes* is the most suitable for cultivation near London, escaping, as a rule, the fogs which in the majority of seasons ruin the flowers of *C. Veitchi* and *vestita*. A feature which adds a great deal to the interest of this collection is the large number of Orchids it contains that are usually considered only fit for botanic gardens. Amongst these I noted several species of *Dendrobium*, *Masdevallia*, and *Cirrhopetalum*. Such plants, whilst less pleasing to the

eye, often illustrate the wonders of this family more vividly than even the most pretentious of their allies. W. B.

Cattleya Percivaliana aurea.—A flower under this name comes from Mr. Cypher, Cheltenham, having the front lobe of the lip quite destitute of the rich crimson markings in the normal state of the plant, leaving the ground colour deep orange-yellow. I think this detracts much from its beauty, but there may be some Orchid growers who would think otherwise.—W. G.

Cœlogyne barbata (J. Manning).—Flowers of a superb variety of this plant come from this reader. He says, "This is the first time I have flowered it, although I have had the plant several years." The flowers are large, the sepals and petals being broad and of the purest white, the lip pale pink, the centre of the middle lobe and fringe of lip quite shaggy with nearly black hairs. This beautiful species was first introduced by Mr. W. Bull, of Chelsea, and a most lovely thing it is.—W.

Cyrtopodium punctatum.—I recently noted this fine old species flowering abundantly. It is a beautiful plant, now much cast on one side for cooler kinds. It bears a tall scape which rises some 3 feet or 4 feet in height, the upper part being much branched and bearing many flowers, which are yellow, the sepals and petals banded with dark brown. The side lobes are incurved with a broad band of crimson, the front lobe plain yellow, dotted round the margin with crimson. It is a fine old plant, which, when strong enough, I have never had any difficulty in flowering, but I believe it likes to be potbound and should not be frequently repotted.—G.

Dipodium paludosum.—This flowered for the first time in England last year, and was exhibited before the Royal Horticultural Society by Messrs. B. S. Williams & Son. The plant belongs to the Vandaceae, and has distichous leaves of a pale hue, the spike axillary, bearing a raceme of flowers; the sepals and petals of which are creamy white, dotted with purplish-magenta; lip of the same colour, streaked and blotched with purple. Mr. Williams has grown this plant in a Wardian case in the East Indian house, and appears to have been more successful in its culture than anyone else.

Cypripedium Sedeni var. candidulum.—Of the numerous groups of hybrid Cypripediums now in existence, the one which promises to be of most service to horticulturists generally, alike for its beauty and easy culture, is that to which C. Sedeni belongs. This group, which now consists of a dozen or more hybrids, claims C. Schlimi as one of the parents. It is a fortunate and rather remarkable circumstance that the delicate constitution of this species, which makes it one of the shortest-lived of Cypripediums, is not in the least transmitted to the progeny. The now widely spread cultivation of C. Sedeni is the best proof of its ready propagation and strong constitution. The var. candidulum, which amongst several others of this group is flowering at Kew, was raised by Messrs. Veitch from C. longiflorum and C. Schlimi var. albiflorum. The sepals and petals are ivory white, the former having yellowish-green veins, and the latter being tinged with pale rose. The pouch is pale rose on the outside, the unfolding margins being white spotted with dark rose. The flowers, while greatly resembling those of C. Sedeni, are slightly larger and altogether of a lighter shade.

Angræcum eburneum.—Although the genus Angræcum ranks amongst the most difficult of Orchids to cultivate, A. eburneum forms a welcome exception to the rule. It may be grown in an ordinary moist stove in company with other plants, and, provided it receives proper treatment at the root, will continue to flower and increase in size for an indefinite length of time. There are now several plants of the type and its variety virens in bloom at Kew. This is the largest and strongest growing of the Angræcums, attaining a height of several feet. The stem is almost as thick as a man's wrist and is densely clad on one side with roots. The leaves are very thick and rigid, measuring over 2 feet in length. The flower-spikes are erect, longer than the leaves, and each bears two rows of large

inverted flowers. The lip is the most conspicuous part of the flower and is very handsome, being heart-shaped, $1\frac{1}{2}$ inches across and pure white. The sepals, petals and spur are green, the last being 3 inches in length. The flowers remain perfect for quite two months, and during the whole of that time give off a most agreeable perfume. To those who do not profess to keep up a collection of Orchids, or are not able to set a house specially apart for them, but would, nevertheless, like to grow a few along with ordinary stove plants, this Angræcum may be recommended. The variety virens possesses the same good qualities in regard to culture, but its flowers are decidedly inferior, being small and having the lip strongly tinged with green. Both these Orchids are natives of Madagascar, the true eburneum being also found in the Seychelle Islands. They require to be grown in large, but well drained pots, the compost consisting of good Sphagnum and charcoal.

SHORT NOTES.—ORCHIDS.

Cattleya crispa delicatissima is a lovely variety of an old species, with broad, beautifully undulated petals and deeply filled, well opened lip, the throat streaked with rosy-purple and the margins flaked with lilac.—G.

Cattleya Mossiæ decora is a magnificent variety which flowered in the nursery of Messrs. B. S. Williams and Son. It is remarkable for the breadth of petals and the rich colouring of its lip, which always render the varieties of this species favourites.

Lycaste Skinneri alba.—I lately saw a fine specimen and a fine variety of this Orchid. It was carrying three superb flowers with much longer peduncles than I have ever seen the species or the variety have. The flowers were some 8 inches across and of exquisite shape.—W. H. G.

Mesospinidium vulcanicum magnificum.—Dried flowers of a gigantic form of this beautiful species come to me from Mr. Shuttleworth, of Clapham Park. The individual blooms are quite as large again as those of the typical plant figured in THE GARDEN, April 29, 1882. The flowers appear to be of a rich bright rosy crimson, which, combined with their size, will make them valuable for our cool Orchid houses.—W. H. G.

Lælia grandis tenebrosa.—Messrs. Charlesworth and Shuttleworth send me flowers of this grand variety, which they have succeeded in importing in a living state. I think they and many others wish to make out that this is the true old L. grandis, but I cannot agree with this. The original was figured in the *Botanical Magazine*, t. 5553. This variety is much finer, having flowers nearly as large as those of L. purpurata, and each measures some 8 inches or 9 inches across. The sepals are of a deep bronzy hue, lip large and deep purple in colour.—G.

Chysis Chelsoni.—A very fine spike of this Veitchian hybrid comes from Mr. Cypher, of the Queen's Road Nursery, Cheltenham. He says it has been in bloom for three weeks, and the flowers seem to be almost as good as ever. The spike bears seven flowers, which are of good size and well opened. The sepals and petals are nankeen-yellow, heavily tipped with brownish purple; lip creamy white on the outside, nankeen-yellow on the inside, streaked and spotted with crimson. This pretty hybrid is a cross between C. bractescens and C. aurea.—W. H. G.

Odontoglossum Galeottianum.—This plant was discovered in 1844, but was not introduced in a living state until 1870, when on account of its rarity Professor Reichenbach presumed it to be a hybrid of natural origin. It has been introduced upon two occasions and by two different nurserymen. It is an elegant plant with somewhat the habit of O. Cervantesi, a plant it always comes with. The flowers are white, saving the base of the sepals and petals, which are dotted with magenta.

Seasonable decorations.—Those who possess a good source of supply in the way of Orchid flowers will now be able to obtain a better selection than a few weeks ago. The mixing of various kinds of Orchid blooms or spikes is not at all desir-

able. Even when more than one variety is employed in the same arrangement the selection should be from the same genus. Take, for instance, Cattleyas. It is not possible in any way to add to their beauty by mixing with flowers of totally distinct character, even if they be ever so choice. The colours, too, of the Cattleyas, particularly C. Mossiæ, are frequently very difficult to harmonise with those of other things. It is possible to arrange two distinct colours of Oncidium together with good effect, but this is an exception rather than otherwise. Many of the Cypripediums from their similarity might also be used in a like manner. Orchid growers frequently cut the flowers from their plants, so that the latter should not be weakened. Thus all such should be turned to a good account in floral arrangements. There is often a difficulty in the selection of suitable foliage to arrange with Orchid flowers. Whilst some Maiden-hair Fern is desirable and produces a good effect, it is not well to rely too much upon this source, but to look further afield. Davallia elegans at this season is useful; a little later on D. bullata will take its place. Nephrolepis, Aspleniums, and the Pteris family can all be employed; so also can the fronds of the Hart's-tongue Fern with good effect. Asparagus plumosus and A. tenuissimus are both valuable and always last well. I have also used the green leaves of the Aspidistra with decided advantage in arranging large spikes. If long trailing spikes are being used, arrange them in as natural a manner as possible and choose foliage suitable. In such a case long sprays of the Asparagus, of Lycopodium cæsum, or Lygodium scandens would be useful. Another source of supply in the way of foliage may be had where early bulbs are grown and now over. The leaves of the Tulips, Narcissi, and Hyacinths even can thus be turned to good account. Take, for instance, a spike or two of Cœlogyne cristata now in flower with the leaves from the Tulips and arrange together. This is more in character than by employing Maiden-hair Fern. More use could easily be made of the foliage from the bulbs; yet if any was sent with the flowers of Orchids or other choice material instead of the Maiden-hair Fern, the receiver might wonder for what purpose it was intended. In arranging Orchids as button-holes, the firm fronds of Adiantum Pacotti are very useful as a backing; so also in some instances are small sprays of the common Myrtle and the leaves—of medium size—of the Oak-leaved Geranium.—J. H.

Aquatics in pond.—How shall I treat a pond with a clayish soil so that I can grow aquatics out of doors?—W., North Row.

* * With a little care and judgment your pond may be made a most interesting adjunct to your garden, the primary considerations being its depth and whether the water is inclined to be stagnant. If the greatest depth may be taken at 3 feet, a most interesting assembly of aquatics may be grown, and in the event of its being a stagnant pond, this may be rectified by a trickling stream from the water supply passing into it to be drained off at the opposite side. In the first place, free the pond of weeds and any vegetable accumulations it may contain detrimental to the progress of the new comers. This being done, a few loads of ordinary soil may be carted to the margin and somewhat evenly cast into the water, or if local surroundings prevent this being carried out, take your soil for the bottom from around the sides of the pond 1 foot above the surface of the water; this process will also secure a footpath around the pond for the future inspection of the plants. Beyond this little will be needed save obtaining a good assortment of the plants in question, selecting such things as Nymphaea alba, N. odorata, Nuphar advena, N. lutea, Stratiotes aloides, and Hottonia palustris for deep water; and for shallower places, Aponogeton distachyon, Sagittarias in variety, Pontederia cordata, Villarsia nymphaeoides, Menyanthes trifoliata, and Caltha palustris. Around the margin where their roots may be in contact with the water, a large number of plants may be utilised with excellent results. Prominent amongst these

should be *Butomus umbellatus*, *Ficaria grandiflora*, *Caltha palustris*, several varieties, very showy; *Saxifraga peltata*, *S. granulata plena*, *Myosotis palustris*, *M. semperflorens*, *Primula japonica*, *cashmeriana*, and *rosea*, *Iris pseudacorus*, *I. Kämpferi* in great variety, *Cyperus longus*, *Spirea Aruncus*, *venusta*, and *digitata*, *Osmundas* in variety, any of the Swamp Lilies, as *pardalinum*, *superbum*, and others; while if space permits, *Gunnera scabra*, *Eryngium serra*, and *E. pandanifolium* may also receive consideration by reason of their noble bearing.—E. J.

TREES AND SHRUBS.

CHOISYA TERNATA.

(THE MEXICAN ORANGE FLOWER.)

THIS pretty Mexican shrub, of which a very characteristic illustration was recently given in THE GARDEN, has here in the immediate neighbourhood of London suffered but little injury from the late severe weather. True, the foliage is very much browned, and a good deal of it will, no doubt, quickly drop, but only the youngest shoots show any signs of injury; indeed, generally speaking, this *Choisya* may be said to have been injured to about the same extent as the *Aucuba*. There will, of course, be little if any bloom this season; in fact, my plant, though it grows freely enough, often fails to flower in a satisfactory manner. This especially happens if the preceding winter has been an unusually severe one. At Kew, too, I see this *Choisya* planted out in the open ground has not suffered so much as many shrubs whose hardiness is never questioned. Irrespective of bloom it is, however, a very ornamental shrub, and the bright glossy green leaves emit a pleasant aromatic fragrance if passed through the hand or slightly bruised in any way. Even where it is not hardy, this *Choisya* is an extremely useful subject for flowering in the greenhouse early in the year, as in pots with a little care and attention it may be induced to bloom very freely. Satisfactory flowering specimens may be had in pots 6 inches in diameter, or they can be shifted on till they attain the dimensions of large bushes. If plunged out of doors during the summer, care must be taken that the plants are not allowed to suffer from want of water, otherwise the foliage is apt to acquire a yellowish tinge, which is difficult to get rid of. Liquid manure also occasionally during the summer is of service. At all times, but more especially when under glass in the spring precaution must be taken that red spider does not effect a lodgment on the leaves. The Mexican Orange Flower, as this shrub is sometimes called, can be readily increased. Propagation is effected by means of cuttings, the best being furnished by plants that have flowered in the greenhouse, and then been kept there to complete their growth. Shoots of medium vigour should be chosen for the cuttings which may be formed entirely of the current season's growth, selected when in a half-ripened state. If dibbled into pots of sandy soil and kept close in a gentle heat they will soon root. Soon after midsummer the shoots borne by plants in the open ground are available for cuttings, and they will strike root in an ordinary garden frame before winter sets in. H. P.

***Daphniphyllum glaucescens*.**—The severe winter we have just passed through has shown that in this *Daphniphyllum* we possess a valuable evergreen shrub, for it stands forth fresh and green while most of its associates show signs of the damage they have sustained. It is one of Messrs. Veitch's many introductions from Japan, and is said to be a native of the northern and central districts of that country. The *Daphniphyllum* in question is not unlike a *Rhododendron*, forming as it does a bold-growing, sturdy, and freely-branched bush, plentifully furnished with leaves. These leaves are oblong, pointed at the apex, each from 5 inches to 7 inches long, and about 2 inches in width at the broadest part. The upper side of the leaf is of a delicate pale green, while the under surface is covered with a bluish-grey glaucescence. The bark of the young shoots, the foot-stalks of the

leaves, and the midribs are bright crimson, which form a striking contrast to the leaves. Another form of *Daphniphyllum* is *jessoensis*, which is found on the west coast of Jesso. It differs from the preceding in being dwarfer and denser in habit, while the leaves are smaller, somewhat rounder, and of a deeper green above, the glaucescence of the undersides being also more of a bluish tint. The foliage of this latter has been a little seared by the frost, the damage being confined to a few of the more exposed leaves. As a rule, planters limit their attention to few varieties of evergreen shrubs, yet there are others equally desirable whose merits are very generally passed over, and among the best of these last must be included the two *Daphniphyllums* before mentioned.—T.

DIGGING AMONG SHRUBS.

THE spade is one of the most useful tools in the garden in its place, but when we use it in beds and borders between and among choice plants, shrubs, and trees, much injury is done. It is useless to look to our great public parks and gardens, otherwise than to learn what not to do. There is absolutely no need whatever for digging shrubberies. Apparently in many cases it is only done in accordance with false ideas as to what constitutes neatness. It does not matter if mats of young healthy roots are turned upwards and exposed to the frosts and piercing winds of winter and early spring. Some shrubs may require pruning at different times, but some never need it; whereas, the rule is to prune all to regulation shape, and not one has even its own individuality to attract attention or beautify the spot it might adorn. The worst evidences of this pernicious practice are found in public gardens, especially about London, and recently in a large provincial town I observed the corporation labourers busily employed in trying to dig a shrubbery. The ground was frozen hard, and they turned over the soil in huge lumps, exposing the roots. It is needless to dwell at length upon the evils resulting from such a practice. In the formation of new plantations of shrubs, the site should be thoroughly well prepared by deep digging, and the addition of fresh good soil or manure if necessary. If the choicer families are simply grouped in proper association and away from the rampant ravenous subjects which overrun and choke them, there would be less need for the use of the knife, the spade would never be wanted, and any additional food would be applied by surface dressing.

Flower beds and borders too come in for a lot of needless digging. Those that are empty at the time, to be filled perhaps with summer flowering plants, are not included here. With the fast increasing and extended cultivation of hardy plants in beds and borders devoted solely to them, the same annual digging is practised, partly from a desire to benefit the plants by giving a dressing of manure, and to make the border look fresh, neat and tidy. If hardy plants would be well grown, the bed or border should be previously well prepared by deep digging until a depth of from 2 feet to 3 feet is obtained. Such a border, when once made, has no need of annual digging, and it permits of the happiest associations of fine-foliaged and flowering plants with a view to covering every inch of bare ground—a thing impossible when the ground between the plants has to be dug.

There comes a time with most hardy plants when they are benefited by being relifted, divided and transplanted. That is the season to dig and renovate the site they have occupied. There is no necessity to withhold the dressing of manure if such is needed, as it can be applied as a mulch and greater good derived from it. All soils are not alike and require different treatment. The frequent breaking up of light soils is especially disastrous. Those of a heavy nature which become solid and afterwards crack may have the surface improved by pointing them over with a fork or by the use of a hoe after rain. These, however, are minor details; the great fact remains that thousands of bulbous-rooted plants are sacrificed by the spade, whilst those that are visible above ground and below a mass of healthy fibres are seriously injured by digging

alone. A more barbarous and ruthless practice which some adopt is to chop with the spade into prescribed limits any bold hardy plant that has exceeded its bounds.

In the Rose garden pruning will soon be necessary. It is often succeeded by digging, but where Roses are grown for pleasure and closely massed in beds or borders to secure their highest effect, the spade among their roots will do considerable harm. Some of our best groups that have been planted several years have never had a spade among them, the roots running far and wide in the well-prepared soil. A. H.

***Cedrus Deodara* in Ireland.**—Some dimensions of a fine specimen of this tree growing in the garden belonging to Colonel Clements at Ashfield Lodge, Cootehill, Ireland, may possibly interest some of your readers: Girth at 2 feet from the ground 10 feet, height 41 feet, spread of branches 40 feet. This tree is growing in the centre of the garden with an unlimited root-run into a vegetable plot on the south side, and into a Grass plot on the north side. It is sheltered, moreover, on the north by some large Evergreens, which, no doubt, contribute to its well-being in protecting it. At 2 feet from the ground it branches into three principal trunks, the largest of which girths 5 feet 5 inches. Its symmetry is well-nigh faultless. It was severely crippled by the frost in the winter of 1880-81, many of its branches having been killed outright, but since that time it has improved, and at present appears to have come unscathed through the frost of 1890-91. —G. JOHNSTON.

***Rhododendron nilagiricum*.**—Two fine specimens of this beautiful *Rhododendron* are flowering in the temperate house at Kew. Although for many years considered a distinct species, it is now regarded by botanists as a variety of *R. arboreum*, the chief distinction consisting in the colour of the flowers, which, instead of being brilliant red, as in *arboreum*, is a soft rose. The bushes are respectively 8 feet and 10 feet high and from 5 feet to 6 feet through, almost every shoot bearing either a bud or fully expanded truss. Each truss is about 5 inches or 6 inches in diameter, and forms a rounded cone of bell-shaped flowers. Commencing to bloom as they do at the end of January or the beginning of February, when flowers are by no means too abundant, and oblivious to fogs or dull weather, the arboreum group of *Rhododendrons* constitutes a most valuable class of spring-flowering greenhouse plants. It is probably only owing to their slow growth and to the long time it is necessary to wait before they flower that they are not more common in gardens. It was introduced to this country in 1840. A coloured plate of this was given in THE GARDEN, July 20, 1889.

***Rhododendron ponticum* and Laurels.**—My impression is that Mr. Burrell (p. 74), both by his advice and action, has struck a right note in regard to the above, for, however well placed and effective they may have been at the time of planting, subsequent years of luxuriant and unrestricted growth may have caused them to outgrow the extent of their supposed limits, thus giving many a fine mansion a cramped, villa-like appearance. They are often also found occupying positions which should be more worthily furnished with choicer plants. We are at present engaged in some respects in similar work to Mr. Burrell, clearing out some Portugal Laurel and *Rhododendron ponticum*, which, collectively, covered an area of 200 feet long by 90 feet wide. Chiefly owing to their close proximity to the mansion, it was decided to sacrifice them. They occupied a rising bank on one side of the lawn, one side abutting on the terrace and the opposite one overrunning good specimens of *Cedrus atlantica*, *Cryptomeria japonica*, &c., while along their whole length they were flanked by one of the main walks, to keep which open severe cutting-in had to be resorted to annually. While grubbing up the above-mentioned shrubs, we came upon a rock which when cleared proved to be an immense block running transversely to the walk above mentioned, occupying about half the area which the shrubs covered, and rising abruptly and boldly up from the ground. Near its base are capacious natural basins and deep crevices, while higher up are ledges and niches, while the top is

roughed and uneven—quite an ideal rockery, and affording scope for the cultivation of large numbers of alpine and other plants, which will eventually, I trust, find on its various aspects a happy and congenial home. In order to make the rock as prominent a feature as possible, the lawns are being formed into gradual easy slopes, carried on until the base of the rock is reached on all sides, and I hope, when completed and furnished with plants, it will be more interesting and afford greater pleasure than even the fine specimens which have been removed. A few hints from some of your numerous readers as to plants—a little out of the ordinary—which will thrive and be effective in such a position will be greatly appreciated.—J. R.

KITCHEN GARDEN.

PARSLEY.

A good supply of Parsley is valued in all gardens large or small, but yet how often does the supply fall far short of the quantity required. Considering the importance of the crop, it shows how desirable it is to adopt a fixed routine of culture, and not the haphazard system so often seen in small gardens, *i.e.*, a good supply for a few months during the summer, and then a considerable falling off. In large establishments where Parsley is in regular request, perhaps two or three times daily, the gardener is fully alive to the desirability of keeping up a regular and steady supply. During the past severe weather where due provision was not made to meet winter calls, how unthankful has been the task of hunting amongst the snow for perhaps a few sprays, but yet, with a little forethought for winter preparation during the preceding summer and autumn, this might have been easily avoided. I am well aware of the difficulty there is in some gardens of even getting Parsley to grow, let alone thrive satisfactorily. This is generally the case in old gardens which are either very deficient in lime or too rich in humus, through a long period of heavy manuring. Where Parsley does not thrive or dies off suddenly, a dressing of fresh slaked lime will often alter matters. A dressing of steamed bone-meal or superphosphate of lime is also very beneficial in imparting a sturdier growth, so as to enable it to withstand the rigours of a severe winter. Soot is also a capital stimulant. A firm root-run is also very essential, as Parsley appears to thrive most satisfactorily in a soil of a clayey nature with a fair proportion of lime in its composition. I have had to do with two gardens on the limestone formation, and in each of these the growth of the Parsley was all that could be desired. Although Parsley thrives best on a fairly fertile soil, yet this must not be heavily manured, or the growth will be rank and not at all suitable for garnishing. It is for this latter purpose that handsome curled samples are required. Coarsely grown Parsley cannot be depended upon for the winter supply, as even upon the approach of winter or foggy periods the leaves rot off wholesale. Medium-sized leaves of a handsome curled appearance always find favour, and can only be procured when grown in a fairly open position well exposed to light and air. In small gardens Parsley is often grown so as to form an edging, and for the summer produce this may answer very well, but for affording a supply for the winter it must be grown in such a way that it can be easily protected. Thick sowing is an evil, the plants becoming so quickly crowded. It is astonishing the size even a single root of Parsley will grow to when there is sufficient room for development. Thick sowing is often resorted to as a means of affording additional roots for transplanting, but this latter practice I do not

favour. An open position well exposed to the sun, with a fairly fertile soil and a firm root run are the conditions under which Parsley may be brought to the greatest perfection. Previous to sowing if the soil is at all loose the whole surface should be lightly trodden over, and the seed sown in shallow drills 15 inches apart, or even 18 inches to stand the winter. At this distance well-grown samples will often meet. When the seedlings appear, and if at all too thickly placed thin out to prevent overcrowding. In gardens where the plants are apt to die off it is advisable not to thin too early. I generally make three sowings during the season; the first towards the latter end of February or early in March when the ground is in suitable condition; again in April or May, and about the middle of July or early in August to stand the winter. An earlier crop may be secured by sowing at any time during this month on a very slight hotbed, the produce being thus forwarded much earlier than by sowing in the open. The seed may also be sown in 3-inch pots and forwarded under glass, being eventually planted out on a warm border. I look upon the July sowing as the most important, at least for bridging over the supply during the winter and early spring months. When earlier sowings are depended upon, the growth is generally too far advanced to stand the weather. Where such are depended upon, the wisest course is to cut over the plants during the early part of September, this causing a later and more matured growth. Early sowings on some soils are also apt to run to seed later on in the season, and where such is the case, cutting over the plants considerably lessens this evil. Besides sowing a breadth in the open during July, another should be made either on a sheltered border, to be eventually covered with a frame or spare lights, or in low brick pits, the lights being only used at the approach of frost or during heavy rains later on in the season. The gatherings should be procured from the open as long as it is possible to procure any, the produce in the lights being reserved until actually necessary.

There are various contrivances for protecting in the open, such as waterproof coverings and mats, which are kept raised off the Parsley by a light wooden framework. Long single lines may either be protected by having two boards nailed together ridge fashion and placed over the rows, or by the long and narrow portable lights. Damp is the greatest enemy to Parsley, and this must be provided against if the Parsley is to be preserved during the dark days of winter. Another useful method of providing a supply of Parsley through the months of February and March is to sow in the middle of July a sufficient quantity of seed in 3-inch pots, and to put them in a frame, eventually placing the plants around the sides of convenient sized tubs, these having holes formed 2 inches across and 6 inches apart equally all round the sides of the tubs from top to bottom. When ready for planting, the seedlings are turned out of the pots and the tops placed through the holes from the inside, the space being filled up with suitable soil as the work proceeds, the top also being levelled off and planted. The tubs are kept in the open air as long as possible consistent with safety, when they are removed to a cool vinery or Peach house at rest. The growth made is often very vigorous, and affords useful gatherings during February and March. In small gardens where frame space is scarce, the above old, but none the less useful practice may well be carried out. I have had the tubs "mounds of green" from top to bottom. The plants being well established, the produce may be kept on the move by being placed in a

vinery or Peach house just started. There are now good types of Parsley in the market, most seedsmen making a careful selection, so there should not be the least difficulty in securing a well curled sample. A. Y. A.

PEAS FOR MARKET.

It is many years since the west country growers of Peas for market were so late in getting in their earliest crop. The frost that occurred in November prevented the preparation of the ground in readiness for seed sowing early in February. As a consequence the land has had to be brought into condition since the frost left us. I have noticed, however, that some few growers who are favoured with a fairly dry soil and sheltered position managed to get in their first sowing during November. These crops are now (the end of the first week in February) fairly well above the ground. As might be expected, however, after lying so long in the cold ground, the young plants look rather sickly, and there are more blanks in the lines than I ever remember to have seen. Sowing in November is practised only by those who have land of a suitable character and whose fields are sheltered and face the south. Under such circumstances the risk is not great, while a few days' difference in the crop being ready for market makes a considerable advance in the returns. The growers of whom I am writing have not given up the cultivation of the white-seeded Peas without a struggle. For a long time they clung to them on account of their hardy character, but as soon as the public had got a taste of the blue varieties, like Kentish Invicta and Harrison's Eclipse, the white sorts had to be displaced by them. There is probably more ground occupied with Harrison's Eclipse than all the other sorts put together, as it is both hardy and productive, while its flavour is superior to that of the once favoured white-seeded sorts. Harrison's Glory is another sort that is making itself a name as a second early on account of its excellent cropping qualities and good flavour. This sort is frequently sown by those whose land is not quite suitable for the production of early crops, as in fairly good ground it is not much subject to mildew. Comparatively little space is devoted to the wrinkled varieties as yet, but I think for successional sowings they will be more in demand when the growers have had time to give them a fair trial. Maclean's Best of All and Yorkshire Hero are under trial in one or two instances, but I do not anticipate that they will find much favour, being too tender for field culture. I expect much more from Exonian, which I have grown, and therefore able to report favourably of its hardy and productive character. J. C. C.

Sprouting Broccoli.—This is perhaps the most popular of winter vegetables, and there are several types of it now in cultivation. One of the most recent of these is that known as the Christmas Purple Sprouting, a very early form, the sprouts of which are said to be more freely produced and ready for use at Christmas, therefore many weeks earlier than the old type. Then there is the Early Purple Sprouting, which may be said to be intermediate between the very earliest and the old or late type. The value of the sprouting Broccoli is perhaps scarcely so well appreciated as it deserves to be. The end of March or early in April will be found soon enough to sow, and when the plants are large enough they can be planted out in the usual way. Some people say that the time of planting determines to some degree the time of cutting, and to a much larger extent the size of the heads, and that early planting does not so much affect the time of turning in as it does the size of the heads. There is a white form of the sprouting Broccoli, introduced many years ago by the Messrs. Lee, of Hammersmith, and which was expected at the time to become very popular, on account of its whiteness, but it did not become so. Gardeners and market growers alike stand by the old purple form. Then there is a green form which is also much grown. The flowers of this are partially abortive, and form at the end of every

shoot a small budding mass or lump of a greenish yellow colour. At Bordeaux there is grown what is known as the *Marte Cauliflower*, which is a true sprouting Broccoli, and produces a great number of small, compact purplish heads. It appears to be too tender, however, to endure a severe French winter. The London market gardeners who grow fruit largely plant their sprouting Broccoli between their fruit trees. They sow later generally for plants for this purpose. It is surprising how well this useful Broccoli will stand under the overhanging branches of fruit trees.—R. D.

POTATO SCOTCH CHAMPION.

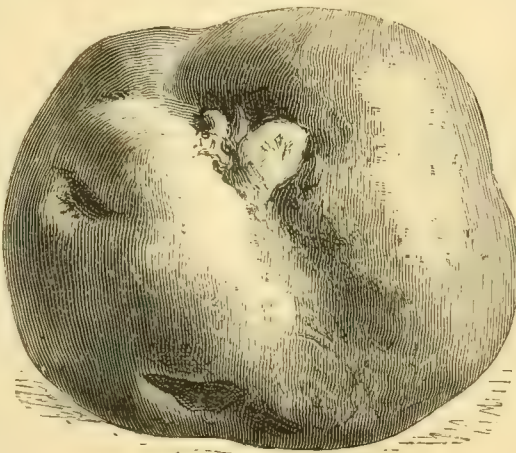
The failure with this reputed disease-resisting variety appears to have been pretty general last season, and unless I am much mistaken it will not be nearly so extensively planted this spring. I have had the haulm collapse quite as badly and quickly in other unfavourable years, but the crops were seldom touched by disease, but, on the contrary, were heavy and of excellent quality from the time they were first lifted till February. I stored an apparently good lot of tubers last autumn, or nearly equal to what has been done in previous years, but when they came to be tested fully one quarter of the heaps proved to be diseased. Not till they were pared could it be seen which were diseased and which were sound, there being no decay to speak of; the tubers were only badly spotted. The same difficulty will prevail with the planting tubers. I have no dread of diseased tubers communicating the disease to their progeny, but they are unsuitable for planting, simply because the growth from them is of a weakly character. Only those that sprout strongly will be planted, and it may be I shall yet be rewarded for sticking to what with me is the best cooking variety that can be grown. Its rapid deterioration is somewhat remarkable, *Magnum Bonum* coming out well by contrast. Likely enough this weakening of constitution may be due to premature sprouting. The *Champion* is one of the first to sprout, and if left in heaps, as it most generally is, at least two lots of shoots are perforce rubbed off or otherwise lost. Other varieties would not long stand this weakening process, and if the *Champion* could be planted on well-manured freely-worked ground with its original sprouts intact, the chances are good sound crops would be lifted, let the season be what it may. It is a "rough diamond," but ought not to be hastily discarded in any case where it has in previous years done good service.

W. I.

Herbs.—Everywhere and anywhere appear to be the rule in many gardens for the arrangement of the different herbs, some of which are in daily demand. A well-arranged herb border should find a place in every garden, and this in some convenient position. The border should also be in an open position well exposed to the sun. Each variety should also be planted in a bed by itself. The beds or rather borders should now be thoroughly overhauled, the stock increased where necessary, and where the roots are exhausted these should be taken up and replanted, the site previously having been well worked over and manured if necessary. Some of the varieties should be taken up and replanted every second or third year, and each season at this date a top-dressing of manure and soil in equal parts would prove very advantageous. During a winter like the past many herbs will have suffered severely, this having special reference to those of a bush form, such as Sage, Hyssop, Rue, and Horehound. This, however, will not be the case where a regular system of keeping up the stock with relays of young plants as occasion may require is practised, these having sufficient vigour

to withstand even a severe winter. It is also necessary with those of a herbaceous character to occasionally take them up, divide where necessary, and replant with the addition of either fresh soil or manure. This has especial reference to Mint, Tarragon, Balm, pot Marjoram, also common and Lemon Thyme. Where it is not necessary to disturb the beds of either Mint, Tarragon, Balm, pot Marjoram, or any kindred subjects, a top-dressing of rich compost should be applied. Lemon Thyme may be increased by planting firmly rooted divisions, and the common Thyme either by rooted divisions or by seed. Sage is easily increased by pulling off the side branches with a heel and inserting firmly in beds. I insert these side branches as if they were rooted plants, and they never fail to grow. Inserting cuttings under a handlight is not at all necessary. Lavender may be increased similarly where there is no existing stock. The majority may be raised from seed, excepting such as Mint and Tarragon. The seed should be sown in shallow drills 12 inches apart about the middle of April in beds of fine and fairly rich soil. As soon as the seedlings are large enough they must be thinned out.—Y.

Mice versus Peas.—The long spell of hard weather drove vermin from the open fields and woods to the gardens and other sheltered places where food of some kind could be found. Of field mice or voles we have more than ever before, and that, too, in spite of three cats and other would-be deterrent measures. The cats prefer to poach in



Potato Scotch Champion.

the neighbouring preserves, and the mice appear to be too artful to be either poisoned or caught in traps. These troublesome pests have a great liking for Peas, and even if the Peas are rolled in petroleum previous to being sown, the mice detect quickly where they are. They must have very keen noses, as it is scarcely possible to baffle them when their favourite food is about. Nor will petroleum deter them from eating the Pea seeds, while chopped Gorse and ashes do not hinder their movements in the least, as they can burrow just where they please. All we can do is to damp the seed and well roll it in red lead, but even this will not always save the rows, and certainly will not do so this season unless we can soon destroy several score of mice. Red lead, however, is the best deterrent I have yet tried, and I hope to save the greater portion of the seed. In anticipation of a few or many undesirable gaps, seeds will also be sown in 3-inch pots, and the plants will then be available for making good all blank spaces in the rows.—I.

Some good Cabbages.—I quite agree with all that "J. R." (p. 136) says in favour of Ellam's Cabbage for spring cutting, as I have found it the best of all that I have tried. It is less liable to bolt, turns in quickly, has nice close hearts and few outer leaves. It is tender and of excellent quality when cooked. As the plants are of small growth they do not require much room in the rows, 15 inches being quite far enough apart. In light soils it is a good plan to

plant in shallow drills. To succeed Ellam's, none, in my opinion, is equal to Veitch's Earliest of All, the hearts of which are of medium size, handsome in shape, and very firm and compact. When I first grew this Cabbage I sowed it in the autumn, but found plants raised then inclined to run, and I now sow early in spring.—J. S.

STOVE AND GREENHOUSE.

AZALEA NARCISSIFLORA.

THE indica section of the garden Azalea may be said to possess some of the most ornamental and useful subjects for the spring and early summer decoration of our conservatories, and there is scarcely another plant in cultivation the withdrawal of which would leave a greater void in our greenhouses. The same remarks may be equally applied to the above variety of Azalea indica in respect to its excellent qualities as an autumn and winter flowering plant. Here we have a good stock of it, and I can truly say there is not another plant in the garden which gives us a better or more serviceable return in the shape of abundance of flowers for the small amount of time and expense entailed in its cultivation. It is a semi-double variety; the blooms are of the purest white—so perfect a white, that I do not know another flower to excel it in regard to this all-important quality. Seeing that the *Eucharis* of late years has been so capricious and unsatisfactory in its behaviour under cultivation in many gardens, I would advise growers who fail with it and who wish to have white flowers in abundance in winter to grow this Azalea extensively. Its flowers are useful for bouquets, wreaths, sprays, and button-holes, and in my opinion are much more chaste and beautiful for this purpose than white *Chrysanthemums*. The flowers also last well in a cut state, as they will remain fresh for a fortnight in glasses in a living room if kept away from gas. With good cultivation this Azalea will give two distinct successional crops of flowers every year. The first comes on in September, pretty well as soon as the plants are taken under glass from out of doors. The flowers which the plant bears at this time are produced on the strongest shoots, and will be easily developed in the temperature of an ordinary cool greenhouse. Towards the middle of December the first crop of flowers will be over, and the treatment the plants receive after this must be altered from a cool greenhouse temperature to that of a humid and a growing one; for instance, the temperature of a vinery about to be started into growth will answer perfectly. Under this more favourable condition of growth the flower-buds formed on the numerous small growths composing the body of the plant, and which up till now have remained dormant, will open freely, and will continue to give abundance of bloom at least for two months or longer if this growing temperature is maintained. The plants after the second crop of flowers is over should still be retained in heat and encouraged to make an abundant growth, for on the success of this will depend the quantity of bloom the following autumn and winter. When growth is completed and the cultivator is satisfied that the flower-buds are formed, the plants should be removed to a sheltered corner out of doors, where they may have the advantage of all the sunshine possible, and where they may remain until the following September, by which time they are ready for removal into the greenhouse, there to commence again their flowering season.

I think it is a mistake to pot this Azalea too frequently, but no rule can be laid down on this point, as it must be determined by the growth and progress of the plant; but, speaking generally, I have found once in three years quite often enough. I may say that while the plants are growing freely in heat they receive an occasional dusting of Standen's manure, as well as two or three applications in the summer while the plants are out of doors. The greatest insect enemy the Azalea has is the thrips, but this may be effectually kept in check by a free application of the syringe and clean water.

Chatsworth.

O. T.

Sericographis Ghiesbreghtiana.—This very old inhabitant of our stoves has been rechristened

of late years, and is now perhaps better known under the name of *Jacobinia*. Where bright and cheerful flowers are in request from Christmas on to February this plant is indispensable. Its bright long branchlets of scarlet flowers, which on well-grown, healthy plants are produced in great abundance, as well as its glossy, dark green leaves, make it one of our most effective and popular decorative plants for the stove at this usually flowerless and dull period of the year. In order to succeed with this plant I find it necessary to treat it to a fair amount of heat throughout its growing season, and in winter whilst expanding its flowers to do it justice it must have stove heat, and where it must remain while in bloom, for if taken to a lower temperature at this stage the flowers will certainly drop off. Cuttings struck in spring and grown freely will make nice plants in 6-inch pots before winter. I find the best soil for it to be three parts loam and one of leaf soil, with a sprinkling of bone-dust.—O. THOMAS.

Tricuspidaria dependens.—This Chilean shrub, which is figured in the *Botanical Magazine* for February of the present year, was the subject of a coloured plate in THE GARDEN as long ago as November 27, 1880, under the name of *Crinodendron Hookeri*. This fact, however, is not mentioned in the *Botanical Magazine*; neither is it noted that this plant was flowered in that year by Messrs. Veitch (from whence THE GARDEN plate was prepared), and received a certificate of merit at the Royal Botanic Society's exhibition on May 19. Messrs. Veitch distributed it a year later, viz., in 1881, but it still remains a very uncommon plant, and one that many people do not succeed in growing satisfactorily, while, on the other hand, it will often thrive without any trouble. Perhaps the best treatment for it is that given to the *Lapagerias* and other plants from the same region, that is, either planting it out, or growing it in pots drained thoroughly, and in a good open soil consisting of fibrous peat with an admixture of loam and a liberal amount of sand. Up to now it is too scarce a subject to experiment with as to its hardness, so that the safer plan is to treat it as a greenhouse plant. In a cool shady structure, such as the *Lapageria* delights in, it will do well. It is very beautiful when in bloom, and in all respects a most uncommon looking shrub.—H. P.

* * Plants of this were being tried in the Royal Gardens, Kew, against a wall where *Mitrasia* and *Berberidopsis* thrive, and it would be interesting to know how they have stood the late severe weather.—ED.

Aralia Chabrieri.—This is far better known under the above name than that of *Eleodendron orientale*, which is now regarded as the correct one, though it was distributed and awarded certificates by both the Horticultural and Botanic Societies some ten years since as an *Aralia*. It is a handsome plant, usually forming a strong leading shoot, while the regularly arranged branches, which are disposed almost horizontally, are clothed with long narrow, pendulous leaves, of a very deep shining green, with a reddish midrib. It is useful for table decoration or for dropping into ornamental vases, and for the embellishment of the house generally. Like the *Aralias*, it will succeed perfectly if given the same treatment as most stove plants which are grown for the sake of their foliage, such as the *Crotons*, *Dracenas*, and similar things. It is readily struck from cuttings, but behaves in a somewhat singular manner before symmetrically-shaped plants are obtained. Thus, if the cuttings are formed of the side shoots, they will frequently maintain that character for a long time after they are rooted, and grow perhaps horizontally for a foot or so before they show any signs of an alteration in habit, which is finally effected in this way: The plant ceases to make any further progress in the direction it has gone, and a strong shoot is pushed up near the base just where the stem bends. This shoot will at once assume the character of a leader, mount upwards quickly, and produce the horizontally growing side branches in a regular manner. When this leading shoot has made a little progress, the original portion, which in many cases is almost, if not quite

resting on the pot, may be shortened back, and finally removed altogether, thus leaving a young symmetrically-shaped plant.—T.

FORCING LILY OF THE VALLEY.

As noted in an article on the above subject (p. 100), the refusal of the crowns to start into growth when forced very early is undoubtedly often owing to lack of sufficient moisture at the roots, but there is also another consideration of equal or greater importance, and that is the condition of the crowns themselves, as if they are not thoroughly ripened it is useless to expect them in bloom before Christmas. From this circumstance where one depends upon imported crowns, it is not always wise to obtain the very first that are in the market, as they may have been lifted before they were thoroughly ripened, and consequently will refuse to start into growth when taken into the forcing house. For the earliest Lilies I prefer a bottom-heat of 80° to 85°, but they are not placed therein at once, being simply stood on the bed of Cocoa-nut refuse for a week or so before they are fully plunged. My treatment is much the same as that given in the article in question, except that I do not place those that are required early out in the open ground and cover with Cocoa-nut refuse after potting them, as it is often the middle of November before the crowns come to hand; consequently there is no time to lose to have them in bloom by a corresponding period in December. The easiest Lilies to force early are those known as German crowns, which, being largely grown about Berlin, are, as a matter of course, ripened off earlier than those from Holland. From this last-mentioned district enormous numbers of clumps or masses are sent, each of which contains a great many flowering crowns with the soil still adhering to them. In their case all that is necessary is to drop them into pots of a size sufficient to fit the clump; whereas the imported crowns or eyes being totally devoid of any soil will need different treatment. On the question of soil for this purpose I have seen various composts recommended, but it really does not in the least matter what is used, as the Lilies do not make one single root before flowering, the perfect spike of bloom being contained within the crown and needing only heat and moisture for its development. The flowers of those sent here from Germany are totally different from the Dutch Lilies, being larger and far more widely expanded. For early forcing the Berlin crowns are to be preferred, but as the days lengthen and the sun gains strength, if exposed in a greenhouse the flower-spikes are apt to flag, as they derive very little support from the roots; whereas in the case of the large clumps there is so much adherent soil that very few of the roots have been disturbed; consequently they can better resist a little extra strain. In addition to forcing Lily of the Valley, the crowns are often retarded as long as possible, in order to have them in flower after the bulk of the outdoor ones are past. I once had a rather singular experience with the first batch taken into the forcing house, as they absolutely refused to start, and were after a time taken therefrom and removed to an ordinary cold frame from which frost was just excluded. There they remained, being watered when required, till in June and July a great many of them pushed up their flower-spikes, among which were many well-developed ones. Though the experiment has been tried many times since, I have never met with the same measure of success as with this first chance lot. In speaking altogether of imported roots, it is by no means my intention to imply that it is necessary to have them for forcing, as English-grown roots will force equally as well as the imported ones, that is to say, if they are grown with that intention, for it is useless to expect any measure of success from plants that have formed for years part of a tangled mass or bed, and are consequently half starved. There are a few growers who show us what can be done with home-grown roots, but by far the greater number come from abroad, so many indeed that one is inclined to question whether there are not many places in

England where the cultivation of these Lilies, *Spiræas*, *Dielytras*, *Azalea mollis*, *Hydrangea paniculata grandiflora*, and other things, for all of which we pay large sums to the foreigner, might not be undertaken with perfect success.

H. P.

ALOCASIAS.

AMONGST the *Alocasias* are some of the most handsome of all ornamental foliage stove plants. They are finer than their near allies the *Caladiums* in many respects, chief among which is their enduring character. For occasional use as decorative plants other than in the stove itself they are grand, surpassing in this respect the *Caladiums*, with the exception of *C. argyrites*. Where room is scarce in the winter months, then the *Caladiums* are an advantage, but even then a few of the *Alocasias* should be grown if possible. In the stove they are best seen when arranged in the central bed of a span-roofed house, so that a general view may be had; the growth also in such a case is not so much drawn on one side nor are the leaf-stalks, as a rule, so long.

CULTIVATION.—More care is required than when dealing with *Caladiums*, yet there is no difficulty in growing them well when in good and suitable soil. Most of them being Evergreens, attention has to be given during the resting season to watering, then they require to be kept neither wet nor dry. Active growth will usually commence with the rise of temperature during February. As soon as this is anticipated, it is a good time to think about potting them. In doing this I prefer to shake nearly all the soil away, except such as may have some roots clinging to it. This is essential even with large specimens at least every other spring by reason of the component parts of the soil, which, through the vast quantity of water given during the growing season, will become sour and devoid of all enduring nutritive power. Although it takes some little time and care also to repot a good specimen, it pays to thoroughly do it. Whilst shaking out an *Alocasia* for repotting, a sharp look out should be kept for the little bulblets, which may be turned to a good account for small plants. The main stems which have been covered with soil will sometimes show signs of decay, all of which should be removed. When these fleshy stems have attained to an undue length, they should be shortened sufficiently for potting. The lower portion thus cut away will, if required, do for further increase. All roots with symptoms of decay should be cut off, and in bad cases where a plant has stood over for some years, I should wash the roots in warm water.

For large plants I prefer rather shallow, but wide pots, those something between a pot and a pan. Over the bottom some small pots should be inverted, and the intervening space filled up with crocks which have been washed thoroughly clean. When the ordinary pot is used the drainage should be continued about half way up; in the other case one-third will suffice. Over this drainage some Sphagnum Moss should be laid. This will, besides assisting the roots when they reach it, also keep the soil from being washed down so much amongst the drainage. In proportion to the size of the plant, so must be the material itself. The rougher it can be used, so much better will it be for future root development. In making up a large specimen the soil has to be carefully worked in amongst the roots, all being gradually built up together. I like to finish off with a coating of Sphagnum Moss, which in the case of nearly every variety is better mounded up above the pot, as with many Orchids. I would only make an exception in this respect when potting *A. macrorrhiza variegata* and *A. zebrina*. These varieties I would rather keep flat and below the rim, particularly in the case of the first named, which when in full growth will almost live in water. I have when growing it as a specimen stood the pot in a large panful of water. When potting *Alocasias* I like to have plenty of silver sand at hand, so that it may be scattered in handfuls amongst the soil and the roots. After potting, some few sticks will be necessary to keep

the foliage in position. If a little bottom-heat can be given for a few weeks until the roots are running about freely amongst the Sphagnum Moss upon the surface, so much the better; after that it may be discontinued. From that time onwards through the growing season occasional waterings with a weak solution of liquid manure from a farmyard will greatly assist them. I prefer this artificial compound for Alocasias, as it is safer to use, less risk being run of injury to the surface roots.

OTHER ITEMS OF CULTIVATION consist in keeping the foliage clean by occasional sponging with a sponge absolutely free from any sand or grit, otherwise the leaves will bear unmistakable traces of the operation. Soft soap and warm water will suffice for this purpose, but if anyone would like to try the effect of a little milk and water upon the leaves, no harm would result, and by its use old leaves may be made to look much better. Sticks should only be used after the plants are re-established in sufficient numbers to support the leaves naturally. Many of the varieties go through a flowering period after a few fresh leaves have been made. As soon as the flower-stems can be fairly laid hold of they should be pulled out, the other hand being used in keeping the plant in its position. Light sponging will remove any attacks of green-fly, but in bad cases fumigation would be preferable. Red spider is at times troublesome, and soon leaves traces behind which cannot be effaced. I advise a sharp look-out to be kept against this troublesome insect, and sponging resorted to at once. If the case is a bad one, some sulphur should be thoroughly dissolved and used with the soft soap and water.

When it is not thought requisite to repot, a good quantity of the surface soil should be taken off and a fresh lot put in its place, making as before a free use of sand. Alocasias are probably not grown so extensively as specimens for exhibition, simply because they are not the best things to travel safely. With care, however, this may be easily overcome, and the exhibitor be the gainer by the additional effect imparted. We see too much now-a-days of a certain class of plants staged. They have their good qualities, but constant repetition of Crotons, Palms, Tree Ferns, and Cycads is tiring. When growing for exhibition, I always had an Alocasia to depend upon, and the weight of a good specimen always told its own tale.

SOILS.—For all but *A. macrorrhiza variegata* and *A. zebrina*, peat is the best and most staple material to employ. I like that which is soft, but with plenty of fibrous matter, such, for instance, as that in which the common Bracken thrives, rather than such as suits Heaths and like hard-wooded plants of this kind. This should be used as roughly as possible. The next most important article is some good Sphagnum Moss as fresh as possible. This should be freely mixed with the peat. Charcoal is also of good service, as it assists in keeping the soil open and sweet. In such a mixture as this (with sand added) the roots will grow freely and leaf development be proportionate. Firm potting is not at all necessary. The roots rather delight in a loose state of the soil. In the case of the two varieties above named, fibrous loam should take the place of peat entirely, and the Moss need not be used at all, or but sparingly. This will in the case of the first named variety greatly tend to better variegation, the green colouring not being so conspicuous; whilst in the case of the other the leaf will not attain such large dimensions, but the footstalks possibly gain instead.

VARIETIES.—There are several varieties of quite distinct character which are well worthy of cultivation. *A. metallica* is one of the best known, and still one of the most handsome, making a fine specimen. I well remember seeing it when a lad, whilst looking through the Clapton nurseries of Messrs. Low and Co., before it was sent out; they had then a handsome young specimen which particularly took my notice. *A. Lowi* is another fine kind, rather more tender than the foregoing. I have grown this with leaves 2 feet long and 18 inches in width. When thus seen it is a fine ornament to any collection of stove plants. *A. Veitchi* resembles the last named,

but is a shy plant to grow. *A. gigantea* is a strong grower with handsome green leaves veined with silvery markings. It would present a better appearance if its foliage was not supported upon such long footstalks. *A. Thibautiana* has the same failing, but having such grand leaves it makes ample amends for that. It is a noble plant for a large stove. *A. macrorrhiza variegata* is quite distinct from the rest. Some of its leaves are quite white, some half white, and others blotched and marbled with green and white, the footstalks also having the same markings. In growing this variety I prefer to discard each spring all the growths which have a tendency to produce too much green foliage. This variety should be potted every spring, being nearly dried off in the winter. *A. Jenningsi* is one of the smallest growers and a deciduous species; it makes a useful decorative plant, being a capital kind also for planting out upon rockwork in a stove. *A. Sedeni* is a hybrid between *A. metallica* and *A. Lowi*, and has the good qualities of both its parents. *A. Sanderiana* is a more recent introduction, and constitutes one of the most valuable additions that have been made to this race of plants for some years. Its markings are more distinct, but much in the same way as those of *A. Lowi*, but in the leaf formation it is quite unique with the exception of one variety somewhat similar. The leaves, instead of having a regular outline as in *A. Lowi*, are deeply lobed and margined with white. When better known I think this variety will be grown much more than at present. *A. zebrina* is not now seen so frequently in private collections; its leaves are uninteresting, but the stems or footstalks of the leaves are the chief ornament; these are mottled and striped with dark green upon a pale green ground.

ALOCASIAS FOR VASES IN THE HOUSE.—If a few of these handsome foliaged plants were specially prepared by confining them to rather small pots, they would be found a source of attraction in the summer months for this purpose. They would be a pleasing innovation to the usual run of plants thus employed. The best for this kind of work would be *A. metallica* and *A. Jenningsi*. Size in either case would not be of so much importance as good development. The chief thing to guard against in using these plants would be to see that they were not exposed to cold currents of air. It would also be better in both cases to keep them whilst away from the stove in a drier condition at the root.

J. HUDSON.

Cyclamens.—Living in the country, I have no opportunity of seeing good Cyclamen growing. It is my favourite flower, and I send you a few blooms to know if the strain is fairly good, also a few particulars as to culture. I commenced growing this strain about twelve years ago from seed. Four of the corms of that date are now flowering in 10-inch and 12-inch pots. The corms are 5 inches in diameter, carrying sometimes 100 blooms and upwards. One plant the year before last was in bloom from November to May. Seed is sown every November, and the plants bloom in about eighteen months' time, but they are very small. Three or four-year-old plants are at their best. No trouble with insect pests, and very little with the plants. When done flowering they stand closely packed in a cool damp shady house on the stove floor, and never get dry. They are not potted off until growth has commenced in July, and then firmly in good heavy loam, leaf-mould, hotbed manure, with a sprinkling of sand. February and March are their best months for bloom. This year they are three weeks later. Large plants in large pots do not require repotting every year. In the last GARDEN you call attention to a double Cyclamen flower. I send some with the foliage from a two-year-old plant, and although they may not be florists' flowers, they both by daylight and candle-light are very effective. The blooms, about sixty in number, stand just above the foliage. In some of the flowers sent you will notice that one of the petals hangs down against the stalk, giving an unusual appearance. I suppose it would be considered a fault, but it is effective and does away

with the set stiffness of the close upright blooms. I should add that I have never been successful when I grew the plants in a high temperature. They do not like draughts nor neglect.—J. E. PORCH, *Edgarley House, Glastonbury*.

* Not equal to the strains now to be found in many of the market nurseries about London. The foliage is too large and coarse.—ED.

EUCHARIS AMAZONICA.

WHEN my note on this, which appeared in THE GARDEN for December 20 (p. 585), was sent away it formed one of the notes appearing on the same page under the heading of "Plants for Rooms," the first sentence in which explains my position, as it reads: "Where plant growing has to be carried on almost wholly in fruit houses, or in greenhouses that are only heated sufficiently to keep out frost, &c.," and it was never intended to be read as advice to those who have greater facilities at command for growing them. The note appeared by itself, thereby losing the connection with the above quoted remark. This perhaps has misled some of the readers of THE GARDEN. The note was written with the idea of showing those who have only the conveniences mentioned that they need not despair of being successful with the *Eucharis* if they are content with one crop of flowers in the year, with perhaps the addition of an occasional spike or two. In most gardens there is sufficient fire-heat during winter to keep bedding stuff safely, and where this is so, and there are in addition successional vineries, care and attention to the few points mentioned are all that is necessary for the well-doing of the plants. For a more detailed account of the treatment I give the *Eucharis* I must refer my critics to your issue for February 2, 1889 (p. 94) as I then sent a fuller description of it. I do not plead guilty to having recommended drying off the bulbs, but simply that the supply of water be gradually withheld, the object being that the plants shall make no top-growth, i.e., new leaf formation from the time of flowering till the early vinery is kept to about 58° at night. This is, I think, the point the whole thing hinges on, viz., to keep the bulbs dry and warm enough without inducing shrivelling or root-perishing, and the few weeks which intervene between the periods named are the most critical of all the year. The turning of the plants on their sides is simply to prevent drip from the plants above, and not to encourage excessive dryness. The tenacity of life in the leaves when the plants are in a comparatively cool house is astonishing. My specimens never lose by any means the whole of the leaves, but only the oldest of them. On the best plants we have I counted to-day over 80 leaves, some of them measuring 2 feet 6 inches long from soil to tip, the leaf proper being 1 foot 4 inches by 6½ inches. Our stock consists at present of eight 12-inch pots, and they are all nearly on a level with the plant mentioned above. I agree with almost all that Mr. Wythes says, and my treatment is, as far as lies in my power (less the bottom-heat by plunging), identical with his, but fate decrees that the temperature of our house shall sometimes fall as low as 43° at night; the pots, however, being on the pipes, I do not think the bulbs are ever in a lower temperature than 50°, as the warmth from them must penetrate pots and soil. There is no doubt that too much pot-room is disastrous in a cool temperature, and my first object after potting (a thing that I avoid as much as possible) is to get the pots full of roots. I never attempt to get more than one crop of flowers annually. Insect pests do not trouble us much, for mealy bug, the only one that has a special liking for *Eucharis*, is almost unknown here at present. For Mr. Locke's benefit, I may say that I have pursued this system of growing *Eucharis* for about ten years; the lot now written of are coming safely through the fourth winter, and instead of deterioration I have improvement. It has been my good fortune never to have had charge of an unhealthy batch of this plant, either from the mite or other causes, so that I have hitherto avoided the difficulties, mentioned by him, of recovering them from a bad state. Mr. Locke's experience with plants

grown "exactly" as I advise has been unfortunate, and I fear that there has been a missing link somewhere in the mode of treatment. I hope his pessimistic predictions may never be realised, and that my notes may be of service to some who may be placed in similar circumstances.

J. C. TALLACK.

** With the above communication Mr. Tallack sent some of the healthiest and finest leaves we

ber of plants grown is very large, several houses being now filled with them. The same may be said of the double variety, *alba plena*. Amongst the coloured forms perhaps the best were *rubra grandiflora* with fine double crimson flowers, and *atro-rosea plena*, a fine flower of a beautiful rich rosy-crimson.—W. H. G.

Passiflora edulis.—"E. H." (p. 120) has, I think, misunderstood my remarks in regard to heat respecting the cultivation of the above. I did not in-

fruit being required for the dessert, and which is more prized than any other I grow, I have no experience of it as a preserve.—J. R.

CORREAS.

WITH the increased demand during the past few years for a larger amount of cut flowers, many fine old plants have ceased to be grown so much as formerly. Amongst these may be classed the subjects forming the heading to this paper, and which are well illustrated in the accompanying engraving. For supplying a large amount of cut material *Correas* cannot be very well recommended, for the simple reason that it would be injurious to the plants if cut hard for that purpose. Stray shoots may be cut with advantage to the plants. I have used them in this way for button-holes, for which purpose a few blooms arranged together have a fine effect, being out of the common run of flowers so employed. *Correas* if allowed to grow in a natural manner are disposed to increase in height so as to be out of proportion to the plant. This may be prevented to a great extent when starting with a young plant by keeping it pinched during the growing season in order to form a good base. In this way, with care in the prevention of overcrowding of the shoots by regulating them with a few sticks, no fault can be found with the habit of the *Correas*. They will thrive well in the greenhouse, but do not like too much exposure to cold draughts of air, or too humid an atmosphere. After the growth is completed and fairly well hardened the plants may with advantage be stood out of doors in the summer. In this way they will set their flower-buds before being again taken in at the fall. Flowering as they do early in the spring their value as greenhouse decorative plants is all the more apparent. Soon after flowering is the best time to see to potting when that work is needed. This is not necessary every season if care is taken of the plants as to watering and good soil combined with careful potting when that work is performed. Firm potting is essential to their well-being. Good enduring peat with plenty of fibre in it, mixed with a good quantity of silver sand, is the best soil. Large pots are not needed any more than frequent potting; in fact, too much soil for the roots to ramble in is a mistake, as the moisture cannot be assimilated quickly enough. *Correas* enjoy almost an immunity from the attacks of insect pests, white scale, thrips, or red spider being the most to be feared.

There are not many varieties in cultivation, but most of these are quite distinct. The best are *Correa cardinalis*, a very showy variety, and one that also flowers freely; *C. Harrisii* is somewhat similar to the foregoing, but of better habit; *C. magnifica* is a free-flowering white variety of rather strong growth; *C. pulchella* is a distinct kind with salmon-coloured flowers; *C. ochroleuca* has flowers of a pale yellow or sulphur colour. These include the best of the varieties usually cultivated and are all worthy of a place in the greenhouse. H. G.

Two pretty little Azaleas.—There are now in flower two extremely pretty *Azaleas*, in both of which the blooms are borne in such profusion that the entire plant is quite a bright-coloured mass. One is *A. calyciflora*, which was introduced from Japan a few years since by Messrs. Veitch. The specific name is given from the calyx segments being greatly enlarged and coloured like the corolla, so as to form what is familiarly called a Hose-in-hose flower. This same peculiarity is also to be found in the better-known *A. amœna*, but the blossoms of *A. calyciflora* are somewhat larger, while their colour—a kind of bright salmon-red with an orange shade—renders them quite distinct. The other is a variety of *A. amœna*, viz., *Caldwellii*,



A group of *Correas*.

have ever seen, their deep green colour and healthy appearance betokening remarkable vigour.—ED.

Chinese Primulas.—These are just now very beautiful in Messrs. Cannell's nursery at Swanley. Amongst the white-flowered forms, the best is a variety named *Princess Mary*, with large and pure white flowers. *White Perfection* is another very fine kind, and next to it in my estimation comes *Her Majesty*. A variety named *Intensity* is perhaps one of the very best—a brilliant red, and a large flower of exquisite shape; whilst *Cannell's Pink* is one of the very finest in this class, with flowers of a lovely shade. The num-

tend to convey the impression of the advisability of growing it for dessert absolutely without heat, or with but very little; but that growing it in strong stove heat was not in accordance with my experience and practice here. The plants occupy the back wall of a whole range of span-roof vineries, and are satisfactory as regards cropping and the flavour of the fruit. In addition, I have plants of this Passion Flower growing up the rafters of a house, which they now fully occupy, of what used to be a Pine stove, of which the heat, of necessity, has been greatly reduced to suit the *Passifloras*. I treat them, as regards pruning, to a system of a modified kind of spur-pruning, which, judging by present results, is very satisfactory. Owing to all the

and by some nurserymen is grown almost to the exclusion of the typical form. The variety in question is altogether more free in growth, while the blossoms are about double the size of those of the ordinary *A. amena*. One thing which seems to be very generally overlooked in connection with these Azaleas is that they can be readily increased by means of cuttings, and consequently there is no need to graft them on a stem a few inches high, as is often done. Plants on their own roots form pretty little bushes, vastly more pleasing than when perched on the top of a naked stem. There is really no reason why this mode of increase should not be more generally carried out in the case of the Indian Azaleas, which are sent to this country from Belgium in vast numbers every year, and which are almost universally grafted.—H. P.

Mussaenda theifera.—Besides the different species mentioned in THE GARDEN, Feb. 7 (p. 120), a pretty little plant under the above name was sent out by Mr. William Bull in 1884, but having lost sight of it for the last two or three years, I cannot say if it is in cultivation at the present time. This species has slender creeping stems and pure white fragrant blossoms, each about an inch in diameter, and having a considerable resemblance to those of the Periwinkle. The plant is seen at its best when grown in a suspended basket or allowed to ramble at will over a shallow pan of soil, into which it does not root deeply. The whole aspect of the plant is widely different from that of the other cultivated Mussandas, the long slender stems being partly herbaceous in character, and if rested during the winter they grow away with additional vigour on the return of spring. This species, which is a native of Cochin China, is, I fancy, synonymous with that described in the "Dictionary of Gardening" under the name of *Mussaenda uniflora*, with which it agrees in nearly all particulars.—H. P.

Coprosma Baueriana variegata.—As a decorative plant either for the greenhouse, the conservatory, or for occasional use in rooms, this is a most useful subject. The pale green and pearly white colours of its foliage are attractive in small plants, but even more so in large specimens. In growing this *Coprosma*, plants of upright growth should be secured. Examples 4 feet or 5 feet high, when well furnished down to the pot, look exceedingly well when associated with the sombre green leafage of many plants. This can be done by encouraging one strong growth to take the lead; side shoots will afterwards usually make up a good plant. Since *Eurya latifolia variegata* has been brought more into prominent notice, I think the *Coprosma* has been less grown than it was. This should not, however, be the case, as the one is quite distinct from the other, and both equally valuable for decoration. The propagation of the *Coprosma* is best done by means of layers. If cuttings are attempted, root action will be found very slow and uncertain; whereas by layers the majority of the shoots will be found to root well. For this purpose a tall plant could be bent over upon one side and layered into a shallow box filled with loamy soil. This, if done in the spring, would supply a nice lot of young plants for potting up in the autumn following. These should then be kept near the glass in a warm greenhouse if possible, or at any rate where they would not be too much exposed to cold currents of air. It is not desirable to attempt to hasten the growth by frequent potting; this will have a tendency to lessen the variegation. The *Coprosma* when looked after carefully retains its foliage well. Watering requires to be done with a moderate amount of care; haphazard use of the water-can should be avoided, as the *Coprosma* does not require any excess in this respect. Full exposure, or at least as much light as possible, should be aimed at, particularly when the young growth is being made, in order that the green colouring should not too much preponderate, or part of the beauty of the plant will be lost. It is a native of New Zealand.—G. H.

Ornithogalum arabicum refusing to start.—My gardener planted on Nov. 13, 1889, twelve strong bulbs of *Ornithogalum arabicum* in four pots. They have never shown any sign of movement yet, though they were quite sound when he bared the soil enough

to see—two or three months ago. He keeps them in a cool house. As this same experience seems to occur with *Ornithogalum arabicum* elsewhere, and has also been mine in another garden in Wiltshire, I should be glad to know what can be suggested as the probable reason that these bulbs remain so long dormant.—SURREY.

PARISIAN BLINDS.

It is now several years since Parisian blinds were introduced into this country for affording shade to plants grown in glass structures, and I think I am correct in stating that they have never become very popular. This is, no doubt, due to the impression that they were altogether unsuitable for the purpose from the belief that they afforded a too dense shade. This, I think, is a mistake, and those who have spoken disparagingly of them must have had very little experience with them. Their cost has also been advanced as a drawback to their use, but as Parisian blinds last in good condition much longer than it is possible for any canvas blinds to do, in the long run the balance is in their favour. Canvas blinds, as a rule, have to be renewed every season, but if fairly intact at the end of the first season, it is rarely they remain so until the end of the second. I have used these Parisian blinds for upwards of four years, and this on no small scale, having upwards of a run of 700 feet or 800 feet in use, for affording shade to stoves, greenhouses, and Orchid houses. I must admit that at first I did not look upon them with any degree of favour or confidence. My late employer was the first to advise their use, having seen them in Continental nurseries, and also exhibited at horticultural gatherings in this country. Orchids do remarkably well under them, the amount of diffused light being very marked. For Cattleyas they are admirably adapted, but for Orchids, as *Odontoglossums* or other occupants of the cool house requiring a denser shade, I have been obliged to add extra material during the hottest months of summer. I must explain that my *Odontoglossum* house is fully exposed, with a high elevation. For a lean-to with a north or eastern aspect this extra shade would not be necessary. In my case the blinds run over the eaves down to the bottom of the side lights, and, considering this, they are drawn up or down with comparative ease. In the shading of Orchid houses it is now a favourite practice to elevate the blinds quite 12 inches above the roof, so as to allow a circulation of air between the blind and the roof, as where the blinds are allowed to lie on the glass they interrupt the free passage of air, either through the roof ventilators or laps of the glass. Canvas blinds when elevated as stated above get cut to pieces very quickly, on account of the friction entailed through the blinds coming in contact with the supports. In several cases our Parisian blinds are elevated from the roof by light supports, as the position and working of the ventilators would not allow it to be otherwise. But even where no supports are used the air can circulate freely between the interstices. The only disadvantage I can see is the longer time entailed in running up and down the blinds, but with a little practice it is astonishing how quickly a man can get through the work. Independently of affording shade, I have found these blinds of inestimable value during the past severe weather by drawing them down at night, thus counteracting the action of the keen and cutting winds and frost upon the glass. They have made quite a difference of 5°—no mean advantage. In a winter like the present, canvas blinds are of no avail when used for night covering, on account of their being almost continually frozen.

Abberley Hall, Stourport.

A. YOUNG.

Forming a rockery.—Would some reader of THE GARDEN give me a little advice on the formation of a small rock garden for alpine and rock plants? I have a small piece of ground about 7 yards by 5 yards (I could make it a little larger if advisable), bounded on the north and west by a Beech hedge, fully exposed to the south and south-west; subsoil gravelly and dry. I have seen it recommended to dig the pathways out to the depth of from 18 inches to 2 feet, piling the soil up on each side so as to form banks in which to imbed the stone. I should like the rockery to be made so as

to economise the stone as much as possible, as it is very scarce in this district. I could get plenty of clinkers from an iron furnace if they would do as well.—G. R. T., Derbyshire.

TEMPERATURES.

SPEAKING on this subject, Mr. Wythes (p. 107) instances a plant stove which he once had that in cold weather was never over 50° in the night and 55° in the day. This is not a temperature suited to stove plants; it is quite low enough, and lower than I should care to keep the intermediate section during the depth of winter. I can quite understand Mr. Wythes' remark that the plants in question required little cleaning, for the obvious reason that the temperature was too low to induce growth in either the plants or the insects. Where, through the faulty construction of the houses or deficiency in the heating power, the temperature cannot be kept up sufficiently, it is best to confine the plants grown to those that will succeed with intermediate warmth, and not to attempt the cultivation of those that legitimately come under the denomination of stove plants. Even the warmest of the stove section I know will bear a good deal that they do not like in the way of a deficiency of heat in the winter; but under such conditions they give little return in the quantity of bloom they produce for the house-room they occupy and the labour bestowed on them.

One seldom sees the finest and most useful of stove plants, such as the *Ixoras*, *Dipladenias*, and others of like nature, grown in a way that does justice to them, or admits of their producing half the flowers or blooming for half the length of time they are capable of. No one who is acquainted with the nature of plants is likely to advise even the hottest of the stove species being kept as warm in winter, either day or night, as they should be in the summer. But this is a very different thing to the systematic course of keeping down the heat that is so often advised, by which the plants become so crippled that the spring is far advanced before they can be got to move to an extent worth naming, and their season of flowering is reduced correspondingly in length. And when, in the case of many species, all growth has been checked, they will never grow so freely as they should do afterwards. Most of the stove kinds in their native countries are never at rest, simply growing more slowly in the cool season than they do in the hot. In the case of many that are inactive for a time, the period is very short. It is often urged that if plants are kept growing in winter, particularly the flowering kinds, and it is of these I am speaking, that they will quickly get exhausted and worn out. This is not so if the cultivation is what it should be in other respects. I have had scores of examples of *Ixoras*, *Dipladenias*, *Allamandas*, &c., that never rested in the winter, further than in the growth being slower for eight or ten weeks when the days were shortest than it was during the rest of the year, and they were just as strong and as vigorous when from twelve to twenty years old as they were when only a few months. The result was that before the time in the summer that plants which had been chilled and starved during the winter came into bloom, those that had been kept moving in the way instanced had already produced double the quantity of flowers ever borne by those that have been chilled, and were in a condition to keep on. *Ixora coccinea*, the best of all the *Ixoras* and one of the finest of all stove plants, used between the beginning of September and the beginning of March to push up shoots from the collar from 3 feet to 5 feet long, at the latter time the first crop of flowers used to set. Managed in this way, it will give two or three full crops of blooms by the end of October. The other kinds of *Ixora* under like treatment made only a little less growth. *Dipladenias* used to begin blooming from the beginning to the middle of April; *Allamandas* the same, and both would keep on to the end of the year if not subjected to a short drying period with the object of having them in better condition for another season. The warmest end of the stove, where *Ixoras*, *Dipladenias*, *Allamandas*, and *Gardenias* (the last to give flowers dur-

ing January, February and March) were stood, was always kept nearer 70° than 65° in the night during the depth of winter, excepting on the severest frosty nights. Needless to say, the houses were of the best construction and admitted all the light possible, the heads of the plants being within a foot or two of the roof. In stoves where there is an insufficiency of light, or the plants are at all weak and deficient of roots, it will not do to use so much heat as I have mentioned, otherwise the growth will come weak and unsatisfactory. In regard to economising fuel, I fail to see the wisdom of trying to effect this by keeping the temperature of a warm plant stove lower than is necessary to allow of the most being made of the plants, for this, I think, most people will admit is the object to aim at. Where the waste and extravagance usually come in is where there is an insufficiency of piping or inferior boilers, or, what often happens, boilers badly set or not equal to the work.

Respecting greenhouse plants, more especially the hard-wooded section of New Holland and kindred kinds, my practice has been to keep them cooler than the majority of growers, for here the nature of the plants is altogether different, and if they are subjected to warmth in the winter, growth is started, and they quickly get into a bad state. With the exception of some half dozen species, the temperature aimed at was from 34° to 38° by night during frost in the depth of winter. Azaleas and Heaths, if the thermometer does not fall below freezing point, take no harm. T. B.

FUEL AND BOILERS.

THE remarks of several correspondents on the above subject are very opportune, and I should like to see a good discussion on the question of anthracite v. coke. For instance, given a good, careful, and economical stoker, what would be the advantage of the coal over the coke at the relative prices of, say, 23s. and 18s. per ton? A careful stoker is an absolute necessity in the case of anthracite, for economical as it is if used judiciously, it requires careful handling if a steady equable temperature is to be maintained. Again, although preferable for small boilers or for large where the latter are required to keep high temperatures in several structures, it is a question if it would be so economical as coke when small fires are required in large boilers. This last point is often rendered necessary, and is, to my thinking, one of the worst features of modern heating. I do not for one moment advocate the setting of a boiler of insufficient size for the work in hand, but this is hardly more objectionable than the insertion of a far larger boiler than is necessary. The idea of doing as much work as possible from a given centre has much to recommend it, and as I have said, if high temperatures are to be maintained in several houses a large boiler is necessary, but if this is not the case a smaller boiler will answer all requirements and be far more economical. Take, for instance, a not uncommon case, where two or three vineries, a couple of Peach houses, and one or two cool greenhouses, requiring in all possibly something like 1500 feet of piping, are to be heated from one centre. If one of each of the vineries and Peach houses is started at the beginning of the year the amount of heat necessary to keep up a greenhouse temperature of 45° will do very well for them, and by the time they want pushing the sun is gaining power, and one is able so to utilise the rays of warmth from that luminary that a large fire is very seldom required, except occasionally at night. To work the above amount of piping in such a manner the most economical boiler would be a Cornish, Trentham, Allerton, or a Climax, size 42 inches by 18 inches, as even a small fire would be acting directly on nearly all the interior surface. Instead of something in this style, however, one often gets under such circumstances a plain saddle perhaps 5 feet by 2 feet, and it is hardly necessary to state that the amount of heat that could be guaranteed from a small fire in such a boiler would be very poor indeed. Given a spell of bad weather a big fire would be necessary to do the work, and under such conditions the cost per week of the

large saddle v. the smaller, but really more powerful boiler, would at the least be in the ratio of three to two. I am quite at one with those who simultaneously with the question of fuel and boilers are protesting against the maintenance of a very high night temperature during severe weather. The great evil is that in the majority of cases we have little or at the best inadequate means to generate moisture and counterbalance the great heat from pipes. Ordinary troughs or trough pipes certainly do not do this. What we want are larger vessels, self-supplying if possible, capable of holding a sufficient quantity of water to give off just so much moisture (not rank steam) as may prevent the sulphurous atmosphere arising from overheated pipes. There are, however, many circumstances which have to be taken into consideration in this question of temperatures, and which require careful consideration to ensure success. Take, for instance, the cultivation of Melons; in our case they are grown respectively in a narrow confined pit and trained to a limited area of trellis and in a wide pit, where they are allowed to ramble almost at will, except such stopping as is absolutely necessary. Now these latter Melons will do well in a low night temperature that would be fatal to the welfare of those in the smaller pit. Why? Simply because in this case a lot of cutting and stopping is necessary to keep them within bounds, and unless a high temperature is maintained day and night to keep them growing fast, literally always on the move, the plants, especially if in vigorous health, seem unable to find sufficient vent for the enormous amount of sap continually being sent up from the roots, and canker in fruit, stem, and branch invariably follows. It is always advisable with a spell of mild weather at this season to do with as little fire as possible and err on the low side, especially at night, or the return of cold will necessitate much stoking and the use of much fuel to keep growth moving. E. BURRELL.

Claremont.

NOTES OF THE WEEK.

The vernal Snowflake (*Leucojum vernum*) is one of our spring favourites; its charming white, green, and yellow-tipped flowers are already making a brave show. This plant, too, is also very useful for forcing, and if bulbs grown the previous year out of doors be selected, they never fail with abundance of flowers. The flowers are also useful for cutting.—K.

Chimonanthus fragrans.—This charmingly scented shrub is again in bloom, and a quantity of ripe seed pods are still hanging on the tree from last season's flowers. In the position we grow it in—against a south wall, and sheltered from the east—it bears seed every year. The perfume fills the air, and this shrub is honestly worth growing for its scent alone.—W. CRUMP.

Marie Louise Violets.—Mr. J. Roberts, The Gardens, The Plas, Tan-y-bwlch, Merioneth, sends us a beautiful gathering of these. He says the flowers have been taken from plants that have bloomed profusely since August, and that they will no doubt continue until May. We hope in a future issue to give the mode of cultivation by which so fine blooms were obtained.

Ranunculus amplexicaulis I consider one of the best of this huge family for the cool conservatory or greenhouse. It forces nicely, and may be had in flower a month or six weeks earlier than in the open ground. It is of easy culture, and plants lifted from the borders in early January may be potted up and placed directly in the cool end of a warm pit. Its habit is neat and dwarf, and its delicate white flowers and glaucous clasping leaves are very effective.—K.

Choisya ternata.—I observe that some of your correspondents have recorded the damage done to *Choisya ternata* by the late severe weather. I have three plants of it, each from 3 feet 6 inches to 4 feet high, against my house in Surrey. They are very vigorous and have not suffered in the least; nor have they lost a single leaf from frost this winter any more than in former years. They were planted in 1886, face south-west, south, and east aspects, and have not been covered up at all. My house stands 600 feet above sea level.—MARY A. EWART, *Coneyhurst, near Eghurst.*

Campanula abietina, although by no means

one of the first-rate Bellflowers, is well worth possessing, as it is extremely free-blooming and suitable in every way for small rockeries, the pale purplish-crimson flowers resembling in form those of *C. patula* more than any other species we know. Instead of drooping or hanging their heads as those of many of the species do, the flowers of *C. abietina* are usually at right angles to the stem, looking one full in the face, as it were. It is dwarf and compact, forming dense tufts, and never fails to produce a profusion of flowers during the summer months.

Hellebores from Devon.—I have sent you a few varieties of Christmas Roses which are now in full bloom with me. The flowers I send were all cut from the open ground without any protection whatever. I may say, however, they were cut from large masses with abundant foliage. I have hundreds of clumps in full bloom, some very large specimens quite 3 feet across, with healthy foliage. I find the great secret to get plenty of good flowers is to keep the leaves healthy.—GEORGE STAMP, *Bishop's Teignton, Teignmouth.*

Among those sent, *H. niger ruber* (Apple-blossom) was distinct, the flowers large, white, shaded pink, the stems dark red.—ED.

Asparagus plumosus.—Writing at p. 120 of the variety *nanus*, "A. D." testifies to its value as a plant for room decoration. Although I have not yet tried that variety I have had a plant of the typical *plumosus* in my sitting-room for nearly two years. It has never been removed from there except for a few hours occasionally. Not only is it now in perfect health, but it has increased considerably in size, some of the shoots sent up last summer being 4 feet or 5 feet high. During the past winter the temperature in this room must on many nights have been quite down to, if not below, freezing point. Originally placing it here in the spring of 1889 with no expectation of its lasting more than the summer through, I have been both surprised and delighted at the result, for nothing can be more elegant than its beautiful feathery foliage. For room decoration it is undoubtedly a most valuable plant.—J.

Notes from Almondsbury.—Canon Ellacombe is, as always, sanguine and full of comfort. We are not yet absolutely to despair of our shrubs and half-hardy plants, yet the present aspect of *Abutilon vitifolium album*—bushes 6 feet high—*Veronica*, some *Roses* like *R. Macartneyi*, *Buddleia globosa* is painful to contemplate. *Smilax* looks quite pitiful. As for *Iris stylosa*, not a bloom have I had, and the leaves like old hay. On the other hand, some *Irises*, like *I. Milesi* and *I. hexagona*, thought to be tender are unharmed, but *I. tectorum* in the same bed has disappeared. *I. fimbriata* is (in the house) full of bloom. The secret of success here is plenty of heat in December. *Narcissus triandrus* is blooming well in pots; so is a very lovely white single *Camellia* called *Sasanqua*, described by Mr. Baker as a wild species in Japan. It is very fragrant. It is hard to tell it at first sight from a white *Dog Rose*. I am crossing it with a single large red *Camellia*. *Galanthus Elwesii* was the first to open with me, but I have no *Crocuses* out yet. *Hepaticas* have been in bloom a long time with me, and *Gentians*. This year I left every *Gladiolus* in the ground; the results shall be noted. *Lachenalias* should be grown by everyone; they have been most useful to me through the winter. *Chionodoxas* were out to-day (Feb. 17) for the first time.—C. O. MILES.

Strawberry Crescent Seedling.—I have this season given the above Strawberry a fair trial for early forcing, and it has given every satisfaction. I did not force many plants of it, as I was not sure how it would behave, but it is a capital one for the purpose. I have not found any difficulty with it as it sets freely, and out of the whole lot I have not got half-a-dozen plants that have failed to set a lot of fruit, and require severe thinning. I find it forces much better than King of the Earlies; therefore, for a few early dishes it will be a valuable addition, though one could wish it was a larger fruit. It makes up for deficiency in size by the quantity of fruit it produces in clusters, and

which have a tendency to ripen all together. I am so well satisfied with it, that I intend next season to grow it more largely for a first early to give a few dishes before the Vicomtesse Héricart de Thury comes in. For a few early dishes I prefer the Crescent Seedling grown in 5-inch pots, as it is a small grower with short leaf-stalks. This fruit was last year shown in good condition on June 10, gathered in the open ground in the R.H.S.'s garden, Chiswick, and was then several days in advance of other early varieties. I intend trying a few plants under a south wall now I see its valuable free-setting and free-bearing qualities.—G. WYTHES, *Syon*.

Lewisia rediviva.—This curious little Rocky Mountain plant is not always faithful to its specific name. It may be proof against drought for many years, as shown in the herbarium specimens, but it does not take much of our damp London fogs to kill it. I have often planted it out in the driest and most sheltered spots, but it invariably succumbed to the early November fogs. As a pot plant in a light airy house, it is when in bloom one of the most charming things I have seen. It likes the full sunshine, and although kept almost dust-dry produces flowers in great profusion. The blooms are large, white, with a shade of delicate rose colour. The petals are in a double row, of fine texture and transparent. In the centre is a bunch of lovely pink stamens. I have succeeded in raising it from seed; the seedlings, so far, are perfectly healthy, and I hope yet to be able to grow this gem on the open rockery.

Shortia galacifolia.—Of all the handsome foliaged hardy plants, we have yet seen none to equal the above plant during the winter season. The foliage just now is perfect in shape, of the most brilliant purple-crimson in many shades, and with us an object of great admiration. *Galax aphylla*, a near ally of the above—indeed they are found growing together in a wild state—has leaves of similar shape and texture, but in this country we have never seen them even approach in colour those of the *Shortia*. In America, however, we are told that the leaves of the *Galax* are collected and sent to all the large towns for Christmas and other decorations. It does not colour well in this country. The *Shortia*, on the other hand, surpasses anything we have ever seen, the leaves being even more brilliant than those we had sent from America. This plant, which we take to be one of the best introductions of recent years in the way of alpinists at any rate, is now well established with us. The plants withstood the past winter without being affected in the least, and we take this as a proof of its thorough hardiness in our gardens. Cultivators in buying *S. galacifolia* should insist upon having established plants. It seems to be collected rather roughly, and the chances are that the plants will be minus the roots if only just imported. We have succeeded in establishing it behind a north wall, giving plenty of moisture at all times, and in a compost of one part loam to two of peat. If grown exposed the strong sun is apt to scorch the young foliage. *Galax aphylla*, though a near ally, is a plant of quite a different stamp, the habit and general character being very similar. The flowers, instead of being large and produced singly or in pairs from the stem, are small, numerous, and pure white. A coloured plate of the *Shortia* was given in THE GARDEN of August 30, 1890.

The Midland Carnation and Pink Society.—We have been asked to state that any information regarding this newly-formed society, to which we referred in THE GARDEN, Feb. 14 (p. 154), may be obtained from Mr. Robert Sydenham, Tenby Street, Birmingham, or Mr. Wm. Dean, Dolphin Road, Sparkhill.

Horticultural Club.—The annual house dinner of the club took place on Tuesday last at their rooms, Hotel Windsor, Victoria Street, Westminster. The chair was taken by the president, Mr. John Lee. A most pleasant and successful meeting was enjoyed by all present, the only matter of regret being that the venerable chairman announced his intention owing to increasing years to retire from his office, which he has found latterly to be somewhat of a burden. The announcement was

received with universal regret. He has been chairman since the formation of the club, and has always shown great interest in its welfare. The toast of the Royal Horticultural Society was proposed by Mr. Harry J. Veitch, and responded to by the Rev. W. Wilks, who spoke encouragingly of its prospects, and was glad to bear witness to the fact mentioned by the secretary, that the first step in the improvement of its position was made at one of the dinners of the club, when the outside committee was nominated, and he hoped that both the society and the club might go on and prosper.

PUBLIC GARDENS.

The Morpeth Park.—The Victoria Park Cemetery, so long an eyesore in Bethnal Green, and twice in imminent peril of division into building lots, is saved for the use and recreation of the public of Bethnal Green. At the instance of the Metropolitan Public Gardens Association, the £3000 required for laying out the ground for public use has been raised, and the association have formally undertaken the work. Negotiations are in progress respecting the proposed conversion of Bartholomew Square, De Beauvoir Square, Sidney Square, Bedford Square, the Bow Road Nurseries, and other valuable open spaces.

Clapham Common.—The Wandsworth District Board has unanimously passed the following resolution: "That the Board adhere to their objection to any portion of Clapham Common being built upon; that in the opinion of the Board the proposal of the London County Council is unnecessary, inasmuch as there are suitable sites for a fire brigade station in the locality without encroaching on the Common, and that such proposal is highly inexpedient, as it would tend to destroy an open space which it is the duty of the London County Council to preserve, besides setting up a dangerous precedent."

Ladywell Recreation Ground.—The Finance Committee reported that this recreation ground was acquired under the provisions of the Metropolitan Board of Works (Various Powers) Act of 1888, and it provided that Lewisham District Board should contribute one-half of the purchase money and costs of acquiring the land. The present debit balance of the account was £21,879 7s. 7d., and towards this the District Board should be requested to pay £10,939 13s. 9d., leaving the balance, £10,939 13s. 10d., representing the council's share of the cost, to be borne by the General Capital Account. They therefore recommended that an application be made to the Lewisham District Board for payment accordingly. This was agreed to.

Waterlow Park.—The Parks Committee reported that on the 11th of November last they reported on the subject of the laying out of Waterlow Park, and recommended an outlay of £9485, but the council, on the 18th November, decided to refer the question back to them for further consideration, in order that the amount proposed to be expended should be reduced. They had therefore given their attention to the subject of what works could with propriety be omitted for the present, and they had come to the conclusion that in order to put the park into such a condition as to render it suitable for public use, works to cost about £4900 must be carried out. They propose in pursuance of the recent resolution of the council of the 18th November last, to employ their own special staff for the groundwork and such other works as could be done by labourers, and to entrust to contractors only such things as entrance gates, brickwork, &c. They recommended that the council authorise the expenditure.

The Alexandra Park.—The Parks Committee reported that the London Financial Association were seeking to remove the parliamentary restriction which prevents their building upon any portion of the 135 acres forming the Alexandra Park. They were prepared, in the event of the restriction being removed, to give up 30 acres for the purpose of a public park. The committee suggested that the Middlesex County Council be invited to co-operate

with a view of securing more than 30 acres for a public park. Mr. Beachcroft moved as an amendment that they should invite co-operation with a view of securing the whole of the 135 acres now under parliamentary restriction to be maintained as a place of public resort and recreation and preserved for that purpose. If they did not oppose the Bill 100 acres would at once be turned into building land. After a long debate the amendment was carried, and the council adjourned.

OBITUARY.

MR. JOHN DOMINY.

WE regret to announce the death on February 12, after two days' illness, of Mr. John Dominy at the age of seventy-five. Mr. Dominy was born at Gittisham in 1816. Having served some time in a private garden, he in 1834 spent a few months in the nurseries of Messrs. Lucombe, Pince and Co., Exeter, whence he removed to those of Messrs. Veitch in the same town. In 1841 he was appointed gardener to Mr. J. P. Magor, of Redruth, where he remained for nearly five years. In 1846 he again returned to the nurseries of Messrs. Veitch, with which he was connected first at Exeter and afterwards at Chelsea until failing health compelled him to retire in 1881. It was after his return to the nurseries of the Messrs. Veitch at Exeter in 1846 that he commenced his experiments in the hybridising of Orchids and Nepenthes. In 1856 his first hybrid Orchid appeared in the shape of *Calanthe Domini*, this being succeeded by *Cattleya hybrida*, and eventually by many others, a complete list of which will be found in Vol. XXI. of THE GARDEN, which was dedicated to him. If Mr. Dominy had only raised such hybrid Orchids as *Cattleya exoniensis*, *Calanthe Veitchii*, and *Lælia Domini*, he would have deserved honour at our hands. On removing from Exeter in 1864 to take charge of the nurseries at Chelsea, the Exeter Horticultural Society made him a suitable presentation for his experiments in hybridisation. In 1880 he was also awarded the large gold Flora medal of the Royal Horticultural Society. On the occasion of his retiring in 1881 after forty-three years' service from the employment of the Messrs. Veitch, he was presented with a testimonial of 200 guineas and a watch valued at fifty guineas as an acknowledgment of the services he had rendered to horticulture generally and to Orchid growers in particular. He was a member of the floral and also of the Orchid committees of the Royal Horticultural Society, where his experience was of great value. If "a man's best work is his best monument," then will the name of John Dominy be long remembered, even by those who shall come after the youngest of us.

Rose Celeste.—Will "S. E." kindly send name and address?

Vines not breaking (*Medicos*).—Kindly send a few more particulars about your treatment of the Vines. It is quite impossible to answer your queries from the meagre information you send.

Peat manure (*J. G. C.*).—The difference between ordinary stable manure (which is, we suppose, what you refer to) made from straw and that made from peat moss litter is very slight—if anything, in all probability in favour of the latter, which is more retentive.

Cutting down Apple trees.—I have three Apple trees on the sunny side of my garden, which have borne no fruit for two years, and I would like to fell them. Am I entitled to do this if I plant at least as many more young ones in other parts of the garden? I am an annual tenant.—A. Z.

Names of plants.—*L. K. L.*—Impossible to name from leaf only.—*E. B. D.*—1, *Platanus acerifolia*; 2, *Lilac Charles X.*

WOODS AND FORESTS.

THINNING PLANTATIONS.

THE utility of thinning young plantations would seem in some parts of the country to be either neglected or misunderstood, and this is to be regretted, more especially in cases where the trees consist principally of Coniferae. When young hard-wooded trees have suffered by confinement in early life, they may branch out and recover to a certain extent when gradually thinned, but the case is quite different with regard to coniferous trees, for if once they become drawn up they remain so, as they are incapable of reproducing side branches. This points to the utility of thinning young plantations in due time to allow the trees sufficient space to extend both root and branch, and thus lay the base for a profitable timber tree. When trees are planted at a regular distance apart, it is generally after the lapse of some ten years that they require thinning. Of course, a good deal depends on the space allowed between the plants at the time of planting, kind of trees used, suitability of the soil, and the locality. When thinning plantations on exposed ground, the planter should be extremely careful not to allow the trees along the exposed margins to become mere drawn-up poles, as such trees are always very deficient in roots, and are liable to be upset during a gale. Such trees should be allowed space to enable them to battle with the elements, and act as barriers against the blast for the benefit of those in the interior. Sometimes such trees may have their branches ruptured by the wind, but it is seldom we see them torn up by the roots. The system of leaving the trees in a crowded state around the margin of the plantation with the view of giving shelter to those in the interior answers very well during the early stages of the trees' growth, but in after years such become much drawn, the consequence being that acres of them are upset by the wind during a storm, thus destroying the appearance of the plantation, and having a very injurious effect upon those left standing. Young plantations raised from seed on the spot had better be examined, and in places where the trees are too crowded the inferior plants should be weeded out and the best left. Some of these plants should be lifted carefully and planted in open spaces here and there where they occur, with the view of establishing a full and even crop over the whole surface of the plantation. As the work proceeds, all surface scrub, such as Bramble, Heath, and Whins, should be cut out to allow the plants air and space. Plants that have been cut over by vermin generally produce several stems, but the weakest of these should be cut off, and the strongest and most central left to form the stem of the tree. This applies to hard-wooded as well as coniferous trees.

J. B. WEBSTER.

Elymus or Lyme Grass for covert.—In reply to Mr. Ingram (p. 156), I am not aware that the British *Elymus arenarius* of L. or a variety of it has a synonymous name *glaucaus*. I believe my plant to be the Canadian *glaucofolius* of Muhl., which I think is sometimes ranked as a variety of *canadensis* of L. Beautiful and clean as the British *E. arenarius* might have appeared to Mr. Ingram, I think he might like this even better. It is more glaucous than *E. arenarius* of the seashore. This, then, may explain to some extent the high prices asked for it in some trade lists. I have never seen the fungus on seed of the Canadian species. Would it not be interesting to find out whether ergot is common on the British plant in its wild state in sea sand, and if not, whether it develops generally when planted away from the sea and under cultivation. Possibly the causes might be merely local, as

with other fungoid attacks. But as I have already explained, the kind I recommended for game covert is not the British species.—J. Wood, Woodville, Kirkcaldy.

TREES ON CLAY.

FEW persons other than those who have had some experience of the matter have the remotest idea of how difficult it is to get trees and shrubs to start away into growth on a clay soil. I am here referring not to what in many country districts is classed as clay, but to the genuine article that is almost entirely destitute of stones and without the slightest trace of sand or gravel. Some six or seven years ago a field adjoining a park road was to be planted, and as the soil was a stiff retentive clay, and the only preparation it received being trenching, facts regarding the growth of the various trees and shrubs experimentally planted may be useful as a guide in the future to those having the manipulation of such a class of soil. At the outset it may be well to state that many trees and shrubs have entirely succumbed to the adverse conditions of the soil, while, at the same time, a few have grown with great freedom and are now nearly 10 feet high and bushy in proportion. It should, however, be distinctly understood that no perceptible difference in the quality of the soil could be detected, even at the time of trenching, the whole being a uniform genuine yellow clay entirely destitute of the least particle of anything approaching loam in quality. Any difference in the growth of the various trees planted could therefore only be assigned to the individual constitution and adaptability of the species to its peculiar surroundings. The soil had been treated in the autumn previous to being planted, and as it was loosely thrown up and exposed for several consecutive nights to 17° of frost, the surface at least was pulverised to a greater or less extent. No soiling of the pits took place, the plants 3 feet high, exceptionally strong and well rooted, being placed in immediate contact with the clay, such operation being performed in March. Now that nearly seven years have elapsed since the trees and shrubs were planted, a good idea can be formed of such as are suitable or unsuitable for the particular class of soil. Moreover, there were several of each kind used, so that the deductions adduced can be relied on as strictly correct. The giant *Arboretum* (*Thuja gigantea*) has done best of any, or at least it can favourably hold its own with two other species. Planted in pure plastic clay, this denizen of the alluvial valleys of several of the American States has made shoots of 15 inches long in one season, and, except being a shade paler in foliage tint, are equally healthy-looking with those I have planted in the basin of the Ogwen, in North Wales. Amongst all the conifers that have been introduced there is no other that for economic planting I would prefer to the giant *Arboretum*, and not only so, but the timber is of acknowledged value as produced in this country, while the tree rarely gets upset in a storm, and though thousands have been under my care I never once noticed a broken leader, and that, too, in districts where the ocean blast was unguarded and the trees unprotected. However, that it is just the Conifer for planting in clay I am now fully convinced, and should I ever have another similar experience, the giant *Arboretum* will be largely used. I would, however, recommend that at the time of planting half a barrowload of loam or vegetable mould be added to the soil in each pit.

The lovely Japanese Conifer, *Cryptomeria elegans*, comes second on the list, for who would imagine that a petted, spoilt child like this dressy lawn specimen could hold its own under the well-known adverse circumstances connected with an unalloyed clay. Such, however, is the case, not one, but several specimens substantiating my remark. A prettier tint than these *Cryptomerias* put on in autumn and retained through the winter I have never witnessed, even in trees growing under the conditions usually assigned to this somewhat rare Conifer. So conspicuous was the ruddy foliage tint, that not one, but numbers of persons when driving along the avenue were captivated and sought for an enlightenment on the subject. The other *Cryptomeria*, *C. japonica*, had no

part with its near ally, *C. elegans*, although there are a few middling good and pretty healthy looking plants; still the rate of growth of the latter was far behind that of its neighbour. Excepting *Pinus parviflora*, no other Conifers did sufficiently well to merit attention, though *P. densiflora* and a form midway between *Laricio* and *austriaca* held their own and went up annually at the rate of 4 inches or a little more.

Junipers entirely failed, and this might also be said of Cypresses (many kinds were planted) and the Abies tribe generally. Amongst hard-wooded deciduous trees the Oak and Winged Elm came to the front, though they did not make great headway. Hazel seems to root and strike out well, also the Hornbeam and Beech, but I fancy that the cut-leaved Imperial Alder and that valuable species *A. cordata* will yet out-distance in every respect any of the others. Shrubs, unless the common Gorse, but particularly the double-flowered form, did not do well. Laurels turned golden in fifteen months; while *Cotoneasters* and most of the *Barberries* were not a whit better. The double-flowered Gorse has grown apace, clumps of three and five planted at 4 feet apart being in seven years nearly 15 feet round. One would have thought that the Broom might have had a chance, but it looks bad and ill at home in the clay. *Aucuba* and Bay, Portugal Laurel, and Box are entire failures.

The above is rather an interesting lesson learnt from Nature's book, and will no doubt be of use to those who have the unpleasant and for the great part unthankful task of planting a clayey field. Of course, I am aware that it is not at all advisable to plant in clay when soiling could be done cheaply, but this does not lessen the value of the experiment narrated, and such trees as do well in the pure clay will do far better if a little loam is added to the clay at the time of planting.

A. D. WEBSTER.

Ivy on trees.—Although Ivy growing upon trees is by some considered very ornamental, yet there can be no doubt that it retards their growth and healthy development, and in course of time causes their death. The soft genial climate of Ireland is exceptionally favourable to the growth of Ivy, and when renovating old, neglected plantations in that country I have often found trees of different kinds apparently killed by the load of Ivy which they had to support, the Oak being by no means an exception. The Ivy roots itself into the bark of the trees of hardwood as well as Pines, and when fully established the trees gradually exhibit a stunted appearance compared with that of the same species where no Ivy has been allowed to grow. In cutting up the wood of these Ivy-covered trees, the timber, as a general rule, is shorter in the grain and not so elastic. This difference I have noticed in particular when converting the common Ash into handle wood. When it is thought desirable to rid the trees of Ivy it should be cut at the base of the stem and allowed to decay and fall from the tree gradually of its own accord, for if torn off at once some of the trees are apt to die by sudden exposure, while others are almost certain to become bark-bound, thus lessening their value to a large extent.—J. B. WEBSTER.

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No. 1006. SATURDAY, Feb. 28, 1891. Vol. XXXIX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

THE FROST AMONG THE ROSES.

THE exceptionally fine February now nearing its close but reveals more plainly day by day the widespread injury and destruction worked among Roses through the December and January frosts. When these gave place to such fine weather, not a few rosarians imagined that their Roses were all safe; but time, the great revealer of secrets in other matters, has been revealing the from bad to worse state of our Roses ever since the close of the great frost. The mere black spots have grown into blotches. The blotches have embraced the branches, encircled the stems and whole boughs of several years standing, and entire plants have now succumbed to the frost. Were the work of destruction completed, we could measure up our losses, and might set about doing something, perhaps, to recoup them; but the worst of the present estate of our Roses is that those that seem safe to-day are found drooping or dead to-morrow. And when these individual cases are multiplied many fold, the rosarian hardly knows where he is nor what he has to rely on. One of the worst symptoms often presents itself thus: On hardly stricken plants one or more fresh-looking limbs or branchlets appear amid masses of frozen shoots. Cut back to these by and by and all may be well, and abundance of Roses enjoyed in the autumn. But below these saved boughs the frost has in many cases hurt the shoots between them and the roots, cutting off all supplies of sap and all possibilities of life to these yet living branches on or among the dead ones. I have hardly found a *Maréchal Niel* in the open alive since the late long frost, and some others are not much better. Teas and other tender Roses that have suffered least are freshly moved plants and dormant; but the dormancy must be real. All started buds are dead or dying. Another winter or so like this will wholly revolutionise our practice of growing Tea Roses in the open. They must either be covered much more substantially in the open and against walls than they have been, or lifted and laid in by the heels from November till the end of March. In this semi-prostrate state, litter sufficient to exclude any frost could be scattered over them. I met an enthusiastic doctor the other day who, in answer to my inquiry about his Roses, exclaimed, "Safe."

In yet more severe localities Teas might be potted up or stored away thickly in pits or open sheds for a few of the more severe months of winter. Rosarians are to be envied this spring who can turn to their hibernating Rose stores by and by, and plant all their Teas out into the open safe and sound, ready to rush off into growth and beauty. Neither can these transplanting or lifting modes of saving tender Roses be called experiments or uncertain ventures in Rose culture; they have been proved very frequently and in many places and seldom found wanting in safety and success. Roses are easily planted in the late spring or early summer, and with a little extra fostering and attention for the first few weeks, they start off, grow and bloom as well or

better than if they had not been disturbed. Good blooms in plenty may be gathered from such late planted Roses in July, or even in June, while nothing can match them for early and late autumnal blossoming. And were there a loss of the early spring flowers, this would be well repaid in the safety and vigour of the plants and the profusion of their future blooming. Roses in June are mostly as common as Blackberries in August; but the safety of our Teas and other tender Roses, and a continuous supply of the most charming flowers till the frosts of autumn warn us to lift and safely store our plants, cannot fail to satisfy the most ambitious rosarian. D. T. F.

ROSE FORCING.

THE demand for Roses in many gardens now extends to the whole of the year, so that from the time in the autumn that they cease to come in out of doors a continual succession must be provided under glass until the outside supply is again available. Time was when little, if anything was attempted in the way of pot Roses before the Hybrid Perpetuals that came in when the spring was well advanced, and which in reality were not forced at all further than their blooming being accelerated by protection, and not much, if any more heat than was necessary to keep ordinary greenhouse plants in a healthy condition. As often as otherwise the plants, after having been grown out in the open the summer previous, were transferred to pots in the autumn, and consequently were not in a condition to bear forcing. The natural disposition which the Tea varieties have to keep continually growing pointed to them as being the kinds on which reliance could be placed to give flowers during the winter months. Demand begets supply, and it was to the Tea varieties that those who grow for market, and who were the pioneers in this department of Rose culture, betook themselves. It was soon found that with plants that had been well prepared in pots previously, so as to get them sufficiently strong, and suitable houses, there was no great difficulty in the matter—a fact proved by the quantities which the leading market growers now supply through the whole of the dull sunless months. Gardeners in private places are often heavily handicapped in winter Rose growing through the want of a suitable house or houses in which to carry out the work. To have Roses in anything like creditable condition during the months of December, January, and February, they must be grown by themselves.

The principal difficulty to contend with in Rose growing under glass is the extreme susceptibility of the plants to the attacks of mildew, aphides, and red spider. There are few cultivated plants that suffer so much from these pests as Roses, even when grown out of doors, and in common with other hardy things when grown under glass with the heat that is required in the winter to have them in a flowering condition, the state of the leaves and young wood is such as to make them still more liable to suffer from the parasites in question. The most persistent enemy to deal with is the mildew, especially where the treatment in the matter of admitting air to the extent required by most plants is followed. This may be said to be the cause of many who attempt to force Roses through the winter failing. Sulphur in one form or other is applied to kill the parasite till the plants are half poisoned with it, yet the foliage is so crippled and injured, that the young growth on which depends the amount of bloom forthcoming becomes so stunted, that the flowers are few, and those that are produced are small and indifferent. So certain to produce mildew is the admission of air to forced Roses in winter, that if the side lights or ventilators in the sides of the house are only open for half an hour sufficient to cause the leaves to move, the parasite is almost sure to make its appearance in a few days, and in low houses such as may be said to be the only structures suitable for the winter forc-

ing of Roses, if air is admitted at the ridge excepting to a very limited extent, like results follow. So far from there being any necessity to admit air, Rose houses are better kept completely closed from the time the plants are started late in the autumn until the spring is well advanced. Even when the sun begins to get a good deal of power, it is better to let the temperature of the house rise considerably higher than one would like than to give air before the outside temperature is genial. If the plants are perfectly free from red spider and aphides when they are housed in autumn, these insects seldom give much trouble provided the plants are syringed once a day and the work is properly done, so that the water reaches the leaves on both sides. The necessity for, or even the advisability of syringing in the winter is sometimes questioned, but if it is done early enough in the day to allow the plants to get quite dry before nightfall, no ill effects follow. In this case, prevention is much better than cure, inasmuch as when fumigation is resorted to for the destruction of aphides, the young leaves are often not able to bear as much smoke as will kill the fly.

It sometimes happens in the forcing of Tea Roses, even when the plants are sufficiently strong and vigorous at the time of starting them, that they fail to give a succession of bloom to the extent that is desirable. This is generally traceable to insufficient manurial assistance. When in the autumn the soil is full of roots, as in the case of vigorous healthy plants it should be, they will have extracted much of the nutriment which it contained, and unless enough assistance in the shape of manure water or surface dressings of some concentrated stimulant be frequently given, the new growth does not come strong enough to bloom well. It is scarcely necessary to say that Roses require more manure than most things, and when their roots are confined to the limited amount of soil the pots contain, they are mainly dependent on that which is given them in either solid or liquid form. When fairly treated, Tea Roses, like the hybrid varieties will keep on improving under pot culture for a good many years, even when subjected to winter forcing. To enable them to do this, not only must they be well grown in the summer and the treatment during the time they are being forced be of a right description, but they must be equally well cared for when taken from the forcing house. Plants that were started at the end of October or beginning of November will (if they have been kept warm enough to keep them growing) now require a rest. Others should have been introduced to heat some weeks ago to take their place and keep up the supply through March, April, and May. Those that are to rest should be put in a house or pit kept at an ordinary greenhouse temperature, with the roof ventilators opened a little during the middle of the day after the sun has gained enough power to raise the temperature much. As a matter of course, they will require less water than when in a more active condition, but Tea Roses are virtually never completely at rest, and the soil must not be allowed to get so dry as to check the roots. In Rose forcing through March and April it is necessary to be careful not to have more heat on in the mornings than is necessary, as the sun during these months is fitful and also begins to be more powerful, and if there is much heat in the pipes and the sun is bright, if even for a short time, the temperature gets too high. Care must also be taken that the house does not get too cold in the night, for though the days may be warm and sunny, the nights are often very cold.

T. B.

Selection of Roses.—My few remarks on the subject of the selection of Roses have been criticised by several correspondents in THE GARDEN in a more or less interesting manner. My original intention in writing on the subject has been, however, to some extent misunderstood, partly, I suppose, from my want of clearness in stating my views. In writing on "selection for general purposes," I meant more particularly the selection of those Roses which would be suitable for every purpose, including exhibition, and in

criticising those I named some have mentioned alternative Roses that would be utterly unsuitable for exhibition, although some are most beautiful in themselves. In this comparison I would especially refer to such a Rose as Ma Capucine, than which nothing can be more lovely, but it is almost too fragile for any purpose beyond admiration; its colouring is almost perfection, but it has no lasting power, changing from a bud to an overblown Rose in an hour. The same may be said of Chedane Guinoisseau and other lovely, but what may be almost called evanescent Roses. I greatly admire these two which I have particularised. But for general purposes in the adornment of our gardens, for cutting, and also the exhibition table we do not want many which have no staying power. In the list I gave I would not have mentioned several to which exception has been taken, although I cannot agree in all cases with the suggested alternatives, but I thought it best to name those Roses usually most highly thought of, even if I personally had not quite the same high opinion of them. All those I mentioned have been successfully grown, and there are few in the list not well known to most rosarians. In regard to the exception taken to Her Majesty and the preference suggested for Homère, I think any experienced rosarian who required a good Rose for exhibition would not hesitate for one second as to which was preferable to grow. Her Majesty has the defect of being terribly subject to mildew, but this defect seldom occurs early in the season, and what pink Rose is more effective? There are only two or three which can compete with it; La France and Mrs. John Laing do notably, and have also the great advantage of sweet scent, which fact, however, would not give either of them an extra point in competition. "D. T. F." I know from your own columns to be a great admirer of Homère, but he is quite singular in his opinion, and those who have seen Her Majesty shown to perfection, as in 1889 by Mr. George Paul and others, can have formed only one idea of it, that it is a glorious Rose. As a garden plant it will improve greatly after it is established some years, and will then bloom to perfection. In this view I believe I am supported by the experience of the great growers. Finally, I hold to my opinion that, although those who have unlimited space in their gardens may fancy growing every Rose with a favourable reputation, I think a selection of some five or six dozen good sorts grown in large masses and judiciously grouped is much more effective and useful than hundreds of varieties scattered indiscriminately through a pleasure ground, and that we might easily reduce by election the numbers best worth cultivating to under 100 varieties.—CHARLES J. GRAHAME, *Croydon*.

Sulphate of copper for mildew (T. R. B.).—Take a clean wooden barrel holding about 30 gallons. Put in 25 gallons of rain water. Break up 1½ lbs. of sulphate of copper into small pieces, put it in a coarse bag or basket and keep it immersed on the top of the water until the whole of the sulphate is dissolved. Take three-quarters of a pound of quicklime, just out of the kiln if procurable. In no case must it be air-slaked or water-slaked. Plunge the lime for exactly one minute by the watch, and place it on a piece of sacking or in a basket. In an hour it will fall into powder. Pass it through a fine sieve. If the lime is impure and leaves much in the sieve, add a little more, that is about the same weight as the residue remaining in sieve. Make the lime into a solution with rain water and pour this milky mixture quietly through a piece of sacking or a very fine sieve into the 25 gallons of sulphate of copper solution. Stir it all up together and let it stand for a couple of hours. If the mixture is well made and the ingredients good, one can in two hours take a glass of perfectly pure water from the surface—pure and quite colourless. This mixture can be applied on the cheap with a birch rod such as we remember in our childhood, or by the Eclair copper knapsack, as mentioned by Miss Ormerod. I use the garden engine with a hose and sprayer. If the birch rod is used so much care is not used in straining, but great care is necessary when a sprayer is employed.

In any case the sulphate of copper must be good and the lime fresh, otherwise one gets a muddy mess not agreeable to the eye. I used this, I think, four times last year on the Rose trees and kept the mildew in check. Cut the blooms before syringing and play upon the buds and new growths.—J. WHITWORTH SHAW.

FERNS.

FERNS AND THE SEVERE WINTER.

IN my previous notes on the effects of the severe winter I confined my remarks to Adiantums. There are, however, many other Ferns which have been pretty well tested. The Aspleniums include several of the most valuable Ferns for winter, as they keep fresher and greener in a much lower temperature than many others which are generally considered to be hardier. Among the best may be mentioned *A. laxum pumilum*, one of the most beautiful at any season, and as it has withstood both cold and fog its usefulness cannot be over-estimated. *A. foeniculaceum*, which we have always grown under similar conditions, has suffered considerably from cold, the young fronds being quite crippled. As this happened to a batch of plants which stood between *A. laxum pumilum* and *A. Colensoi*, neither of which suffered in the least, it proves that *A. foeniculaceum* should have a warmer position; it is a very pretty species and well worthy of a place in the stove, where the finely-cut drooping fronds are shown off to the best advantage. *A. lucidum* is another grand winter Fern, and *A. flaccidum* must be included among the best; when grown in suspended baskets the long drooping fronds are very effective. Few of this genus seem to suffer from fog; even the tender little *A. formosum* has withstood the test well. *Nephrolepis* is another genus which has stood well; in fact such sorts as *N. exaltata*, *N. philippinensis*, *N. tuberosa*, and others have kept quite fresh, and even continued to grow during the darkest and coldest weather. *N. davallioides furcans* requires quite a stove temperature to keep it fresh during the winter, as does also *N. Duffii*. *N. pectinata* is another tender species which has suffered either from cold or fog, or perhaps both. Of Pterises, of course, the varieties of cretica and serrulata have stood well, especially the former. *P. serrulata*, however, is not quite so hardy, and both old and young fronds have gone rusty, except where a regular temperature can be maintained. *P. tremula*, which is so much grown for market and rarely found in private establishments, has in all cases kept well; in fact it is one of the best of all Ferns for decoration. *P. argyrea* has kept well in the warmer houses, but where the temperature has fallen below the average the fronds have gone quite brown. *Phlebodium aureum* is another Fern which shows the effects of cold very soon, especially where the damp settles on the fronds; it has, however, kept well in a warm, dry position. *Stenochlæna scandens* seems to have been affected more by fog than cold, for in all positions the fronds have gone rusty. *Lomaria gibba* has kept fairly well, but cannot be considered a good winter Fern, as a change of temperature, especially a sudden rise after the plants have been exposed to cold, will give the fronds the appearance of having been scalded. *Davallias*, such as *D. elegans*, *D. dissecta*, *D. Tyermanni*, *D. Griffithiana*, and others of similar habit, are valuable for winter, and are not affected by fog, and the temperature must fall very low to injure them. *D. Mooreana* keeps well in the stove. *D. Mariesii*, which loses its fronds in the autumn, is now well

covered with new fronds, while *D. bullata*, another deciduous species, will not have any new fronds for some weeks yet. *D. foeniculacea* has not suffered in any way. Unfortunately, it is a very slow grower, otherwise it would soon become a most popular market Fern. *Osmunda palustris*, a most beautiful Fern for a cool house, loses its fronds if not placed in more warmth in winter, but in a genial climate it is not deciduous. *Lastrea patens* and *Lastrea lepida* have both been badly affected by the weather, the young fronds having the appearance of having been burnt at the edges. A few other Ferns which during ordinary seasons have kept well through the winter are similarly affected. It is difficult to determine in all cases which has been the cause of the mischief, the fog or the frost, but in some instances it is quite apparent that the fog has been the cause. More frequently, I should say, the evil has been brought about from the temperature falling too low, for I find that many of the hardiest Ferns are seriously affected after being used for decoration in a cold position, but they do not show much of this until they are taken into warmth again.

Ferns which have been packed should not be placed in warmth as soon as received, or the fronds will be sure to be discoloured.

F. H.

Nephrolepis Bausei.—This is an extremely pretty Fern, but it is essentially a summer plant, as it is deciduous, and, what is more, the entire crown and rootstock frequently die, leaving nothing but a few detached tubers which when growing were connected with the parent plant by a slender root-like body. I have known specimens of it to be thrown away with the idea that they were dead; whereas, a careful examination of the soil would have revealed the presence of these little tubers ready to start into life on the return of spring. A good way to treat this Fern is to allow it to occupy the pot in which it has grown and keep it moderately dry throughout the winter, then early in the new year to shake it from the soil and pick out the tubers. These may then be potted singly into small pots, as even if large specimens are required, the better plan is to start them in the small pots, and when they commence to grow to group them in a pot or pan as required. When once these tubers start into growth the plants make rapid progress and soon attain an effective size; indeed, the tiniest pieces will form pretty little specimens during the coming summer. The crown does not invariably die, and when it survives the fronds are pushed up strongly in the spring. It is an erect growing Fern, as a rule not very much over a foot in height, with bi-pinnate fronds of a pale green tint. The divided character of the fronds causes it to stand out distinct from most of the members of the same genus.—T.

SHORT NOTES.—FERNS.

Platyserium Stemmaria.—Large quantities of what look like this species have recently been sold by auction, and it is asserted they come from Surinam. Is not this a mistake of the vendor, or have they been gathered from a private estate where this Fern had been planted? I do not understand how a West African species should be found in Dutch Guiana.—W. H. G.

Pteris ensiformis Victoriae.—Since writing my notes on "Variegated Ferns" (p. 98) I am reminded of the above, which I saw in Mr. W. Bull's nursery a year or so ago. It is a most distinct and beautiful variety. There are two distinct forms of fronds; the barren ones at the base are short and spread over the surface of the pots, while the fertile ones grow erect. The fronds are pinnate, some of the pinnae being again sub-divided. The pinnae are long and narrow, of a bright fresh green with a clear white band down the mid-rib. It does not appear to be a very robust grower, yet as a small plant it is very elegant.—F. H.

Asphalt.—Having some asphalt to lay down this spring, I am desirous of giving it a reddish colour. I

contemplate using crushed bricks. Will any reader of THE GARDEN say if the crushed bricks will answer, and how to do it?—J. HENDERSON.

FLOWER GARDEN.

FEBRUARY FLOWERS.

AT no season in the whole year are out-of-door flowers more precious than at such a time as the present, when after a prolonged period of frost and snow, during which the earth has been hard as iron, and even the sturdiest plants have hung their blackened heads, the genial warmth of a bright February sun calls once more to life our early spring favourites. They become dearer to us every year, as Nature re-enacts before our delighted eyes the ever recurring wonders of her power to produce once more the sweet and pleasant flowers of spring-time. It is little more than a fortnight since everything was fast bound in the cold clasp of intense frost, and already sunny borders and grassy slopes are bright with those early flowers which nothing seems to injure and no frost to destroy. A few shillings spent on bulbs in the autumn bring us an ample return in the spring-time, not only in the pot flowers which sweeten the atmosphere of our drawing-rooms with the delicious scent of Hyacinths and Narcissi, but still more in the bright hardy flowers of spring, which may be dotted about on the lawn or planted abundantly on the edges of the garden borders. Anywhere and everywhere their re-appearance in spring is hailed with delight, and some of them are most useful for gathering also.

Snowdrops are perhaps amongst the earliest and prettiest of these early flowers. Bought roots will not flower nearly so early nor so abundantly as those which have been some time established. They are plentiful in some localities in this county, growing wild along the banks of streams, or pushing up among Thorns and Briers in damp waste places. They evidently like a retentive soil, and will often flourish without any care or attention. Nevertheless, like most other things, Snowdrops will amply reward the time and trouble which any true lover of spring flowers will gladly give to them. Sometimes a bunch of roots becomes obstinate and will not flower; they require to be taken up and replanted, and a few waterings with weak guano water will probably have the effect of making them strong flowering roots for the following spring.

They grow readily in Grass, and though the long leaves which succeed the flowers may look somewhat untidy for a while, they will be ready for mowing when the lengthened days bring about the time for the lawn-mower to be used.

Along with Snowdrops the beautiful little flowers of the sturdy Aconite (*Eranthis hyemalis*), with its gold cups set in prettily fringed green collars, are sure to come up wherever they are planted. They are almost as cheap as Snowdrops, and they quickly make a good show. The only possible objection to them is that they are useless for gathering. Of course, as they are so very low and near the ground, they must either be grown in the Grass or at the very edge of a border.

The Crocus has one immense advantage over the two last in having such a variety of bright colours. Moreover, it is pleasant, in the first sunny days of spring, to hear the bees humming about amongst the flowers, and to see them flying homewards, loaded with the yellow pollen which these pretty blooms produce abundantly. It is worth while importing fresh bulbs of the Crocus every year, they bloom so much

finer and better, although old bulbs established for years will go on producing their flowers, especially the yellow kinds. I have found that purple and white gradually disappear. Sometimes Crocuses may be usefully employed in filling up the beds which are occupied in summer by large growing things, such as *Ricinus* or *Canna*. The bulbs can be taken up when the large plants are put in, and though they will inevitably be smaller than when first planted, they will be also more numerous, and will refill the same beds with smaller bulbs next autumn. Amongst the less known and inconspicuous flowers of spring, one of the prettiest and most interesting is *Cyclamen Atkinsi*. Its leaves are not so pretty as those of *hederifolium*, which flowers in autumn, but they are of a fine dark green lined on the other side with purple. The flowers are smaller than those of the Ivy-leaved *Cyclamen*, but they are of a fine deep red, and coming almost immediately after the snow and frost have departed, they must be considered very valuable. They are perfectly hardy plants, but so small that they require some care so that they may not be smothered up and lost in the days of the luxuriant growth of summer.

The Christmas Roses seem to belong more to early winter than to spring, but this year the fine flowers of *Helleborus niger* are only now in their full beauty. I have been surprised to see the immense quantities of bloom of this favourite winter flower which have been gathered, and are still being gathered from strong plants. What can possibly be more beautiful to associate with well formed and marked Ivy leaves, or, for a still brighter bouquet, to mix with the scarlet bracts of *Poinsettias*? Those who grow *H. niger* and *H. maximus* will have a succession of abundant flowers from November to April. There are other *Hellebores* which belong more especially to spring. I have only made a personal acquaintance with two of these, viz., *H. corsicus* (syn., *ilicifolius*) and *H. atropurpureus*. The former is an exceedingly pretty and interesting semi-shrub. It grows strong and tall, and its finely serrated leaves are in their full beauty at the present time. Its flowers, which are of a beautiful pale green colour, are produced freely in large bunches on the top of the stem, and last on from February till late spring. This *Hellebore* grows easily from seed. I lost a number of seedlings last year from slugs, as the seedlings were so long (about six months) in showing themselves, that I despaired of their ever making an appearance. Those that escaped the slugs are now making nice little plants. I consider them a very valuable acquisition, as for some reason this plant is not so well known as it ought to be. *H. atropurpureus* is, like many other things, late this year, and is not yet in flower, but promises to come out well in due time, notwithstanding the hardships of the late winter. It is an interesting plant, because of the time of the year in which it flowers, but it cannot be compared for beauty to our old friends the white Christmas Roses.

That very singular shrub, *Chimonanthus fragrans*, which requires the protection of a south wall, has this year blossomed exceedingly well with me. The perfume of the flowers is most delicious, and unlike any other scent. The blossoms themselves are inconspicuous and possess no beauty, but when gathered and put in a shallow saucer with a little water, they will fill the room with perfume. Other spring flowers, except of course the *Violet*, which does not flower so early out of doors, have no scent. It seems strange that the *Chimonanthus*, which braves in its sheltered position the very coldest weather, should have such a strong and powerful perfume. It has to become well established

and its wood well ripened before it will produce its little stemless flowers. *Jasminum nudiflorum* has been in flower more or less all the winter, but since the thaw and under the influence of the February sunshine it has burst out into renewed abundance of its bright yellow flowers, and is a very acceptable addition to the spring garden. This is becoming a favourite climber for our cottage walls. It is easily propagated, and grows against a wall of any aspect. Indeed, I have sometimes thought that it seems to succeed best on a north wall.

Primroses this year can scarcely be classed amongst the flowers of February, but even now a many-coloured nosegay of their pretty flowers might be gathered, and within a very short time they will no doubt be covered with blossom. The Siberian Squill, which always has a struggle with the attacks of slugs, which seem to have a special liking for it, is just pushing up its bright blue flowers. The bulbs require to be massed in order to show their beauty to perfection. They readily grow from seed and quickly flower if only they can be kept from their inveterate enemy. A good mass of this blue Squill is a lovely sight in late February, and it will grow anywhere. *Chionodoxa Luciliae* is very pretty, but, so far as I can see, not in any way superior to our old friend the Siberian Squill. Still it is pleasant to have a variety among the plants of this early season. *Hepaticas* are amongst those curiously crotchety things which will flourish or decay apparently without reason. On the whole, they do best among large stones when they can get a cool deep soil for their long fibrous roots. I have found them growing wild in rocky places on the Swiss mountains. They are difficult things to move because of the depth to which they push down, forming a thick mat with their tangled roots, which are easily broken off to the destruction of the plant. The double purple is not common, but is in some respects the most beautiful of them all, but the bright red variety attracts the eye as it nestles down amongst mossy stones. This plant shows off its flowers much better when the old leaves of last year are carefully removed.

A GLOUCESTERSHIRE PARSON.

CHOICE DOUBLE PRIMROSES.

A YOUNG florist recently called upon me to inquire where he could obtain 200 plants of *Mme. de Pompadour* Primrose. He had but a very incorrect idea as to what the variety was, and I had to explain that it was the old double crimson Primrose which was so entitled. The prospect of getting 200 plants of it, however, seemed very remote, and the gardener ordering it was certainly ambitious. Possibly he thought them to be as easily obtainable as the double white or lilac. However, I gave him the address of noted firms in Ireland and Scotland, but learned later that he had found none for his pains. It would indeed be interesting to learn where in Great Britain or Ireland this fine double Primrose could be found by the score, much less by the hundred just now. There may be a wealth of it somewhere, but I doubt very much whether it be in plenty anywhere south of the Tweed, and probably is most abundant in the north of Scotland. It is but too certain that not only this old crimson double, but all the choicer or deep coloured varieties will thrive only where the summer atmosphere is cool and moist. To have the plants robust the summer growth must be robust. Where the leafage is moderate only it is with difficulty preserved, especially during a dry warm autumn. Double Primrose leafage is as liable to the attacks of spider and thrips as *Gardenias* are to mealy bug, and cannot be so easily repressed. That constitutes our cultural difficulty in the south, and no artificial aids seem to overcome the difficulty. Even planting behind north walls, where heat during the summer

is not intense and the soil is relatively deep and cool, does not alone suffice, for the air will during a lengthened period of heat become dry and warm. Once the summer foliage is destroyed by insects, the crowns become weak and throw up in the autumn but indifferent growth, with the following year perhaps but a few small blooms, and finally the plants succumb during the ensuing summer. The darker the colours of the flowers, the choicer or more refined the varieties. The crimson, purple, violet, or crimson-purple, and the rose are the best, yet most difficult to preserve. It would seem as if the white and lilac, obviously sported from the same parent, were of a diverse strain from all other doubles, as these two are comparatively common and easily preserved. The early sulphur perhaps comes next, but it is a variety of no special merit, as the colour of the flowers is unattractive and the growth only moderate. The newer variety Croussi is also a fairly good doer ordinarily, as the foliage is large and the flowers fine and plentiful. The colour of these, a slaty-purple, is not specially attractive, but it is a very good variety for general culture all the same. Probably with no class of plants have cultivators more failures to record than with choice double Primroses. Purchased usually in pots, rarely then very robust, and not too well rooted, they thrive but moderately at the first, and die rapidly later. Sometimes on cool deep rockwork where there are ample shade and moisture, a few plants may be found thriving well, but the case is so exceptional, that it can hardly be quoted as evidence of success. I should like to see a race of double Primroses, which would give us richly coloured flowers, yet thrive well and do anywhere here in the south. Sometimes in the north it is reported to be as difficult to repress leaf growth as it is here to induce leaves to grow.

A. D.

LILIES AND AMARYLLIS.

I HAVE bought some *Lilium album* Kratzeri, *L. Leichtlini*, *L. cordifolium*, and *L. Krameri*; also some *Amaryllis equestris*. Must any of the above be potted for the greenhouse, or will they grow outdoors?—W., North Row.

* * All the Lilies named may be grown in the open ground under certain conditions, and, as regards hardiness, will invariably endure very severe frost with impunity. *L. cordifolium*, being the tenderest of all, is sometimes killed even in cold frames by severe frost when not established, yet a little protection in the case of established plants in the open generally carries them safely through. *Lilium speciosum album* Kratzeri is the gem of its tribe—a valuable Lily either in the open ground or in pots for conservatory decoration. In the conservatory the spotless purity of its flowers is seen to great advantage. It is a free, vigorous-growing Lily, and succeeds well in good rich loamy soil, the deeper the better. Plant the bulbs 6 inches deep, and leave them undisturbed for a few years to form a clump. *L. Leichtlini* should be planted 6 inches deep in equal parts of peat, loam, and sand without manure, and is a charming species when well suited. For *L. cordifolium* a good bed of deep loam is most suitable. In planting this, however, it must not be buried in the soil, but the tops should be nearly even with the surface. For the present I should advise potting and planting in a cold frame till April or May, and then placing it out in a carefully selected spot. It is advisable to protect this during the winter season. It is a native of Japan, but too frequently confounded with *L. giganteum* of the Himalayas. *L. Krameri* is, perhaps, the most difficult of all to establish, simply because very few basal roots are emitted from the bulb during its first year in this country, and, in consequence, the energies of the bulb are exhausted in the production of the flower-stem and flowers. In the late Mr. McIntosh's garden at Weybridge this lovely species made itself perfectly at home in the *Rhododendron* beds and annually grew several feet high, the largest specimens (I speak from memory of a visit some years ago) bearing nine and eleven flowers respectively. Pot it at once in pure peat and sand, place in a cold frame, and give no water till growth commences, and then only in limited quantity. Let it make its full growth,

but do not, if you value it for the future, allow it to perfect the flowers on the plant. The moment the flowers show signs of expansion cut them off with a few inches of stem and place in water to develop. In this way you may save your bulb and enjoy the flowers also. An examination will decide the condition of the bulb, and if sound, plant it out in similar soil to that stated above, afterwards protecting from the winter's rain the first season. *Amaryllis equestris*, or more properly *Hippeastrum equestris*, will require pot culture in a warm greenhouse or stove. Pot at once and place in a moist temperature of 60° or thereabouts, syringing twice or thrice daily till active growth takes place, when water may be more freely given at the root and frequent syringings. If the bulbs are large and well matured, they should flower during April or May ensuing.—E. J.

BIENNIALS.

THE winter has already left its mark upon what are usually classed hardy biennials. Some plants seem to be so hardy that no amount of frost will injure them, but they suffer severely at times from excessive moisture when the winter is mild and wet. Not only here, but generally do I find that such comparatively hardy plants as *Pentstemons*, old and young, have been killed to the ground, and many right to the roots. The best batch I have are those raised from seed last spring. They had become strong and bloomed profusely in the autumn, but had to be transplanted in November. These, perhaps, because partially laid in the planting, and in consequence coming more under the snow, seem to be safe enough, and will, doubtless, bloom finely in the summer. All other older plants look as if quite killed, but I shall give them time to break up before finally destroying them if really dead. To be prepared for eventualities, seed has already been sown—in fact was sown in a bed in a cool house so early as January 30, and from this sowing I look for plenty of strong young plants to dibble out towards the end of April, and which will bloom from the middle of July onwards. It is, however, unfortunately not possible in every case to do so much to replace all other destroyed biennials. Wallflowers, for instance, present a deplorable aspect, especially all the earliest or strongest plants, and not more than one-third are really alive. We shall have to wait until next year before a fresh lot of Wallflowers will be induced to bloom. The dwarf compact-habited *Belvoir* yellow has come through the hard weather remarkably well. Not only does its compact habit save it from much harm and exposure, but it seems to be of hardier constitution than other varieties. *Antirrhinums* appear to be quite dead. These as a rule rank amongst the weakest of our biennials, and succumb to both frost and excessive moisture readily upon damp soils. Very young plants fairly well hardened and bushy, because pinched over in the autumn, stand best, but even these have suffered severely this time. There is no other course, therefore, but to sow seeds at once. I have sown in a cool house, looking for plenty of young plants to dibble out early in May, perhaps before that. *Antirrhinums* once got out safely will suffer but little from a few May frosts, whilst once rooted they come away very strongly, and bloom most abundantly all the rest of the season. Practically it is wisest to treat *Antirrhinums* as annuals, but if we would have extra fine summer spikes it is absolutely needful that plants be kept through the winter, as the sucker shoots which break up from the roots produce the finest spikes. Strong old examples carrying a dozen long spikes of flowers are superb border plants, and their absence this year, except in well-favoured gardens, is much to be regretted.

I met last autumn with a small plant in bloom of one of intense deep rich crimson, having a white throat. It was perhaps one of the most striking deep-coloured flowers I had ever seen. Fortunately, this was potted and placed in the greenhouse, where it is safe enough. I do not find that *Antirrhinums* thrive so well from cuttings as *Pentstemons* do. It is so very easy in the autumn to put in a few

score of cuttings of both into pots and stand them in a frame or house, but because the wood of the Snapdragon is more succulent the plants produced in the spring are rarely very good; indeed I have found early sown seed to produce better results. *Pentstemons* do so well from cuttings that where a good stock has been secured in time the loss of the old plants is of much less consequence.

Very serious indeed is the mischief wrought amongst the Stock family. It has been difficult enough to keep Brompton Stocks through ordinary winters even in sheltered places. Up to the setting in of the thaw there seemed just a possibility that the bulk of the plants, because rather late planted and somewhat less succulent than early planted ones usually are, would not be so badly hurt. A week of mild weather, however, dispelled the illusion, and now not one is left alive. The result hardly encourages any future attempts to grow Brompton Stocks. They will this summer at least rank amongst the chief absentees of our gardens. Happily, we can do something to replace this loss by early sowings of Ten-week, Pyramidal, and East Lothian varieties. By the aid of the earliest we may have plenty of Stocks in bloom from the end of June on till the end of October, and should there have been any Intermediates sown in the autumn and potted up for specially early blooming, the flowering period may date from early in May. We cannot, of course, obtain from any of the summer Stocks the superb spikes found on giant Bromptons. The giant branching Ten-week Stocks, both white and scarlet, are capital when got out early and in good soil, and have the merit of furnishing a fine lot of side shoots for cutting. Turning to biennials, which have done very well, foremost stand Canterbury Bells. These are naturally hardy, but being close-growing and tufty in the winter, were well beneath the snow, and now look very fresh and robust. These, at least where plentiful, will materially help to make garden flower borders gay in the ensuing summer. The varied colours, curious forms—both double and Hose-in-hose—and admirable habit all help to make Canterbury Bells very effective border flowers. Foxgloves, where put out last summer, are in capital form, and the large tufts of leafage fresh and vigorous. Old stools have rotted badly, and are in most cases killed outright. Happily, by sowing seed annually, such a supply of plants may be maintained as to render the holding over of old ones of no moment. Sweet Williams have not suffered from frost, but more from snow water and that deplorable affection—fungus. This disease manifests itself chiefly in the winter, and often literally eats the plants up, especially on stiff soils. Still, we have plenty of Sweet Williams left in the country, and there will be no lack of them presently in bloom, although much injured elsewhere. Honesty seems to have stood very well indeed amongst biennials. It will probably be found that if one-half be killed, we have a good half left alive.

A. D.

Anemone blanda.—In reference to Mr. Fison's note on the difficulty of procuring *Anemone blanda* in quantity, let him carefully collect and sow as soon as ripe his seed, and he will soon have abundance of plants. I have a panful of nice little seedlings growing fast, but I fear that the winter has destroyed my old plants; at any rate, I have none above ground now—a very unusual occurrence at this time of year. All bulbs are very backward this year here.—H. MILLINGTON, Bromsgrove, Worcester.

Mice destroying Hellebores.—Mr. T. Smith asks in THE GARDEN Feb. 14 (p. 140) if rats have been known to destroy Hellebore flowers. I once had a fine lot of plants entirely destroyed by garden mice. I put a light over the Christmas Roses before the hard weather set in and just as they were throwing up their buds. Owing to the hard frost I did not examine them for a day or two, but when I did I was astonished to find every bloom and stem eaten off, as if they had been cut with a sharp knife. I found the mice had come from an old bank about three yards off. I set some traps and caught thirty-two. Only while the frost lasted did they come, proving that hunger caused them to eat the Hellebores, as I have never known them touch them before nor since. Some of the plants had forty flower-stems.—F. HAND, Hollywood, Boscombe, Bournemouth.

THE HERBACEOUS SPIRÆAS.

THIS extensive genus comprises several species characterised by the beauty of their foliage, and the airy grace of their flowers. Of the larger herbaceous kinds none, perhaps, is more striking than *S. Aruncus* (Goat's-beard), a vigorous perennial, which grows from 3 feet to 5 feet high, and flowers in summer, producing its numerous small white flowers in long spikes, forming a terminal panicle. It is found in various parts of Europe, Asia, and America, and is a valuable subject for grouping with other fine-foliaged herbaceous plants. A rather common, but very pleasing British species is *S. filipendula* (Dropwort), which grows from 1 foot to 2 feet high, and has yellowish white flowers (often tipped with red) in loose terminal corymbs. When the flower-stems are pinched off it forms a very effective edging

no doubt, be considered a plant of high merit were it only an exotic. It is seldom seen in gardens, but there are often worse things to be found in our borders. As it is too well known to need any description here, I merely say that it deserves a place, if only for the sake of variety, in the mixed border, on the margins of shrubberies, or in the rougher parts of pleasure-grounds, where it may be advantageously planted with other subjects which do not require much looking after. Almost any soil will suit it; if moist so much the better. *S. caespitosa* is also a very pretty dwarf plant, and does well in an open position in a rock garden. T.

Chamærops Fortunei.—Long and severe as the winter has been, it has not injured this Palm outdoors, and I can strongly recommend it as one



Group of *Spiræa Aruncus* (Goat's-beard).

plant, the Fern-like aspect of its foliage rendering it very distinct from many other plants which are used for this purpose. The double variety (*S. filipendula* fl.-pl.) will be found useful in the mixed border, and is very pretty as a cut flower. One of the handsomest of the hardy herbaceous *Spiræas* is the American species known as *S. lobata* or *venusta*. It grows from 1½ feet to 3 feet high, and has deep rosy-carmine flowers in large terminal compound cymes. The foliage is also handsome. It does best in sandy loam, and is valuable for the mixed border or for planting on the margins of shrubberies or in beds among groups of the finer perennials. Another very handsome kind, somewhat resembling the last named, but dwarfier, is the Japanese species, *S. palmata*, which grows from 1½ feet to 2 feet high, and has crimson flowers in a many-branched panicle. The common British Meadow-sweet (*S. Ulmaria*) would,

of the finest ornaments anyone can plant if he choose the right spot. This is where there is perfect shelter, as what does more harm than sharp frost is the cutting winds, which drive the big leaves about and break the midribs. For hardy ferneries, where it can have a snug position, or as a basis for forming clumps of ornamental-foliaged plants during the summer, this *Chamærops* is of great value, and is one of the most striking objects we have, as our specimens are now large, with lofty stems, and the oldest flowers every year. At one time I used to protect them in winter, but I found that the damp engendered or held by the covering around their trunks did more harm than good, and I have abandoned the practice, and at the present moment they look as fresh and well as others do in a house.—S. D.

Spring bulbs and flowers.—What a quick resurrection seems to have taken place so soon after the severe frosts and snow. Snowdrops and Aconites are in full bloom, the one seeming to be hurrying on to get before the other, and both content with any posi-

tion. Whether in the open or under trees it seems to make little if any difference to their flowering, as clusters of them come crowded with blossoms, and how welcome they are! Snowdrops and Aconites are well adapted for the wild garden or shrubbery borders, as when fairly started they soon increase and gain strength, and are well able to take care of themselves. I have not had the pleasure of growing the *Chionodoxas* yet, but have now started with 500, and much wish they had been planted before.—S. D.

TIGRIDIAS.

IN those gardens where gay and striking flowers are both appreciated and desired during the summer and early autumn months, nothing can so well supply the want as these handsome *Tigridias*, or Mexican Tiger Flowers as they are popularly called. At a glance it may be seen that they are devoid of all formality either in foliage or bloom, and, therefore, the more welcome to such as incline to lovely flowers that cannot and will not lend themselves to the too frequent stereotyped arrangements of the flower garden, and which entail far too much labour for general adoption in gardens without producing an adequate return. But with *Tigridias*, as with many other plants, the few essentials in their cultivation are of a very simple character, a fact alone which may lead to some little neglect in this direction. One important point in connection with *Tigridias* is that of planting them in proper time. Much too frequently do we see the season for planting such beautiful flowers as these extended beyond any reasonable limit, and I am fully convinced that both the buyer and the seller, and particularly the latter, would reap considerable benefit by urging the necessity of having all such things planted in their proper places in good time. In the first place, the buyer cannot reasonably expect so full a measure of success from late as from early planting, nor is it likely that a bulb whose life's blood is gradually drained from it in the seedman's store-room can or will perform its proper functions in the matter of roots, leaves, and flowers. *Tigridias* in particular shrivel and waste away when kept dry beyond a reasonable time in a greater degree than most things. Not only does the planter suffer by securing only a dwarf stunted growth and a smaller quantity of flowers, but in proportion to that stunted growth do those plants produce smaller bulbs for the following year. Early planting, therefore, conduces to the production of a maximum of roots, and these in turn furnish better developed foliage and flowers, and consequently good plump bulbs when flowering is complete.

To obtain the best results from *Tigridias* they should be planted during the month of February in deep, well-enriched soil. April and May are much too late to produce anything like good results, though bulbs planted so late may and do flower, but they are not to be compared with early-planted ones. Those who have hitherto planted late will be surprised not only at the increased vigour of the plants, but at the profusion of their gaudy flowers also. Early planted *Tigridias* must be covered quite 5 inches deep with soil, and assuming they are to be grown in masses in beds, there is no plan better than removing the soil from the bed to a depth of 9 inches, and then forking in deeply a liberal supply of well decayed manure, afterwards returning some of the top soil to the depth required, and before placing in the bulbs covering the surface with half an inch of sand. Now place the bulbs at 6 inches apart each way and return the soil to cover them up. This will leave you with a bare surface for some time, but not necessarily, for by such early planting as this you will be enabled to carpet your surface with *Polyanthuses*, *Forget-me-nots*, tufted *Pansies*, *Saxifraga Wallacii*, or any such things that will furnish the surface of the beds and ensure a bright display of flowers also. In using such things the thoughtful gardener will not permit of his *Violas* and *Tigridias* being of similar shades of colour in any one bed—that is to say, a bed of white *Tigridias* should be carpeted by a deep golden or rich purple *Viola*. Of *Tigridias* most useful and ornamental for positions as above described, none will err in obtaining any or all the varieties of *T. pavonia*, the predominating colours in the group

being yellow and orange-scarlet abundantly spotted with red and scarlet, also white with crimson spots, of which latter a coloured plate appeared in THE GARDEN of January 5, 1884. It may be well to remark that the individual blooms last but one day, expanding in early morning and fading with the setting sun, but the profusion of flowers from well grown plants furnishes daily supplies, and spikes of these placed in water will continue to perfect and expand the remaining buds, though not so quickly as those still upon the plants with the full assistance of sunlight. E. J.

WINTERING DELICATE ALPINES.

TO THE EDITOR OF THE GARDEN.

SIR,—I have been greatly interested by Mr. Williamson's letter on this subject in your issue of January 24, to which I should have immediately replied, but that I waited to see what your best English cultivators, who are in a better position than I am to judge of what suits them best, would say on the subject. In your issue of February 7 I see two letters in which several different ideas are broached, but of these only one appears to me to be correct and in actual accordance with the measures which I have been compelled to adopt, from the results of both my own experience here and that of M. Ed. Boissier at Valeyres.

Without meaning to reject *à priori* the idea of Mr. Wood, who advises that panes of glass should be placed over the plants, so as to allow the air to circulate freely around the foliage, I think it is only applicable to a certain number of subjects which are not really rock plants, but species which grow in the open ground, and which easily rot in consequence of the natural softness of their tissues. There is, besides these, quite a list of alpine plants of the handsomest and choicest kinds which are not adapted for Mr. Wood's "glass" treatment, because their foliage continually absorbs any moisture that may trickle over the surface of their position, and retains it there in a more or less stagnant condition. Your correspondent "E. J." has, but without sufficiently insisting upon it, given the true prescription for the remedy when he says, "Where conveniences do not exist for wintering the more delicate alpine plants, they should be grown on the perpendicular faces of the rockery, the roots being tightly clasped between two pieces of rock," and further on he says, "Another capital way of accommodating these alpsines with comparative safety is that of inserting them between the joints of walls composed of burrs and built with soil and mortar mixed." This is almost identical with the method which I frequently recommended last year in the columns of one of your contemporaries, and which M. Ed. Boissier has so judiciously employed at Valeyres, where on an old retaining wall with a north-west aspect he has succeeded in acclimatising the most delicate species of rock plants. On this wall I have seen a large number of splendid plants of *Saxifraga florulenta* (Mor.) in the finest condition, which have been growing there for the last twenty-five years. The most delicate species are the *Androsaces* (*helvetica*, *imbricata*, *pubescens*, *Packeri*, *Charpentieri*) and the *Saxifrages* (*cæsia*, *valdensis*, *diapensioides* and others, which form dense tufts and have crowded imbricated leaves, and especially the kinds which have soft tomentose foliage). Now all these kinds succeed admirably when planted on the perpendicular face of an old wall, and if the stones of this are of a calcareous nature, or, what is still better, of tufa, it is a great advantage, as the plants thrive in proportion to the porosity of the stones and their capacity for absorbing moisture. We know that in the native habitats of

these plants the rocks act like sponges in tempering and moderating the dryness of the atmosphere. I have, however, treated on this subject at length on page 85 of my book "*Les Plantes des Alpes*," a little volume which very many English cultivators have added to their libraries.

I do not agree with your correspondent "E. J.," where, in speaking of the construction of a wall for growing these plants, he advises that soil should be mixed with the mortar, for my own experience has taught me that this is injurious to the plants, besides being entirely unnecessary. In their native habitats rock plants send their roots into the fissures of the rock, where they meet with only two things, viz., moisture and the undissolved component elements of the rock. By the aid of the moisture the rootlets of the plants are enabled to dissolve the nutritive elements contained in the rock and also to assimilate these elements, whether they be of a granitic or a calcareous nature, and therefore we should avoid giving any nutritive soil to the plants, as this would hinder the roots from developing properly and penetrating deeply into the fissures in search of their natural food; moreover, it would abolish the necessary distinction between the requirements of the flora of the granitic and of the calcareous formations. In the natural state the roots of the plant dissolve the rock and assimilate its essential element. The plants on the granitic formation assimilate the silica of the granite, while those on the calcareous formations assimilate the lime of the lime-stones. Now as the plants which assimilate silica dislike lime, and those which assimilate lime dislike silica, it is plain that some attention should be given to the nature of the materials employed in the construction of a rockwork which would be, as I understand it, suitable for the culture of the plants in question. I must, however, observe that the greater number of the species of the exquisite flora of the Alps grow naturally on the calcareous formations, and can, consequently, be most successfully cultivated by planting them in the chinks and fissures of a limestone wall.—H. CORREVEYON, *Directeur du Jardin Alpin, Geneva.*

THE WEEK'S WORK.

ORCHIDS.

So far the weather in the country has been very fine, bright sunshine almost every day, but near London the fogs are yet troublesome. I saw the shading material used on a *Cattleya* house near London about the middle of the present month, and the gardener told me that he did not even care to have the foliage exposed to such bright sunshine as we had at that time. I advise all shading to be up now, in order that it may be used as soon as the sun shines out strongly. We had two very foggy days last week, when a little further out the sun shone gloriously, but the effects of the fog were not visible upon the flowers of the white *Lælia anceps* nor those of *Cattleya Trianae*. At this time we repot the *Anguloas*. There are three distinct species in our collection, *A. Ruckeri*, *A. uniflora superba*, and *A. Clowesi*; all are either now, or will be soon, starting into growth, and I think it a good plan to repot them annually at this time. The roots are as dormant and lifeless-looking as the leafless bulbs, and the plants can be safely repotted. A dozen bulbs may be planted in a large pot, or three in a 6-inch or 7-inch one, using good fibrous peat with a little *Sphagnum*. The *Thunias* are also dormant as yet, but they may also be repotted, for with a high temperature and moisture at the roots, they will start into growth immediately. The pots for these must be half full of drainage, the best potting material being tough

fibrous, partly decayed loam mixed with peat. Some of the species make tall growths like slender canes. *T. Marshalli*, for instance, will make enormous growths in the warmest house, and sometimes produce no flowers. When these have to be repotted, there are scarcely any roots to anchor them in the potting soil, and each long growth has to be supported with a stick. The only way to get flowers on such as *T. Marshalli* is to place the plants as near as possible to the glass in a warm house, and where they receive very little shade. *T. Bensoniæ* blooms much more freely, every strong growth flowering under ordinary conditions. The deciduous species and varieties of *Calanthes*, such as *C. Veitchi* and the *C. vestita* section, with the numerous hybrids raised from them, form quite an interesting and useful class of flowering plants, even where a complete collection of Orchids is not grown. They do well in any warm stove, planted in well-drained pots filled with good fibrous loam, decayed cow manure, and sand, with some broken crocks and pounded charcoal to keep the compost open. *Limatodes rosea* is very seldom seen, owing to its rather feeble constitution, but its beautiful soft rose-tinted flowers are charming when well developed. There are numerous hybrids of the *C. vestita* and *Veitchi* types, such as the truly beautiful white form of *Veitchi*, the more deeply-coloured form of *Veitchi* known as *C. Sedeni*; *C. porphyrea*, a Burford Lodge hybrid of great merit; *C. lentiginosa*, and many others. There is also a very distinct form of *C. vestita* grown as *gigantea*, and another known as *Regnieri*, so that by the additions that have been made during the past few years *Calanthes* may be had in bloom for at least six months in the year. They all need repotting as above, and plenty of heat and moisture when making their growth. The evergreen species are now throwing up their flower-spikes, the most valuable of them being *C. veratrifolia*. *C. Domini* is a beautiful plant, now very uncommon. There is some danger of green-fly getting amongst the unopened flower-buds, and if they are not destroyed the pure white flowers of *C. veratrifolia* will be quite disfigured. I find fumigating with tobacco smoke to be the best plan for getting rid of these pests. I take the plants out into another house, as our *Cattleya* house contains *Odontoglossum vexillarium* and a few others that will not stand fumigating enough to kill the insects.

Sobralias that may have been kept rather dry at the roots and comparatively cool during winter should now have a warmer temperature and be freely supplied with water. Mr. Heims, when gardener to Mr. Philbrick, Q.C., used to grow and flower a handsome variety of *S. macrantha* remarkably well. The plant was well known at the Royal Botanic Society's exhibitions some eight or ten years ago, and I certainly never saw a better grown plant. It was placed in a cool vinery and received no water in winter, and was started in good moist heat in February, flowering splendidly in May. Good loam is the best potting soil. The beautiful *Cymbidium eburneum* does well with me, producing numerous fine spikes of bloom and healthy green leaves annually; the flowers are now appearing. *C. Lowianum* is a much more vigorous species also producing its flower-spikes. They need not be repotted until the flowering period is quite over. The month of June seems to answer well. The late autumn-flowering species of the same type, such as *C. Mastersi* and the even more beautiful *C. affine*, make their growth at a different period and may be repotted now. The true form of the last-named species seems to be intermediate between *C. Mastersi* and the rather uncommon *C. Parishii*, and flowers more freely than the last-named. The houses are now becoming well furnished with Orchid blooms, and a succession of *Dendrobiums* should be kept up by introducing into heat different plants of *D. nobile*, *D. Wardianum*, *D. Findleyanum*, *D. crassinode*, &c. The old well-known *D. nobile* seems to stand cool treatment in winter better than most. As the plants pass out of bloom they may be repotted; root growth does not commence until after the new growths have well started. A word of unstinted praise ought to be given to the hybrids, of which *D. Ains-*

worthy is the type. This beautiful sweet-scented Dendrobe is the type of which the even more beautiful forms, such as *Leechianum* and *splendidissimum*, are sub-varieties. They may either be planted in baskets or be grown in pots in as high a temperature as can be afforded them as soon as they have started into growth. J. DOUGLAS.

PLANT HOUSES.

STOVES.—In continuance of my remarks upon potting it is essential to add a few words upon the necessity of finishing up this kind of work as early as possible in March. From the middle of February to the end of the first week in March is in my opinion the best time of the year for repotting. I am no advocate for potting extremely early in the season before there is any likelihood of active growth commencing. Repeated waterings given to plants freshly potted before root action begins in earnest is detrimental to the future health of the plants, the soil in many instances becoming sour before it is possible for it to be permeated with roots. As soon as plants are potted they ought to commence to grow apace after a resting season. This they will do under ordinary stove treatment if potting is done at the time recommended.

RONDELETIAS.—These stove plants are not nearly so much grown for autumnal flowering as they should be. For September and October they are most valuable. Their cultivation is not apparently understood so well as it should be. I have advised as regards their pruning in a previous calendar, but if potting is needful it should be done now. They require somewhat the same kind of treatment as Indian Azaleas, except the pruning and additional temperature to grow them well. Plants which are not in good health should be reduced carefully and repotted into fresh soil. Good peat with a slight dash of fibrous loam will suit them well, potting them firmly and afterwards exposing them to all the light possible to avoid a weakly growth. *Medinillas* are fine plants for a large stove with their grand panicles of flowers. These usually do well in rather small pots, but if in need of fresh potting it should be done now (soil same as for *Rondeletias*), preserving the roots as far as possible. The plants will then gain a good hold upon the soil before the flowering time comes round. The *Hibiscuses* do far better from a flowering point of view if allowed to be pot-bound; when any fresh potting is necessary give them but little fresh room. Plants in large pots will continue on from year to year for some considerable period with annual top-dressings of good soil. Loam is the best soil for them when of large size; smaller plants may have a little peat or leaf-soil. *Hoyas*, if carefully looked after, need but little fresh potting. More often than not the *Hoya* is ruined by the application of too much water at the roots, especially in the winter season. When fresh potting is done, use nearly all peat with some knobs of charcoal and press the soil quite firmly. Those who have a spare plant of *Hoya bella* would do well to grow it in a basket. In this way it does remarkably well and oftentimes flowers more freely than in pots.

STOVE FINE-FOLIAGED PLANTS.—These are quite essential to every collection, but should not have too great a preponderance over the flowering plants. Potting in nearly every instance should now be seen to. *Crotons* are amongst the most ornamental when well grown, affording an infinite variety both in leafage and general habit. Young plants which promise well to make good specimens should not be confined too long in small pots, but be encouraged to make good headway. Those which are stunted, or in any other way unhealthy, should only be kept long enough to get cuttings if needful, and then be consigned to the rubbish heap. There should not be any room in our plant houses for sickly or ill-shapen plants, especially when treating with any genera of which it is an easy matter to obtain good examples. At the best of times the room is all too limited to grow plants that are no ornament, but rather the reverse. I am disposed to allude to this more particularly whilst referring to *Crotons*, as many examples may be seen which are not worthy the name of *Crotons* in any sense.

If not well coloured for the variety the plant loses a deal of its value as a decorative subject. This, however, need not be, as can be abundantly testified to by those who make it a point to grow them well. Some plants of *Crotons* may stand in need of pruning; this should and may be done with advantage, cuttings thus being afforded for future plants. Large plants of *Crotons* should as far as possible be kept in a good state of health; thus they are fine decorative objects. To effect this, potting is not necessary every year, but when done it should be done well. Reduction of the ball is better than using pots of abnormal size; when such work is contemplated it should be seen to at once. The soil for *Crotons* which I recommend is good peat and loam in about equal proportions with some bone-meal or half-inch bones and plenty of sand. Pot firmly, so as to secure, by that and other means, plants of good colour. *Dracenas* should now be looked to, but if in a good state at the roots it will be possible to let them stand over. Pots of extra size are not needed to grow plants large enough for all practical purposes; in fact, I consider them to do better when in pots which are small in comparison with the plants. Those *Dracenas* which have served their time and are getting too tall with bare stems should be at once cut up for propagating, preserving the top as a cutting if it be healthy. *D. gracilis* and *D. Goldiana* both strike best from young shoots taken off the plants when of fair size after the top has been struck, instead of cutting up the stems. In repotting *Dracenas*, a little pure soil is a capital addition to the soil, which in other respects may be the same as for *Crotons*, minus the bones. In examining *Dracenas* at the roots, it does not do to be led away with the impression that the roots are dead or decaying in every instance when they have lost their outer and more fleshy covering. From these roots fresh ones which will be white as the others once were will issue forth in quantity. In both *Crotons* and *Dracenas* a sharp look-out should be kept for any traces of thrips, and means employed, either by fumigation or sponging, to exterminate them at once.

DIEFFENBACHIAS when well cared for are fine objects in any stove. Unless large plants are required as specimens, those grown upon the single stem will be found the most ornamental. If the plants are extra tall they should be cut down and the tops struck as in the case of *Dracenas*; any further increase may be effected by eyes, or the old stools kept and allowed to break afresh. In the latter case the plant should be dry when cut down to prevent bleeding as much as possible. For soil nearly all loam is preferable, with some leaf-mould as an addition, in quantity according to the character of the loam. Moderately firm potting is all that is needed for *Dieffenbachias*, as they are very gross-rooting plants, delighting in an abundance of moisture. A word of caution is needful to those who have not had much experience with these plants as to their poisonous properties. The knife employed should be well cleansed, and on no account should any of the sap be allowed to touch the lip or tongue, otherwise unpleasant recollections will ensue. When the tops are kept for young plants, they should be cut off close up to the leaves and struck in a brisk heat.

PALMS.—Those which thrive in a stove temperature should now be potted where needful. This will not be the case in every instance, for by liberal feeding they will continue in good health for a long time. Those which have roots rather finer than others and more wiry-looking are, generally speaking, the most delicate growers. These should have a good amount of peat rather than so much loam, whilst with the coarser rooting ones the soil should be *vice versa*. In both cases I have found bone-meal for small plants and half-inch bones for larger ones to be capital additions. The soil in which *Palms* are potted may be considered as being permanent; it behoves us therefore to give all possible care in the selection of good material in which to pot them. They should have the best of both loam and peat in order to make the utmost of the compost, so that plants as good as possible may be obtained with the least possible root room. Large shifts are not in any case advisable. I have

always obtained the best results by moderate shifts only with firm potting. Two of the chief accessories to successful *Palm* culture are to keep the roots in good condition, and supply the plants with an abundance of water in which they delight. Some *Palms* do exceedingly well in very small pots compared with the size of the plants themselves; such, for instance, as *Areca lutescens*, *Euterpe edulis*, *Cocos plumosa*, *Chamaedorea graminifolia*, *Dæmonorops fissus*, and *Stevensonia grandifolia* amongst kinds usually grown in the stove. The potting of those kinds best suited for cooler treatment should be left for at least another month.

AMARYLLIS.—The remainder of these should, if in need of fresh potting, be now seen to without delay before the roots get active. Be cautious still with the watering. When growing freely and in good condition at the root, they will take a good supply of nourishment; it must, however, be borne in mind that more *Amaryllises* are probably ruined by excess of moisture at the root than by any other cause. *Gloxinias* to form a succession should be placed in more heat now after potting; in fact, the main stock should be potted, but a part kept cooler than the rest. Seedlings of this year ought to be pricked off as soon as they can be handled in a fair way and be kept growing briskly. Of their close allies, the *Streptocarpus*, we have already a nice batch thus treated, consisting of the new race of hybrids. A portion of the stock of the *Achimenes* ought now to be started for flowering in June. In doing this, my plan has been to shake the corms out of the soil, sort them, and then make them up afresh in pots or pans according to the purposes for which they may be grown. These prefer a light and rather rich soil, the chief portion of which may consist of leaf mould. For the present the *Gesneras* should be kept dormant, being of most value as late autumn-flowering plants.

DECORATIVE PLANTS IN SMALL POTS.—Under this heading I include a good stock of such things as *Selaginella denticulata*, *S. caesia*, *S. Martensi variegata*, and *S. apoda*, with *Panicum variegatum*, *Ficus repens*, *Fittonia argyreneura* and *F. Pearcei*. These are all well known as useful plants when in good condition; but in order to have them thus, a fresh start should be made every spring, and later on, too, when a large stock is required. Cuttings of these should be made up into 3-inch and 4-inch pots, and be kept rather close and moist till root action commences afresh. To this list should be added *Caladium argyrites*, which is of more real value in these small pots than in any larger sizes. *Cyrtodeira fulgida* and *C. metallica* ought also to be added. These are not known nearly so well as they deserve to be, otherwise more value would be set upon them, especially the last-named kind. *Sonerilas* are also well suited for supplying small decorative material. A good stock of all the foregoing will be invaluable where any amount of grouping or dinner-table decoration has to be done. JAMES HUDSON.

HARDY FRUIT GARDEN.

APPLES.—Although many fairly well formed pyramids are to be seen in private gardens, the Apple does not lend itself readily to this form of training, the informal bush being a better and simpler form of growing the trees. Nurserymen, as a rule, attempt to form their young trees into pyramids, and such more often than not would be supplied even if bushes were ordered. These, however, can be very easily changed in character. All that is necessary is to boldly cut out the centre of a pyramid, and if there is an insufficiency of side branches, to also cut these freely back. When there are enough branches to form a well-balanced head leave them alone, all the pruning necessary in after years being the thinning out of young shoots where they cross or crowd each other, while any inclined to grow away from the rest may be cut rather hard back. This method of pruning also answers well in the case of half standards—another form of tree admirably adapted for garden culture. If formal bush-shaped trees are preferred, select from one dozen to twenty of the best placed branches and carefully stake these upright in two

circles, the centre of the tree being kept quite open. These trained branches should be left unstopped till the height fixed upon is reached, or, say, about 5 feet in the case of trees on the Paradise stock and 9 feet or more on the Crab. All lateral growth not required for furnishing should be summer stopped, and at the winter pruning be farther shortened to 1 inch in length. In time the branches will become sufficiently stiff to dispense with stakes, and all ought to be well and thickly furnished with fruiting spurs, but they will require to have the side shoots shortened back at least once a year, or at the winter pruning. Pyramid Apple trees should be grown and pruned much the same as Pears, the cordons also requiring similar treatment.

MOSS-COVERED TREES.—Apple and Pear trees growing in moist localities, notably where clay abounds, are liable to be overrun by Mosses and Lichens. Nor is this state of affairs easily altered, both being liable to return in the course of two years after they have been cleared off. First, therefore, see if anything can be done towards rendering the position somewhat drier, this being done by draining. Old drains are apt to become choked, and in very many instances were originally laid too deep to be effective, being powerless to draw water through a great depth of solid clay. The other extreme must also be avoided, too many drains impoverishing the ground. In this, as in various other matters, the cultivator must be guided by circumstances. A fresh system of drainage has been known to quite clear Apple and Pear trees of Moss and Lichen, these failing to live where there is only a limited amount of moisture in the atmosphere. It is not advisable to wait for this to take place, the wiser plan being to either well coat the stems and principal branches with strong lime-wash, applied with an engine or syringe, or else to dust them over with newly-slaked lime when they are in a damp state. Scraping them clear of the troublesome parasites and then well brushing in a strong solution of soft soap and thin brine is a slower, but most effective remedy, this also clearing off other troublesome pests.

AMERICAN BLIGHT.—It is doubtful if the late frosts have destroyed the American blight, a pest particularly troublesome among Apple trees. At the present time the insects are to be found in crevices and cankerous growths which they bring about, but a stiff brush well charged with petroleum will destroy all it comes into contact with. This remedy if persevered with will effectually rid the trees of the aphids, and prove harmless in other respects. Neglect these simple precautions, and it will not be long before the trees are overrun by large clusters of the insects, and further healthy productive growth be out of the question.

IMPROVING TREES BY GRAFTING.—Very much may be done towards renovating and otherwise improving various fruit trees by re-grafting. For instance, rather than sacrifice a large healthy tree of an inferior variety, the wiser plan would be to completely change its character by re-grafting with a superior sort. In this manner a large free-bearing tree may be had in about three years from the time of grafting, and not unfrequently crops are borne even sooner than that; whereas it would take young trees two or three years longer before they arrived at a fruit-bearing size. These remarks apply with equal force to wall trees of various descriptions, as well as pyramids, bushes, and standard trees. It is yet too early to proceed with this work, but the grafts ought ere this to have been cut from the parent trees and healed in behind a north wall in order to retard their growth as much as possible, it being of the greatest importance that the sap in the stocks be moving in advance rather than on a level with or behind the scions. All stocks, whether large trees or young plants prepared especially for grafting, should at once be headed back, there being less danger of the bark shrinking at the edges when they are cleanly cut over several weeks in advance of grafting. It is not necessary or advisable to head back large trees too freely, the better plan in the case of dwarfs, pyramids, and orchard trees being to insert one or two grafts

in all the medium-sized branches, well formed trees soon being the result. Cordons should be headed back to near the bottom of the branches, and all the branches on horizontally trained trees to within 4 inches of the main stem. If preferred, one half of a tree may be grafted one season and the other at leisure.

FORMING NEW LEADERS.—Not unfrequently wall trees, more especially of Pears, come to a standstill, no ordinary measures having the effect of making them extend their leaders. In some instances the central growth only fails; in others several of the side branches cease to make any progress, and the trees are of imperfect form or fail to properly furnish the walls in consequence. It has been found that re-grafting these stunted leaders will frequently be followed by increased activity, the young shoots from the graft making considerable progress before they became stunted. This plan of forming fresh leaders is well worthy of a trial. Head back the stunted branches now, and when the sap is on the move in March, re-graft with healthy scions either of the same variety as the tree operated upon or of some other good Pear.

FRUIT GROWER.

THE KITCHEN GARDEN.

SEAKALE.—Advantage should now be taken of digging up all Seakale required for forcing, as it will now soon be starting into growth naturally, especially if the present exceptionally bright weather continues. For the latest supply the crowns must now be covered, as if allowed to remain uncovered until growth has started the produce does not become sufficiently blanched. The mode of covering will entirely depend upon the arrangement of the crowns in the beds. Whatever means are adopted, light must be completely excluded. Of course the ordinary Seakale pots or boxes will be brought into requisition, taking particular care that the lids are close fitting. Coverings of leaves or loose litter may also be placed around and over the pots. Where the crowns are arranged in rows, long and narrow boxes with movable lids are very suitable, these being covered with litter. Planks or boards placed on edge along each side of the rows, the tops being covered with slates, and the whole surrounded with dry ashes or litter, also make a good covering. Clean straw by itself is a capital blanching material, but it must be put on of sufficient thickness to completely exclude light. Light soil, leaf-soil, and even ashes are often used where other means are absent. I do not care for such materials for covering, however, as they tend, especially during a wet time, to render the produce discoloured. In ashes there are often foreign substances which are not at all desirable. Clean Cocoa-nut fibre refuse, however, is as good as anything, the stems rising very clean. It is not generally known what a delicious dish the green tops of Seakale make. All crowns not required for blanching we allow to start into growth, and when of sufficient length the heads are cut off and cooked as a green vegetable.

SEAKALE CUTTINGS.—It is now quite time the cuttings were all made for future planting, as the earlier the roots are put out the longer the season of growth. It must also be borne in mind that by the buds starting into growth previous to planting quite a difference of three weeks or a month in the length of the growing season is obtained. The earliest made cuttings are already growing, but those made at this date should be started into growth, by placing them in boxes of light soil in a gentle heat. As long as the buds are just started at planting time it is ample. When planting, overcrowding is a mistake, as this tends to prevent the roots, or rather crowns, becoming as fully developed as they should be. A foot between each set and 2 feet between the rows is a fair distance. The tops of the sets should be placed about an inch below the surface. On clay soils it is advisable to sprinkle a little light soil or burnt garden refuse along the trench when planting.

CELERIAC.—The seed of this should now be sown in a box of fine soil and raised in a gentle heat. As soon as large enough, prick the seedlings out

into a frame of light and rich soil, taking care that the plants are not inserted too deeply, as deep planting favours sucker growth, which must be prevented. Water must be applied very freely throughout the growing season. When ready for planting out, form a bed of light and rich soil. Unlike Celery, Celeriac must be on the level, taking particular care not to plant too deeply.

PARSNIPS.—Although on cold heavy ground the sowing of Parsnips may well be deferred for some time, yet on light or gravelly soils it is an advantage to sow early or rather during the early part of March if the soil should be in good working order. Recently manured ground is not suitable, this often being the cause of the roots becoming forked. It must not be inferred that good roots will be forthcoming from poor soil. The ground for Parsnips should be deeply worked to allow of the roots becoming fully developed. Ground, however, which has been well manured for a previous crop should be selected, as the manure will have become sufficiently incorporated. Previous to sowing, it is a good plan to apply a dressing of soot and burnt garden refuse, well working it into the surface. If the ground should be light and spongy, the surface should be equally trodden over. The seed should be sown thinly in shallow drills 15 inches or 18 inches apart. Thick sowing must not be practised, and instead of scattering equally along the drills, two or three seeds may be placed at intervals of a few inches, and as soon as the seedlings are above ground and large enough they must be singled out.

OLD ROOTS OF PARSNIPS.—These should now be taken up, as they will not be further improved by remaining in the ground. Store away in a cool shed and cover with light soil or sand, for if allowed to become dry the quality deteriorates.

GLOBE ARTICHOKE.—The litter surrounding the stools may now be cleared away and the soil about the roots have a dressing of rotten manure and be lightly forked in. The stools must not yet be disturbed for increase of stock, as it is advisable that the suckers make a considerable growth before they are detached. Where it is intended to increase stock by seed, if this has not been attended to by raising the plants in heat, the seed may now be sown thinly in rows where the plants are to stand. The soil must be in a friable condition, and should also have been previously well manured.

HARDY WINTER GREENS.—Green vegetables provided for the main supplies from now onwards and through the early spring months will no doubt have been seriously crippled or swept away in many gardens, but happily not in all. The Broccoli has certainly suffered most severely, and it will be a considerable time before any commence to turn in. Those plants which were of a large size have suffered the most, as on looking over a batch of Model sown the first week in June for affording late supplies, the majority are uninjured. Certainly the plants are small, but no doubt they will turn in. Cottagers' Kale and the Dwarf Green Curled have passed through the ordeal well. Asparagus Kale is absolutely uninjured except a few old leaves. The old foliage having been cleared away, every encouragement must be given to keep the plants growing by making the soil firm around the stems.

EARLY TURNIPS.—Although it would be very unwise to depend upon a sowing of early Turnips made at this date, yet provision should be made for sowing on a warm border. The variety best adapted for the early sowing is the Early Milan, this being much superior to the Early Munich. By making a small sowing at this date, to be followed up by successional sowings at intervals of a fortnight, there need not be any difficulty in keeping up a supply. If there should happen to be a few spare lights at disposal, they could not be put to better advantage than for covering a portion of the earliest sowing, bolting being thereby considerably lessened. Poor soil is not at all suitable for the growth of Turnips, this favouring bolting as much as anything. The ground should be rich and the surface brought to a fine tilth. The seed should be sown very thinly in shallow drills about 15 inches apart. Thick sowing is very injurious. As soon as fairly above ground the sur-

face must be frequently stirred, this favouring free growth as much as anything.

SUCCESSIONAL PEAS.—A successional sowing of the earliest varieties should again be made, these following very quickly those of the earliest sowings. By making this provision in conjunction with any of the recognised second earlies, a succession may be kept up, especially if the season should happen to prove a late one. Every encouragement must be given to the young Peas as they appear above the ground. Timely hoeing being an incentive to free growth, this useful operation must be practised, and as soon as the growth is an inch or so above ground the rows may be earthed up, and have small sticks placed to them at once for additional protection. The earliest Peas being such an important crop, every means must be taken to encourage free growth to hasten them on, as in a season like the present, when in many gardens almost every green vegetable has disappeared, the earliest gatherings will be anxiously looked forward to.

NOVEMBER-SOWN PEAS.—During a winter like the past it might have reasonably been expected that these would have been injured past recovery, but such is not the case, as upon a warm raised border we have full rows from end to end of American Wonder and William Hurst. They were not sown until the last week in November, so did not appear above ground until the middle of February. Whether they will turn out as satisfactory as those sown in pots remains to be proved. As a rule in ordinary seasons those sown in November are generally the earliest. Y.

STOVE AND GREENHOUSE.

ARUM LILIES.

(RICHARDIAS.)

THESE are everywhere in demand about Christmas and Easter, and great numbers of them are brought into the market during these two periods. By some they are grown in pots throughout the whole year, while others, to economise labour, plant them in the open ground. Apart from the labour question (generally an important one), they form much stronger plants, and are therefore more likely to flower when planted out than when confined to pots throughout the season. Being semi-aquatic, a low-lying, but sunny spot, where plenty of water is at hand throughout the summer, suits them best. Towards the end of May they may be turned out of the pots, the soil shaken from them as far as possible without injuring their roots, and divided into three or four sizes preparatory to planting out. After all are planted, a good watering is given to settle the soil about their roots, and should the weather be favourable they soon commence to grow away freely. The only attention required during the summer is to keep them clear of weeds, and give a thorough watering whenever required. Thus treated, most of them form good, sturdy plants by the end of the summer or beginning of autumn, when they are carefully lifted, potted in some good, open, loamy soil, and kept close in a frame till root action recommences. At all times water must be liberally supplied, and when the pots are filled with roots a little liquid manure may be advantageously given them.

The variety known as Little Gem grows from 9 inches to a foot in height. The illustration shows the ordinary form of *Richardia* and the seedling variety alongside of it. Mr. Gumbleton, whom we have to thank for the photograph from which the engraving was made, thus writes concerning it:—

I consider the new miniature *Richardia* Little Gem (to which a first-class certificate of merit was awarded by the floral committee of the Royal Hor-

ticultural Society on October 14, 1890) to be a most valuable and charming addition to our cultivated greenhouse plants, and from its compact habit of growth and the freedom with which its blossoms are produced, likely to be exceedingly useful. It was raised and sent out by Mr. F. Elliot, of Springfield Nursery, Jersey.

CHOROZEMAS IN BLOOM.

To see even an award of merit bestowed at the last meeting of the Royal Horticultural Society upon a *Chorozema* strikes one as especially noticeable, as the various New Holland plants have so long rested under a cloud that it seemed as if we should never again find their merits recognised in any way. Grown in a 4½-inch pot, the plants of *Chorozema* Lowi exhibited at the last meeting of the Royal Horticultural Society by Messrs. Low were neat little bushes about 18 inches high, each plant having but a single stick, to which a few of the principal branches were secured. Each specimen was profusely laden with its pretty bright coloured blossoms. The different *Chorozemas* vary a good deal when raised from seed, a fact which a few years ago was well exemplified at Kew, there being in the temperate house a very interesting series of seedlings in flower, which differed from each other

planted out. In doing this, the same care should be taken to ensure thorough drainage. The *Chorozemas* are sometimes seen as trained specimens, and when treated in this way, the one great thing to avoid is an excess of formality, as if just enough ties are used to secure the branches in position, the results are vastly more pleasing than if tied in stiffly. When stakes and ties of all kinds are dispensed with as far as possible, a light and informal specimen is the result, and from a plant such as this beautiful sprays can be cut if required which will remain in beauty some considerable time in water, while for button-holes they are very useful. One great advantage possessed by these *Chorozemas* when in a vigorous condition is that their flowering season is spread over a lengthened period, the most noticeable in this respect being *C. cordatum*, which will bloom more or less throughout the greater part of the year. Insect pests seldom cause any trouble, and, as a rule, the only thing that need be considered is red spider, which if allowed to go on unchecked will soon render the foliage sickly. In any selection of the best *Chorozemas* the new form *Lowi* must be assigned a place, and another which should on no account be omitted is *flavum*, as the flowers are so distinct from those of any of the others, being of a clear yellow colour. H. P.

PERPETUAL FLOWERING CARNATIONS.

THERE has been a great advance in recent years in this section of Carnations. Many additions have been made to it in the shape of new kinds, differing considerably in their shades of colour from the old varieties that were in existence when the cultivation of the perpetual flowering sorts became more general. Not that by any means they are yet grown nearly to the extent that their merits entitle them to. Many gardeners who have to keep up a continuous supply of cut flowers appear to be shy of undertaking the cultivation of these Carnations. Possibly one reason for this is that it takes longer from the time the plants are propagated, either from cuttings or seed, to get any return in the shape of flowers than it does with most soft-wooded subjects. The white and the red varieties are the most generally useful, and of these there are now a number of well proved sorts; but there is much interest attached to raising the plants from seed. It is, however, well to bear in mind that even when the seed saving is confined to the produce of plants that are perpetual in their habit of blooming many of the seedlings so raised will only be summer bloomers, and not such as can be depended on to give flowers in winter.

To admit of the plants gaining anything like a reasonable amount of strength the first summer the seeds need to be sown early, not later than the present month. At no stage of their existence will Carnations bear to be hurried, though with a genial temperature of about 55° the seeds vegetate much more quickly than when quite cool. Sow in large-sized seed pans or shallow boxes. Sifted loam—which if of a heavy nature may have a little leaf mould, also passed through a fine sieve, mixed with it, adding to the whole a moderate amount of sand—forms a suitable material to sow in. The whole of the loam should be passed carefully through the hands to see that it is free from wireworms. These pests have a particular liking for Carnations, and if only one or two of them happen to be present in the soil, they will make short work of the seedlings as soon as they begin to grow. Drain the pans or boxes sufficiently and press the soil down moderately. Put the seeds in about an inch apart, and cover them with a little fine material, pressing it down. In sowing fine seeds of most things it is an advantage to press the soil down in the manner advised, as it prevents the surface drying quickly, and in this way less water needs to be given until the young plants appear. The less water that is required, the less danger there is of any of the seeds perishing. As soon as the young plants appear the pans should be stood close to the glass. If this is not done in the temperature named the seedlings will become drawn and weakly, a condition which renders them of little use. When they have formed a few leaves put them singly into small



Richardia athiopica Little Gem. Engraved for THE GARDEN from a photograph sent by Mr. W. E. Gumbleton.

in many well-marked features. Such being the case, it is necessary to propagate the best kinds from cuttings to ensure correctness, and they can be increased in this way more readily than many other hard-wooded plants. The cuttings should be formed of the half-ripened shoots, which if dibbled into well-drained pots of sandy peat and covered with a bell-glass will not take very long to root. For the plants some prefer a soil composed altogether of fibrous peat with a liberal admixture of sand, while others use a certain proportion of turfy loam. In any case and whatever soil is used, the one great point to bear in mind is to have it of a good open nature, that will not become at all stagnant even if the plant is kept in the same pot for years. The more vigorous forms of *Chorozema*, such as *C. cordatum* and its variety *splendens* will do well as screen or pillar plants, and if employed for this purpose the best results are obtained when

pots, using soil of a similar description to that in which the seed was sown, now adding a little finely sifted rotten manure, but not so much as to make the whole too light, as these perpetual Carnations succeed best in soil that is of a moderately holding character. The little pots should be placed as closely as they will stand in shallow boxes with an inch or two of fine coal ashes in the bottom, kept a little damp. This prevents the soil in the pots drying up in the way that occurs when they are stood on dry stages or shelves. Through the spring let the plants have air daily, and see that they do not want for water, at the same time avoid making the soil too wet. When enough growth has been made the points should be taken out so as to cause the production of several shoots low down near the collar. Towards the end of May or beginning of June an open piece of ground should be chosen on which to plant them out. In common with most things, Carnations like new soil, but unless the greatest care is taken to destroy the wireworms that are almost always present in new soil, its use is risky. On this account I would rather take the chance of ground that has been occupied for some years by ordinary vegetable crops. It should be well dug and thoroughly pulverised. Put the plants in a foot apart in the rows with 18 inches or 2 feet between the rows, so as to allow room for hoeing and watering. In preparing the soil work in a moderate amount of rotten manure, and mulch the surface with some of the same material. This will do much to promote growth and lessen the amount of water that will be required. But in spells of dry weather through the summer enough must be given to keep the plants growing freely. In the autumn, if well attended to, they will be sturdy plants, with three or four stout shoots each. Where these Carnations are raised from cuttings, I like the autumn best to put them in, as when rooted then they make much finer plants than when the propagation is deferred until spring. The nearer they are stood to the roof of the house or pit the better. In March the sun is often so powerful that until the cuttings are rooted shade will need to be given. When well rooted put them singly into small pots, and treat in the way advised for the seedlings, taking out the points as soon as they are large enough and planting out in the open ground. Cuttings that were struck in autumn, and that have been kept through the winter in little pots, should now have their points removed. If the pots they are in are very small, and there is a likelihood of the roots being cramped before the time for turning them out arrives, it will be well to give them pots a size larger about the end of March or beginning of April. After which time a cold frame sufficiently filled up with ashes to raise the plants near the glass is the best place for them. By the middle of June these autumn-struck plants will require a second stopping. I have so far spoken only of growing the plants in the open ground during the summer. The advantage of this over pot culture is that with less attention they make much finer examples. But where pot culture is preferred all that is necessary is to see that they are never allowed to get stunted for want of room. For seedlings and spring-struck cuttings, 6-inch pots will in most cases be large enough; autumn struck plants will want a size larger. Before turning the plants outdoors it is necessary to see that they are quite free from aphides, for although the insects do not thrive and increase on Carnations in the way that they do on things that are of quicker growth and of a more succulent nature, if left undisturbed they will infest them through the season, causing the leaves to curl and stopping much of the progress that should be made.

T. B.

Pelargonium Venus.—There are a great many Pelargoniums whose blossoms are white, or at all events nearly so, and among them must be included this particular variety, which for winter blooming is surpassed by none. It is a good sturdy grower, with neat, yet ample foliage, branches freely, and where needed for cut blooms will maintain a succession for months together. The flowers are of the purest white, with the exception of a

slight feathering of purple at the base of the upper petals; and as white flowers of all kinds are always in demand, it is on this account especially valuable. There are many varieties with blooms of this tint, and Venus is by no means the newest, for it has been grown for some years. It is usually classed as a decorative variety, under which head are included all that cannot be grouped with the show, fancy, or regal varieties, those at one time known as spotted, French, or fringed being now generally classed as decorative. This is certainly as it should be, for with the intercrossing now carried out, it is quite impossible to draw any hard and fast line between the various sections.—H. P.

Two useful Carnations.—I have found Duchess of Fife and Winter Cheer two of the best winter blooming Carnations I have tried. These two varieties are of recent introduction and are invaluable for winter blooming. The former has clear yellow flowers striped and speckled with red and blooms very freely; though I only have small plants of it at the present date, they each bear a large quantity of buds. Another advantage is that the flowers do not split. Winter Cheer is certainly rightly named, for it was in full bloom when many other varieties succumbed to the fogs of December and January, and its bright scarlet flowers proved invaluable for cutting. It is one of the best and freest blooming Carnations we have. It has a splendid dwarf habit and throws up abundance of its beautiful flowers all through the winter months. The flowers retain the brilliant colour all through, and I should certainly recommend its culture for winter work, as the blooms are charming when cut and do not split. This latter variety, on account of its colour and sturdiness, will prove a welcome addition to our winter blooming plants, so that now is a good time to get up stock. I shall get all the cuttings I can of these varieties. Last year these Carnations being new were not much seen, but as their value becomes better known they will find a place in all gardens where winter bloom is required. Our plants were only in 5-inch pots and gave a lot of bloom.—G. WYTHES, *Syon*.

KITCHEN GARDEN.

SPRING AND SUMMER LETTUCE.

Of the various salading plants the Lettuce stands pre-eminent. Lettuces are always appreciated, and a steady and regular supply should if possible be kept up. During the summer in many gardens Lettuces are conspicuous by their absence, and even after the first crop of early sown Cos Lettuce has passed. With this early crop more than ordinary care is generally taken, but the succeeding crops are grown in such a haphazard manner, that failure often results. Where, however, Lettuces are expected and must be had daily throughout the spring and summer, those in charge by a little ordinary care generally contrive to keep up a steady supply. Poor soil and crowded plants in the seed bed are at the root of most of the failures. When the seed is sown too thickly, the plants become so crowded together and weakly, that they have not sufficient stamina to withstand even the check of removal; consequently they soon run to seed, or either form such thin hearts, that what there are are tough and bitter in flavour, and not of that sweet, crisp, and nutty flavour which well-grown Lettuces should possess. It is just the same when the plants are allowed to become crowded together through being overgrown before they are planted out. I make it a practice to sow about every fortnight; consequently I have always plenty of plants at the right stage for planting whether they are wanted or not. Seed is cheap enough, and it is as well to have constant relays of young plants. Plants about 3 inches in height are quite large enough for planting, and if the position be open and the ground rich, the plants will grow away

and form solid hearts without any need of tying to keep them together. It is not at all a wise practice to sow the seed broadcast, far the best system being that of sowing in drills 10 inches or 12 inches apart, so that the light and air may reach the plants. The soil of the seed bed should be of a light friable nature, with the addition even of a sprinkling of fresh soil, so that the plants may form a mass of roots, ready to take hold of the soil very quickly after being planted out. The plants should also be drawn carefully, so as to break the roots as little as possible. With a good rich soil in a friable condition, and an abundance of healthy, well-rooted plants, there should not be the least difficulty in maintaining a good supply. During the heat of summer it is as well not to rely on transplanted plants, but the seed should be sown very thinly in drills in the position in which the Lettuces are to remain. With timely thinning and watering where necessary, good crisp Lettuces would be forthcoming. Frequent hoeings are very necessary, as they are so beneficial in promoting free growth. For the position of the seed beds during the summer months, I generally select an east border, and if the weather is very dry, the site of the bed should be watered over night. For the earliest plantings a sowing should either be made in a box of fine soil or on a slight hotbed, and as it would be very unwise to plant direct out into the open, however mild the weather, the plants must be pricked out under glass, or even a rough shelter. It being very desirable that these early plants should be lifted with a ball of soil about the roots, it is much the best course to place a layer of rotten manure on a hard surface with a layer of soil above, a depth of 4 inches altogether being ample. The plants will lift with a good ball of soil, and will start into growth without any check. Early plants may be forwarded under ground vineries or hand-lights, or, what is better, long portable lights. Close up under south walls is also a favourite position for forwarding early Lettuces, especially where frame space is scarce. For forcing, Early Paris Market and Tom Thumb are the best. It must not be inferred that Lettuces will withstand a strong heat when subjected to forcing, a very mild hotbed of leaves being all that is really necessary, or even desirable. For the latest summer produce I plant on the ridges between the Celery trenches. In this position Lettuces always succeed well, probably on account of the increased warmth in the soil by the sides being exposed. There are now various good types of Cos Lettuce in the market. That there are some a deal better than others I must admit, especially when the results have been so different under the same course of treatment. For the late summer and early autumn supply in the open air Hicks' Hardy White is the best of all. It also stands a fair amount of frost, remaining firm and good when other summer Cos varieties are cut off. As far as I can judge, it appears to be a very valuable winter Lettuce, as it withstood the severe ordeal of the past winter better than any other variety. I also planted it for the winter supply in frames, and am using now good heads. In the same pit growing side by side and subjected to the same amount of covering, so-called reputed hardy Cabbage Lettuces were killed.

A. Y. A.

Pea Sutton's A 1.—When this very early wrinkled-seeded Pea is better known and the seed more plentiful, it will become a great favourite. It possesses a better constitution than any other early variety other than those with round seeds, and can therefore be sown nearly or quite as early as these. With me it attained a height of about 3 feet, was very productive,

the pods being fairly large and well filled with large Peas of the best quality when cooked. It was quite as early as William I., and very probably will supersede that popular variety. This Pea, the result of a cross between American Wonder and Early Paragon, was raised by Mr. Culverwell.—W. I.

GROWING TOMATOES.

I HAVE a span-roofed Cucumber house which I intend to plant with Tomatoes this year. As I have often grown a few plants, and could never get a large crop, such as I see grown in some of the market gardens, I should feel obliged if you would kindly answer the following questions:—

1. The names of a few good bearers?
2. The best compost to plant in?
3. What temperature do Tomatoes require?
4. Damp or dry atmosphere?
5. Do Tomatoes require to be impregnated?—T. B.

* * There is no reason why "T. B." should not grow Tomatoes equally as well as the market gardeners he alludes to, especially if his plants escape disease. The surest setter would be found in the large red, a variety or selection of the same being still very largely grown by market gardeners who have tried all other presumably superior varieties against it. It is scarcely so attractive in appearance or so heavy as the Perfection type, but it more than compensates in its heavy cropping properties. Perfection is also very extensively grown, but Ham Green Favourite is considered superior to it in everything but constitution by those who have given it a fair trial. No mistake will be made if an equal number of plants of all three varieties be grown, and "T. B." will then be in a position to decide for himself which pays best. Plenty of top spit of pasture land, or ordinarily good turfy loam being available, this without any addition being made to it is quite good enough for Tomatoes. A very strong soil nor much of it is not desirable at the outset, and I have seen remarkably heavy crops taken from plants rooting in a small flat-topped ridge of very gravelly loam cut from near the roadsides. If nothing but very poor fibreless soil can be had, a little flaky manure may safely be mixed with it, say at the rate of three parts of soil to one part of the manure. Whatever soil is used should be made very firm, this favouring or promoting a sturdy fruitful growth of the haulm. When good crops are set use liquid manure freely, or else wash in occasional surfacings of superphosphate of lime or one of the special manures largely advertised. High temperatures and a close moist atmosphere are prejudicial to health and productiveness. Plants grown under such conditions are soft, unproductive, and the most liable to be overrun by disease. Supposing an early start is made, the temperature may range from 55° during the night to 60° and 65° in the daytime, with a further increase of 10° by sun-heat; air must be given freely whenever it can be done without greatly lowering the temperature, the house being closed early in the afternoon, damping down at the same time, but not syringing overhead. As the days lengthen and the nights become warmer both front and top lights may well be opened freely, a chink of top air being given every night. Neglecting to fertilise the flowers is one very frequent cause of failure. There is seldom enough air going to distribute the pollen naturally, nor do bees greatly assist the cultivator. Towards midday or as soon as the pollen becomes dry is the proper time to attend to the fertilising. It can usually be effected by smartly tapping the bunches of bloom with a Hazel twig, or the slower process of touching the flowers over separately with a camel's-hair brush may be resorted to.—W. I.

Kidney Beans for forcing.—Probably Ne Plus Ultra is the variety most extensively forced in private gardens, but it is neither robust enough nor the pods sufficiently heavy to please market growers, who find Canadian Wonder the most profitable for house culture, whether in pots or on the inside borders, either between or in advance of Tomatoes. Friends in Guernsey state they gave Ne Plus Ultra a good trial, but it did not come up to their expectations, and they have discarded it again. If

home-saved or new seed of Ne Plus Ultra is sown, the plants come up strongly, but that obtained from seedsmen varies considerably, and too often is older than bargained for. At any rate, I can see a great difference in the batches of plants raised from home-saved seed and those resulting from seed purchased this season, the latter being far more weakly than I care to see them. Ne Plus Ultra certainly more quickly yields good gatherings of pods than Canadian Wonder, which is now giving a capital crop, and I can fully agree with the market growers' verdict as to its comparative value. There being a great scarcity of outside vegetables, extra efforts ought to be made to grow more kidney Beans than usual, and it may also be worth while to try Ne Plus Ultra and Canadian Wonder together, that which pays best being the most extensively grown in the future. In a large Devonshire garden a superior, or rather what the gardener considers the true stock of Syon House has been grown for many years, and apparently it would be a difficult matter to name a variety that would surpass it either for forcing, frame culture, or cultivation on warm borders.—M. H.

EFFECTS OF FROST ON VEGETABLES.

Now that the work of removing the frozen remains of vegetables is over, it may not be out of place to chronicle the losses, to name any individual varieties that have come comparatively unhurt through the ordeal, and to suggest the best means to meet and supply the deficiencies as quickly as possible. Of autumn planted Cabbage about one half is gone, and I do not think there is a single plant left in the seed beds. Of four varieties planted, Imperial seems to have weathered the storm as well as any. I have sown under glass an extra supply of Earliest of All, and as this does its work very quickly from seed bed or box, we shall not have much to complain of in the Cabbage supply. The old bed of 1889 planting is quite destroyed. A clean sweep has been made of Broccoli. All varieties are gone; even the old Purple Sprouting usually so hardy is frozen through. I planted some of the late varieties on a piece of stiff ground, and thought possibly I might save them, as the growth was very short and stocky, but they shared the general fate and have been committed to the manure heap. It is evident that the only way to save winter and spring Broccoli in a season like the present would be to throw them early, say the latter end of November and cover with dry Bracken at the approach of severe frost. Nothing can make up for such a total destruction of the Broccoli crop. All that remains to be done is to sow additional supplies of the earliest Cauliflowers, Early Forcing or First Crop, pushing them along and planting out as soon as possible. Plants of Early London wintered in frames are apparently all right, but this, although autumn sown, is not so early as the small newer varieties represented by the two first named. The Kale quarter presents a miserable appearance; certainly nothing is absolutely killed, but it is very seldom this hardy vegetable suffers so much. Cottagers' Kale and the Dwarf Late Curled have wintered best; the smooth-leaved varieties, as represented by Asparagus and Phoenix, are very sickly. The second planting of Brussels Sprouts (President Carnot, apparently a good selection) looks well, and will furnish a plentiful supply of open sprouts. Spinach has come through the winter with the loss of all the autumn growth, but looks fresh and well, and with the advent of warmer weather will doubtless grow away rapidly. This, however, is often a precarious crop, and it is well to sow a good breadth of the Broad-leaved Round as early as possible. Brown Cos and Hardy Hammer-smith are the two varieties of winter Lettuce

we use, and these are looking fairly well, the Cabbage the better of the two. I grow Red Globe and Chirk Castle Blackstone as winter Turnips; the latter has proved itself by far the hardier of the two, and is as firm and sound as its name implies. I may note that all frozen vegetables are conveyed to a corner of the leaf yard and built into a heap, together with plentiful supplies of quickly decaying leaves, as those of the Lime and Horse Chestnut, a few loads of stable litter, and a liberal sprinkling of lime. This having been turned two or three times makes a very fair dressing for stiff land if a better class manure is not to be had. All kinds of roots are very valuable this year for general purposes, although there are not many establishments where they are in great request for the dining-room. Artichokes, Stachys, Turnips, Leeks, for instance, are only tolerated occasionally, and Asparagus, Seakale, and French Beans will have to be relied on for some time. There is no doubt that Asparagus is the favourite vegetable in most places; it is almost impossible to get too much of it—at least I know the demand is always greater than the supply from the time we commence sending it in (the beginning of December) until the outdoor grass is ready. I sow a small breadth every spring, transplant the next year, and lift for forcing eighteen months from the latter operation. We are fortunate in having an old slip garden, in which it not only does well from a growth point of view, but which is so thoroughly sheltered on all sides that the young shoots seldom require support of any kind. Young Carrots are a welcome vegetable in many establishments, and if a three-light frame can be spared and placed on a bed of leaves, a supply will be secured some time before they are ready on the open border. French Beans, if there is no room for them in houses, may be had, say, a month earlier if afforded the protection of a frame—indeed any means by which the season of this vegetable, Horn Carrots, and Potatoes can be anticipated will amply repay the extra trouble in a season like the present one.—E. BURRELL, *Claremont*.

— A few notes on some of the vegetables that have come through the recent frost in fairly good condition may be of interest at this season, as they will serve as guides for future cultivation. I do not wish to recommend their culture to the exclusion of some others that in less severe seasons would stand us in good stead, but at the same time those kinds that almost defy our severest winters should always be planted largely. Among the most important crops for standing the winter may be mentioned Broccoli, but, unfortunately, these have generally suffered badly, and especially those kinds that come into use from mid-winter up to the end of March. Leamington Broccoli will be the earliest variety with us. We usually have this in use about the end of March. It has stood the frost fairly well, there not being more than from 15 to 20 per cent. that are damaged past recovery, while Late Queen has stood the best of any. I do not think the losses among these will come up to 10 per cent. This Broccoli, being of dwarf growing habit, was protected by the snow covering more than some of the others. Ledsham's Latest of All and Model have stood the winter, but these we had not planted to the extent of the two former. No doubt those who took the trouble to protect their Broccoli by laying them in the autumn, as well as covering them lightly with litter or Bracken, will be amply repaid this year. I did not lay any of the Broccoli, but they all had the benefit of a light covering of long litter. All except the varieties above named perished outright. So wholesale has been the slaughter amongst such kinds as Penzance, Sulphur or Portsmouth, Snow's Winter, and Veitch's Spring White, that it is a question if they would have survived had they been laid on their sides as well as covered with litter. The value of a

good coating of snow, which they would have had the benefit of when in a slanting and low position, must not, however, be overlooked. These comparatively early Broccoli are perforce taller and more exposed than are the later ones, and in this lies the evil. The weather is so changeable in this locality. The sun showing out, coupled with a little milder weather, removes the snow covering from the tallest of the Broccoli plants and leaves them quite exposed, except for the litter, to the biting winds and frost that follow. One large grower in this locality attributes his almost total loss of 4000 plants to the frost of Jan. 10 and 11, as he says all looked well until then, but a few mild days in the previous week had exposed the hearts of the plants. Brussels Sprouts have suffered very much, both the crowns of the plants as well as the sprouts; many of the latter that looked sound have been found decayed in their centres. I find that plenty of the small sprouts that are forming immediately under the crowns are still sound, and will soon be fit for table. Many of the stems of the Brussels Sprouts that got weighted down by the snow and were covered with the same for a greater part of the frost remained uninjured, and the latest planted and dwarfest of these have also fared the best, and will now give us ample returns. If we are to look forward to winters half as long or half as severe as the last, the laying of a portion of the crop of Brussels Sprouts on their sides would well be worth considering. The best of all the Brassica tribe this winter has been the Borecole or Kale; this has simply defied the frost. This brings to my mind the advice given me ten years ago by an able gardener, after the hard winter of 1880-81, which was, "plant plenty of curly greens or Kale." This year this vegetable has been simply invaluable, as the Spinach being beyond reach, being frosted up in its mantle of snow, the Borecole was used and valued as a substitute. Cabbages have suffered so as to be past use, at least for a time, and the young plantations for next spring have been injured in like manner. All Savoyes that had assumed the size of useful heads have also been damaged past use, but very late plantings that were dwarf and only what might be called greens have stood fairly well. Spinach has come through the frost surprisingly well, the leaves being of a bright green without a sign of any brown, and we were able to gather good dishes from the time the thaw set in. Lettuce that had reached a good size out of doors has suffered considerably, but a good number of small plants from later sowings are left of such kinds as All the Year Round, Hick's Hardy, and Brown Cos. Seakale is proving of immense value now, and is in daily request. The somewhat new vegetable *Stachys tuberosa* has proved of great value. By covering a good portion of ground before the frosts set in, the tubers may be dug as wanted, and those not so covered are not injured in the least. Leeks have also stood the frost well; as has also Celery when earthed up high and well covered with litter, but where insufficiently moulded up it is injured almost past recovery.—C. WARDEN, *Clarendon, Wilts.*

—Never before do I remember to have seen such destruction wrought amongst vegetables as has taken place this winter, for go into whatever garden one may, the first thing that presents itself is a breadth of decaying Broccoli or other green stuff. The air around seems laden with rank odour issuing from their decomposing leaves and stems, and the sooner they are burnt up the better. The great scarcity will soon make itself felt, as we shall have nothing outdoors to run to, for Cabbage stalks are hard hit, Kales crippled, and Brussels Sprouts in much the same plight. The only crop that has really escaped is the Spinach, which the snow fortunately flattened down on the ground and thoroughly protected. To meet the great dearth that will inevitably arise as regards other vegetables, the best we can do is to at once sow a good batch of the quick turning in Cauliflowers and Cabbages such as Early Erfurt and Ellam's Early. This may be easily done in shallow boxes filled with fine rich soil. If these are then placed in gentle heat the plants will soon be up, when they must be placed near the glass to prevent them becoming drawn. As soon as they are large enough to handle they

should be pricked out, the most suitable position being on a manure bed, where they can have just a little warmth at the roots to give them a start. Failing this convenience, any cold frame will do, as it can be closed early, and the temperature raised sufficiently in that way to help the plants on. A few Turnips will also be a great help, and these may be had early by sowing Early Milan on a sunny border, as that kind forms bulbs quickly and does not bolt like other sorts.—J. SHEPPARD, *Woolverstone.*

—The protracted severity of the weather, following so closely on such a spell of wet, has destroyed all the Broccoli, Cabbages (excepting reds), Brussels Sprouts, Savoyes, &c., while those grown for spring and early summer supplies are safe, owing, I believe, to my practice of sowing, for these crops, much later than is generally recommended—quite the end of May and even early in June. From these sowings, even after such unusual severity, I have good grounds for hope of a fair supply. Turnips Red Globe, Silver Ball, and Orange Jelly sown the second week in August are safe and sound, and of a most serviceable size, while earlier sowings left in the ground in similar positions are rotten; so is unprotected Beet, with one exception, a variety named Defiance being untouched. Celery also unprotected and not earthed up is safe and green, and will be appreciated later on. A Cos Lettuce that has come through such weather uninjured, if unprotected, will be a boon. From the foregoing it will be noticed that I advocate late sowing, and for comparatively mild districts I would specially recommend the practice, as in ordinary seasons in such situations green crops continue growing almost throughout the winter. In such cases where early sowings have been the rule, the greater part of the produce comes to maturity long ere the summer crops are over, and the luxuriant and tender growths of what remains on the ground over the winter are far more susceptible to frost, &c., than sturdier, though more stunted and later plants, but full of energy.—J. R., *Merioneth.*

—Spinach appears to be the one green vegetable which has passed through the winter safely, and here the round-leaved kinds have proved equally hardy with the prickly kind. The Victoria is the best I have grown. The other exceptions to the general slaughter are Buda or Asparagus Kale only slightly injured, a few Cottager's Kale, and autumn-planted Cabbages, which look fairly well and will be valuable in the spring. Here the snowfall was not sufficient to break down the leaves of the Buda Kale, as was the case with "I," mentioned in your issue for February 14, for we never had more than 6 inches of snow on the ground at one time, and this was just enough to protect them; they are now sprouting out nicely. All other Kales, as well as Purple Sprouting and other Broccoli, have been killed outright. The safety of the low-growing crops is, I think, due to the absence of thaws and wind, together with the dry state the ground was in when the frost commenced. I never remember a severe frost causing so little upheaval of the ground as was the case this winter, so the roots were but very little disturbed, while in most winters we have successive frosts and thaws till shallow-rooting things have no root-hold at all. The healthy appearance of Carnations proves this, for they look better now than they ever did before at this time of the year, there being, so far, practically no losses to complain of, except with the Cloves, these being troubled with the dreaded spot; but they are no worse than others of the same varieties which have been kept in pots in a frame.—J. C. TALLACK, *Livermere Park, Suffolk.*

Good second early Peas.—Thanks to the introduction of several good second early varieties of Peas, there is now much less necessity for making more than one, or at the most two sowings of the round-seeded sorts, and with which I would include, for convenience, the somewhat superior William I. This is undoubtedly very superior to any of the older forms, including Taber's Perfection, Sangster's No. 1, Daniel O'Rourke, and such like, but even this compares badly with the second early wrinkled seeded varieties. The old Essex Rival and Dick-

son's Favourite, both at one time largely grown to succeed any of the foregoing, have now given place or ought to do so to either Telephone or Telegraph, the Duke of Albany, which more closely resembles the latter than Telephone, also podding early, or in fairly close succession to William I. if sown or planted out at the same time. All three varieties attain a height of about 6 feet, and no fault can be found either with their constitution, productiveness, or the quality of the Peas. Stratagem, a fine dwarf form of Telephone, is one of the best for small gardens, or where tall stakes are scarce. It attains a height of from 2 feet to 3 feet, is very sturdy, branching and productive, the well-filled pods being quite good enough for exhibition. Wordsley Wonder, also a second early variety, is very distinct from the foregoing. It is scarcely so tall, not very sturdy, but exceptionally productive, the pods being fairly long and closely packed with Peas of the best quality. This, again, is strongly recommended to those owning or in charge of small gardens. Advancer, another second early variety, which grows to a height of 2 feet, will not succeed with me, being constitutionally weak. I do not consider Criterion a second early variety, but it forms a good succession to Telephone, and is, all things considered, one of the best varieties in cultivation. It is sometimes described as an early form of Ne Plus Ultra. Those who have a special liking for the Champion of England ought to give Huntingdonian a trial, this being rightly classed as an early form of that old favourite, and seldom exceeding a height of 5 feet. Sown at the same time as Telephone, it will yield good gatherings of well filled pods from a week to ten days later than that variety. The Peas are white, fairly large, very tender, and sweet. None of the foregoing are expensive novelties, and I have repeatedly proved them to be superior in every way.—W. IGGULDEN.

GARDEN FLORA.

PLATE 794.

ALLAMANDA GRANDIFLORA.*

THIS beautiful stove plant has frequently been noticed in *THE GARDEN* during the last ten years. It has been in cultivation in England nearly fifty years; it once ranked amongst the best of exhibition plants, fine specimens, according to Paxton, being in exhibitors' collections as early as 1844. Moreover, it is as easily cultivated as any other Allamanda. It blooms freely and continuously all summer, and its flowers are unequalled by those of any other kind in elegance of form and delicacy of colour. And yet this species is still comparatively unknown. The only figure of it ever published before this is in *Paxton's Magazine*, although all other garden Allamandas have been almost overdone in regard to figures. Nurserymen rarely include it in their catalogues; growers seldom have it in their collections. Altogether, therefore, it is eminently worthy of special notice here, its early introduction notwithstanding.

Many garden Allamandas are not easily distinguished from each other, but *A. grandiflora* is not one of them. Its small thin leaves, usually in whorls of three, its thin, almost wiry stems and its comparatively compact dwarf habit are characters quite distinct from everything else in the genus. Whilst its flowers are not quite so large as those of such kinds as *A. Hendersoni* and *A. nobilis*, yet they are quite large enough to

* Drawn for *THE GARDEN* in the Royal Gardens, Kew, by H. G. Moon, September 21, 1890. Lithographed and printed by Guillaume Severeyns.



Mimulus aurantiacus Nutt.

satisfy anyone. In colour they differ from all other kinds, the whole of the corolla being a soft lemon or primrose-yellow. In the stove at Kew this plant is rarely out of bloom from July to October. It is grown up a rafter and also as a loose bush, flowering freely both ways. An 8-inch pot affords all the root-room this species requires. It prefers an open loamy soil.

So far as my experience goes, *A. grandiflora* does not thrive except when grafted upon one of the stouter kinds, such as *A. Schottii*. Cuttings will strike root, of course, but they somehow fail to grow with any vigour. Grafted, however, they will grow into nice specimens in a year or so.

When writing about this genus in 1886 I stated in *THE GARDEN*, under a plate of *A. Hendersoni*, that *A. grandiflora* was introduced by Messrs. Lucombe, Pince and Co. in 1848. I was wrong. According to Paxton, this species was first discovered by the collector Gardner in Brazil, who sent seeds of it to the Comely Bank Nursery in Edinburgh in 1836, from whence plants were soon afterwards distributed. Paxton was of opinion that *A. grandiflora* was not a distinct species. "We are more disposed to consider it in the light of a strongly marked variety of *A. cathartica*." Now, although the last-named is a very variable species, it does not vary to such an extent as to include so well marked a plant as *A. grandiflora*. Gardner named it *A. verrucosa*, and there are specimens in the Kew Herbarium which agree exactly with the plant here represented in Mr. Moon's drawing. For garden purposes the name used by Paxton, and by every other cultivator of this *Allamanda* will be quite sufficient, but if ever we feel disposed to name our *Allamandas* in accordance with botanists' nomenclature, then *A. verrucosa* rather than *A. cathartica* would be correct for what we now call *A. grandiflora*.

There is in Brazil a species of *Allamanda* which if only it could be brought into cultivation here would delight all admirers of this genus. Imagine a compact bush not more than 3 feet high, with linear Willow-like leaves set close together on the branches, and terminal racemes of beautiful yellow flowers as large as the largest amongst those already in cultivation. Collectors ought to look out for this plant in the neighbourhood of Goyaz, in Brazil.

The best of the big-flowered robust growing *Allamandas* is *A. Hendersoni*, which grows as fast as a Grape Vine and blooms as freely as a Clematis. A good plate of this was published in *THE GARDEN*, t. 452. For a distinct and in every way remarkable species, *A. violacea*, represented by a plate in Vol. XXXVII. (p. 224), may be consulted. These two and the plant here figured may be taken as representative of the whole genus as known in gardens up to the present time.

W. W.

Plants from the Riviera.—You will be conferring a great kindness upon many of those travellers who are now seeking the Riviera, Egypt, Palestine,

&c., if in as early an issue as possible you will give some simple directions as to the best method of preserving and bringing home alive some of the floral treasures they may come across. Few travellers have many convenient appliances, and so of the plants they collect the greater part perish from wrong treatment; some are killed from over-dryness, others from over-damp and consequent heating.—NORMAN.

ORCHARD AND FRUIT GARDEN.

PROTECTING FRUIT BLOSSOMS.

If failures of fruit crops occur, they are more often than not caused either by frosts or birds. When once the trees have arrived at a productive stage, whether this be brought about by artificial or natural means, they rarely fail to annually form a considerable number of fruit-buds, or enough, say, to meet the requirements of the case. If these escape the birds, there are yet even greater risks to be run from frosts. Oftentimes the frosts finish what the birds began, and the cultivator wishes, when too late, that some protective measures had been devised and carried out. Walls are built at a great expense, trees are carefully planted, trained, and tended, and yet, owing to the uncertainty of our climate, there is no relying upon any one hardy fruit producing good crops unless the care devoted to the trees extends in many cases to the protection of the buds and flowers from their natural enemies. Not only is it necessary to protect the majority of the wall fruit trees, but it pays equally well to take nearly or quite as much pains with many of the trees in the open. Apricots usually receive good attention in the way of protection when in bloom, as without it a full crop is but rarely obtained. Apricots are the first to open, and the flowers are most delicate, only a moderately severe spring frost destroying the greater part of them. Undoubtedly the best form of protection consists of glass copings and blinds, and all who have a good wall covered, or being covered with healthy trees, will do well to have them. There are many gardens where this very choice hardy fruit cannot be grown satisfactorily, but if copings and blinds are fixed somewhat prematurely or before the trees have proved what they are capable of doing, they could yet be turned to good account for protecting Peach and Nectarine trees, which can be grown with advantage in most moderately warm localities. Contractors would supply these copings with blinds, rods and everything complete quickly and at cheap rates, and seeing that I have nothing to find fault with in these, I shall only add that they soon pay their way. Glass cases are sometimes recommended for both Apricots and Peaches, but I fail to see that these would keep out more frosts than copings and blinds, and in any case lean-to houses would be nearly as cheap and preferable in every way to them. Failing glass copings, the next best thing would be to fix wooden ones 12 inches or more in width, to these being attached rods or stout wires on which properly ringed blinds could run freely. Any horticultural sundriesman would supply either the blinds to order or the material for making them, that most often used being coarse cotton netting, which will last if taken proper care of for many years. The blinds may be of any width, a width and a half of the material answering well. A length of 3 yards is sufficient for most walls. Strong curtain rings should be affixed rather thickly on the end that is to run on rods under copings, and if tape loops are fastened to the other end, these may be attached to loose rings on a strong wire stretched about 18 inches from the ground and 3 feet from the foot of the wall.

When opened out they can be kept in that position with the aid of tape strings, all being thus connected, and the same strings can be used for tying each pair of blinds when drawn together on warm days. A simple contrivance of lines would more rapidly open and close the blinds, but this can be very well dispensed with. Trebled fish-nets, mats, branches of Spruce Fir, and other contrivances for protecting Apricot blossom are frequently met with, but though better than nothing at all, they are not nearly so reliable as blinds.

Peaches and Nectarines again come in for a good share of attention, the blossoms of these, though later in opening and hardier than those of Apricots, being very often much damaged by frosts. A well-covered wall will quickly repay for any trouble and outlay consequent upon affixing copings, glazed or otherwise, or blinds much as recommended for Apricots, but they are not often met with, temporary contrivances being the order of the day. Where bullfinches are troublesome, it is advisable to early complete the pruning, nailing, and what cleaning may be thought necessary, and to net over before the buds are far advanced. It does not take a pair of bullfinches many minutes to clear off the greater portion of fruit-buds from a tree, and their attacks ought, therefore, to be anticipated. The simplest form of protection from both birds and frosts consists of a narrow board coping with long poles nailed to near the outer edge of this, and let into the ground about 6 ft. apart and not less than 2 ft. away from the wall, their use being to keep the fish netting in position and well clear of the trees. The fish netting being doubled and hung loosely will not shade the trees sufficiently to much weaken the flowers, and will yet keep off birds and greatly protect from frosts. This is the very least that can be done for this valuable class of fruit trees. Plums, I believe, are more frequently protected before and during the flowering period than formerly, and they both need it and pay for the trouble taken with them. This season they promise to flower very abundantly, but bullfinches have a great weakness for the buds, while the dreaded "blackthorn winter"—an expression very well understood in Kent, if not elsewhere—might blacken every opened or opening flower in one night. It is not everywhere that copings and blinds can be fixed over Plum trees, but in many instances that have come under my notice the gardener has only himself to blame for not grouping the choicest Plums where they could be so conveniently protected. Blinds being out of the question, then ought doubled fish-nets to be suspended over the best of the wall trees, this being done soon enough to preserve the buds from the birds. Cherries are not so often interfered with or crippled by frosts, and nets being scarce the trees may well be left to take their chance. In many cases Cherries do not pay for wall culture, and occupy space that might well be devoted to more serviceable fruit. Pears are very rarely protected, and yet no fruit stands in greater need of it, or more often has the flowers crippled by frosts. In some respects the crops are scarcely so valuable as those of Apricots and Peaches, but in others they are far more so. Not till we have a failure do we fully appreciate the value of a good winter supply of Pears, and those who have the means may well, therefore, take proper precautions to guard against the chance of the loss of the buds and flowers by birds and frosts. Personally I am in favour of covering the trees of superior varieties well set with buds with board copings and blinds, but employers do not often see their way to approve of the outlay. Nor are fish-nets often sufficiently plenti-

ful to be available for Pear trees, but rather than dispense with them altogether I would hang one singly over the best trees. They may not appear to offer any protection against frosts, and they certainly will not always save the delicate flowers. What gardener, however, has failed to watch anxiously for a few clouds to pass over, during the prevalence of late frosts especially, these materially affecting the temperature near the earth, and if they thus check the radiation of the heat from the ground, surely a loosely-hung net will do as much for the walls, or sufficient, say, to break the destructive power of a frost. Hung on squarely they would be comparatively ineffective, but draping them makes all the difference. Pyramid, bush, espalier-trained, and cordon trees are not so easily protected as those on walls, but with the aid of poles, rods, stout wires, and either cotton netting or fish-nets fixed tent fashion, much may be done towards saving a crop of fruit. The trees this season are particularly well furnished with fruit buds, and it will be a great loss if the crops be lost owing to nothing being done to save the bloom.

W. IGGULDEN.

WELL-KEPT APPLES.

It is undoubtedly aggravating to the ordinary consumer of Apples to find that whilst good fruits may hardly be purchased in the market, being both scarce and dear, such large and most attractive collections should have been seen at the James Street Drill Hall on the 10th inst., because it naturally in the case of the ignorant leads to the conclusion that Apples may be had in plenty in February if growers will only produce them and preserve them. It is very doubtful, however, whether any other than trade growers of trees for sale have similar collections anywhere; indeed we owe the unusual sight of such fine collections at this season rather to a desire to present them as advertisements of trees to be sold than as evidence that Apples are abundant or will pay to keep to so late a period of the winter. Did we regard these fruits from a purely pecuniary aspect, it would perhaps be found that if sold in December they would have realised as high a price as now, would have shown far less of waste, for in keeping Apples unduly long there is always considerable waste, and also that the edible quality would have been far superior than now. In taking note of fruits held over thus specially late after a very sparse fruiting season, we cannot ignore the fact that these are essentially advertising samples. Had the fruit committee of the Royal Horticultural Society been invited to taste of the dishes placed before them, it is most probable that they would have had to pronounce one half, perhaps two-thirds, as woolly or useless. Let Apples be ever so firm when handled, so handsome or so beautifully coloured, yet if the flesh has lost all its juice, be woolly, or hard, or dry, or flavourless, then they are worthless indeed, except to attract attention to the varieties. It is very misleading to show attractive and apparently well kept samples at the end of the winter as in season, but which went out of season some two or three months previously. As well kept samples, so far as appearance goes, these collections of Apples referred to merited all praise. As trade examples they were recognised, and the enterprise of the firms staging them rewarded with medals; but if the samples had been placed before the committee as seasonable edible fruits, the probability is that the bulk of them would have been described as worthless. Some other apparently well kept samples tasted by the committee supported that conclusion. The remarkably attractive and beautiful collection from Messrs. Cheal and Sons, Crawley, showed that Sussex maintains its high reputation for the putting on of colour in Apples. Winter Queening, King of the Pippins, Blenheim Pippin, Sussex Forge, Mother Apple, Lady Henniker, Burchard's Seedling, and Hornead's Pearmain were admirable in the dessert section, and of kitchen sorts, Prince Albert, Gloria

Mundi, Wellington, Lord Derby, Alfriston, Kentish Fillbasket, and Winter Nonsuch were also of capital appearance. Messrs. Lane and Sons, of Berkhamsted, had very good samples of their Prince Albert, Mère de Ménage, Bramley's Seedling, Stone's Pippin, Peasgood's Nonsuch, Annie Elizabeth, and Tower of Glamis. Messrs. Rivers and Son had, in addition to the Pears elsewhere referred to, some very showy Oranges, a large collection of Apples, of which for dessert were fine glass-grown Cox's Orange Pippin, Brownlees' Russet, Hornead's Pearmain, Wadhurst Pippin, Blenheim Pippin, and Col. Vaughan, this last manifestly a long way past its proper season. Of kitchen sorts, very fine were Buckingham, not unlike Peasgood's Nonsuch, but with a very deep eye, Belle Pontoise, Peck's Pleasant, very handsome green fruits, Gloria Mundi, Wellington, Lord Derby, Reinette du Canada, and Bailey's Sweet. Those mentioned above give some clue as to the apparently best keepers as thus presented. It would be very interesting to have a competition of some sort instituted to show if possible what method of storing tended the most to preserve the flavour and crispness of Apples for the winter months. To have a competition of this kind on equal terms, certain sorts of standard kinds should be named, and small dishes of these presented for adjudication in February or in March. Still further there might be a class for any other variety. It is obvious that if we will grow so large a quantity of Apples at home as shall enable us to compete with the American grower, we must have a large proportion of our fruits fit for consumption in the early months of the year, and prior to the incoming of the beautiful Australian samples. Having the fruits first, everything then depends upon effective storing, which presents a problem well worthy of careful solution.

A. D.

Pear Easter Beurre.—I left the crop of this variety on the trees much longer than usual last autumn, and really risked their being injured by severe frosts. If they had parted from the trees in a natural manner they would have been gathered earlier, but the leaves were falling before the fruit could be detached. As it happened, the delay in gathering proved to be the correct procedure, the Pears keeping better and ripening more satisfactorily than they have done in former years. A few good dishes have recently been sent to the table and the verdict was that they were very good indeed—in fact an agreeable surprise. This Pear is oftentimes far too dry or mealy to please good judges of fruit, but this fault is less apparent than usual, and I never had fewer shrivelled examples.—I.

Late keeping Pears.—The remarks which "D. T. F." makes (p. 111) on what I wrote upon, viz., the influence that the summers have on the time of ripening of late Pears, require little further comment from me than to say I am somewhat surprised that "D. T. F." should not be cognisant that the accepted opinion of most Pear growers, who have taken the trouble to observe what influence wet or dry summers have on the time of ripening, is in accordance with what I have said. The reason why a summer that is deficient in sun and has a more than usual rainfall tends to induce early ripening is, I think, not far to seek. Fruit of all kinds, Pears included, have the greatest amount of saccharine matter in them in dry seasons and contain less water. The ripening of Pears, as "D. T. F." is doubtless aware, is only a stage that precedes decomposition, and the more sugar the fruit contains the longer the ripening process is delayed. That the nature of the soil in localities only a short distance apart has an influence alike in the time of ripening of any particular variety as it has on the quality of Pears generally is so well known, that I did not suppose it was necessary to mention it. After wet summers, keeping Pears invariably shrivel more than they do after dry ones. The shrivelling I here allude to "D. T. F." will understand is totally distinct from that which is brought about by the character of the fruit room. I quite agree with Mr. Bunyard that Pears are improved in cold weather by having the chill slightly taken off them. If anyone doubts this let him try a dish by putting

them for twelve hours in an apartment where there is a temperature of about 60°, and compare them with others just as they are taken from a fruit room where it is only a few degrees above freezing.—T. B.

VENTILATING FORCING HOUSES.

It is very difficult to lay down rules upon this subject, as so much depends upon the character of the structures, whether large or small, and the way the houses are put together, and whether old-fashioned, with heavy rafters and small squares of glass, or built in the modern style with lighter scantlings and large squares of glass. Again, a good deal depends upon the surroundings of the place as regards natural shelter. I once had charge of a garden so thoroughly sheltered with plantations on all sides that they made a perceptible difference in the temperature, and of course the forcing houses were affected by it. I mention this to show that a number of outside influences must be taken into consideration before coming to a decision as to what figure the thermometer may rise to before the ventilators are opened. Of course there is no such thing as an entirely closed forcing house. When I have had to sit up half the night to look after fires I have often wished there was, but the best constructed house will permit of a constant change of air taking place, especially when the houses are exposed to the disturbing influence of a cold wind. A small house 20 feet or 30 feet long, and perhaps 12 feet or 13 feet wide, soon gets hot, and will require more attention in ventilating, because in its small confined space there is no room for internal currents. A house 100 feet or 200 feet long has an internal circulation that is absent from the small structure. During the forcing season in winter and spring the character of the weather is often treacherous in the extreme. We may have a bright sun and a piercing wind, which if admitted to any great extent would do serious harm. In fact I have no doubt that the presence of mildew, rust, and red spider in many vineries may be traced to injudicious ventilation. For the last two years I have grown Cucumbers without opening the ventilators, and I find it is much easier to keep the plants in a vigorous, free-bearing condition than when I used to be particular about noting the thermometer and giving air when a certain point was reached. Perhaps I am as particular in watching the thermometer now as I was then, or, rather I should say, as particular in noting the condition of the atmosphere. The moment one enters a house that is too hot and dry for healthy growth the fact is soon made known to the gardener, through the pores of the skin or some other organ; he seldom wants to look at a thermometer. In the management of Cucumbers without ventilation, as soon as the temperature approaches 100°, the balance is put right by saturating the atmosphere with moisture, as in a saturated atmosphere the foliage will not burn, the growth is very rapid, and the Cucumbers come as green as Leeks; in fact in no other way can such Cucumbers be grown. I remember seeing it suggested some time ago that Cucumbers grown in such a vapour bath would not keep fresh long after they were cut, but I do not think there is much force in such an argument, and I am sure a Cucumber quickly grown is far superior in flavour. At the present time the thick-skinned Grapes have driven the delicious thinner-skinned early varieties that we used to force with so much trouble out of the market, but I am rather inclined to think that good early Grapes may yet be grown at a profit by limiting the ventilation and saving

the fuel until the berries begin to colour. In a general way, if the house is of a good size, there will be enough air enter through the laps and the opening of doors to keep the internal atmosphere sweet and in constant motion from November till April without much ventilation through open lights, and by that time early pot Grapes would be putting on colour. Again, what is the use of starting forcing houses at such a low figure as is commonly recommended. Many a time in the past I have assisted in the production of pot-grown Grapes in fruiting and other Pine stoves, and very good they were too, and no difference in the temperature was made when the Vines were introduced; they had to submit to the 60° to 65° at night when first started, and at the end of the year very little ventilation was given. The first lot of pot Vines I ever had under my sole charge was grown in a low pit, where the fire-heat at night had to be supplemented by a covering of mats in order to keep up the temperature, and no air was given all through the winter till the days got warm and the Grapes began to colour in spring. Some of us in discussing this question of ventilation may be forgetting that the air cannot be kept out even if we wished, and that dear fuel will make men turn aside from the beaten track and try to economise by saving the fuel and letting the sun do more of the forcing. In the production of both flowers and fruit what is really required in our dull climate is all the light possible, and then instead of letting all the heat out of the house as soon as the sun's influence is felt to be chary of it, and if the temperature assumes a dry nature fill it with moisture charged, it may be in a limited degree, with ammonia. Increased ventilation, of course, there must be when a particular point is reached, and that point may be attained much sooner in some structures than in others. Stuffiness, whether we ventilate much or little, there must not be, but I do not think stagnation in the atmosphere arises so much from lack of ventilation as from want of cleanliness inside the house and a more frequent stirring of the border surfaces. E. H.

Peach and Nectarine flowers.—Some of the varieties of Peaches and Nectarines have very showy flowers—are very beautiful in fact. A Bec, Early Alexander, Hales' Early, and Waterloo all produce large delicate pink flowers, and so also does Sea Eagle, the last-named, however, having far more pollen on the anthers than is the case with most other large-flowered varieties. Grosse Mignonne is quite as attractive as any of the preceding, but the colour of Nectarine Pine-apple is even more pleasing and distinct. Lord Napier is very pale and the least attractive of all the large-flowered varieties of Peaches and Nectarines that have come under my notice. Our trees in the second early house are at the present time (February 19) in full bloom.—M. H.

Pears at the Drill Hall.—For the season of the year, a very remarkable exhibit was found in the sixteen dishes of generally fine and wondrously well preserved Pears shown by Messrs. Rivers and Son, Sawbridgeworth, on the 10th inst. There were Pears in Messrs. Cheal's collection of fruit, but none commanding special attention. Those shown by the Messrs. Rivers attracted notice, not only because of good average size, but also because of remarkably excellent preservation. It seemed almost as if the fruits had either been kept in an exceedingly low temperature, or by some distinctly artificial means. None of them were tasted, and the very important point as to whether they were worth eating when so preserved was not shown. There was, in spite of the admirable appearance of the fruits, an apparent evidence of hardness about them, which led to the inference that they never would ripen, except in one instance, some examples

of Marie Benoist, which showed decay in the middle of the fruits. Beurré Diel and Beurré Alexandre Lucas were both handsome and golden, wearing all the aspect of delicious ripeness, yet comparatively hard. Very good, too, were Josephine de Malines, Olivier de Serres, Knight's Monarch, Easter Beurré, Nouvelle Fulvie, and Leon Leclerc de Laval, most of which were obviously out of season. To all appearance the collection formed a very meritorious exhibit, but much depended after all on the value of the fruits for table use after so long preservation. It would materially have helped to enlighten the committee had information been given as to how these Pears had been thus preserved.—A. D.

STRAWBERRY PLANTS FAILING TO FLOWER.

CAN any reader of THE GARDEN tell me the reason of my Strawberry plants in pots having failed to flower? The runners were layered into 3-inch pots in July, and put into 6-inch pots a month later in a compost of loam mixed with some old Mushroom manure. They were firmly potted and placed in a sunny position in front of a Peach house having a south aspect. Early in November they were plunged in coal ashes, and during the very sharp weather they were covered with mats to ward off the snow. The crowns look plump, and the pots are full of roots, and have every appearance of being well grown. They were placed in a heated pit with a temperature of 45° to 50°, with the result that 98 per cent. failed to flower. I may add that the runners were taken from plants four or five years old, the sorts being Keen's Seedling, President, and Sir Joseph Paxton. I have also a plantation in the open made from the same plants. Most of the old plants had been forced before they were planted out.—J. E.

* * It will be but poor consolation to "J. E." to know that complaints of partial failure with the earliest pot Strawberries are very rife this season. In some instances they start badly, the flower trusses being very weak, and not thrown up well above or so clear of the foliage as they ought to be, while others state there are many more blind plants than usual. On the whole, I have good reason to be satisfied with my plants, the earliest batches of Vicomtesse Héricart de Thury having flowered and set well. The treatment or preparation of our plants was very similar to that detailed by "J. E.," and although I prefer runners from quite young stock plants, I do not attribute his remarkable failure to the runners having been layered from old plants. Nor ought they fail to flower owing to being grown too strongly, as it is very doubtful if his plants were established in their fruiting pots nearly so early as are those prepared by some of the most successful Strawberry growers I am acquainted with. What very probably he did omit to do was to disbud the plants, the consequence being that most of them split up into several weakly malformed crowns instead of having only one or two somewhere near the size of Filberts. Last September being exceptionally mild, I might say hot, Strawberries, in common with many other things, were unduly excited, the plants in some cases growing more strongly, and splitting up more than usual, while a considerable number flowered prematurely. Quite recently I introduced a batch of James Veitch into heat, many of which were showing their flower trusses, the more forward flowers being actually blackened by frost. I mention this as being another proof of the strange behaviour of Strawberries in pots this season, and I ought perhaps to add that only those with one, or at the most two buds or crowns are flowering thus early. Even the earliest of the Vicomtesse flowered very irregularly, and I drew three separate batches at intervals of about nine days from the pits in which all were started at the same time. "J. E." does not state when his plants were introduced into heat, but if it was done since the heavy frost, then a good many of them may yet produce flower trusses, which, if weakly, will be better than none at all, I find that early-forced Strawberries, invariably throw up their flower-trusses more satisfactorily when the plants are given the benefit of gentle bottom-heat, a hot-

bed of leaves in a heated pit answering best. Started on dry shelves and in a rather strong heat ranging, say, from 65° to 70° in the daytime and rather less during the night, the plants are apt to make an early leafy growth, the flower-trusses being later and stunted in consequence. Not a little depends upon the selection of varieties. I do not consider either of those named by "J. E." the best for early forcing, though Sir Joseph Paxton and President would form a good succession to Vicomtesse Héricart de Thury, Auguste Nicaise, and James Veitch. Personally, I fail to see the wisdom of starting so many varieties at one time, or, indeed, of growing so many in pots at all. One good early variety grown in sufficient quantity to afford several batches, and one or two successional varieties in about equal quantities are ample. They ripen their crops early or late according as they are introduced into heat. W. I.

GRAFTING EFFECTS OF STOCK UPON SCION.

I HAVE carefully read the remarks of "I. M. H." in THE GARDEN (p. 111) upon the above very important and interesting subject, and have come to the conclusion that the writer has been rather unfortunate in his grafting experiments, which, it would appear, have been performed without due regard, if any, being paid to the selection of stock and scion, whose union and ultimate produce might reasonably be expected to be a step nearer the point of excellence aimed at. It would be interesting to know in what way the good and bad qualities of the Jargonelle would be developed in fruit of Glou Morceau, Beurré Rance, Doyenné du Comice, and such like varieties resulting from a union effected with the Jargonelle as stock. The probable effect of the influence of the Jargonelle as a stock upon the varieties named would be an improvement in flavour, and perhaps the shortening of their keeping qualities to the extent of a few days. The probability of the scion "communicating some portion of its vigour or weakness to the stock" is very remote indeed. It is an acknowledged fact among fruit growers that the selection of suitable stocks for grafting certain kinds and varieties of fruit on should be done with judgment and forethought, and with a full knowledge of the characteristics of both stock and scion, and the good to be derived in the produce resulting from such unions should be apparent, and of reasonable attainment by the cultivator before proceeding with the grafting. It is when the process of grafting is carried out in a haphazard way, that is, regardless of the suitability of stock and scion to produce the results expected of them, that the disappointments and uncertain results referred to by "I. M. H." are to be attributed quite as much, if not more, as to the unsuitability of soil, treatment, and climate. Were I to graft a shoot of a Crab on a Blenheim Orange or Lord Suffield Apple, I should expect an improvement in the size and flavour of the Crab, resulting from such a union. My experiments and experience among some thirty varieties of the Grape Vine lead me to very different conclusions to those arrived at by "I. M. H." It is quite true we cannot, by grafting Alicante on Black Hamburgh, make an early Grape of the former; nor would we desire to do so if we could, although the flavour of the Alicante might thereby be improved. The colour, but not the flavour of the Black Hamburgh might be improved by being grafted on the Black Alicante. The behaviour of the rods of Muscat grafted on the Black Hamburgh, as quoted by "I. M. H.," was only what might have been reasonably expected under the circumstances. "I. M. H." says at the end of his article "grafting must be considered a good means to an end," adding "it is the readiest way of altering the character of a tree or Vine, as the case may be; that is to say, a tree of an inferior variety may be cut back and re-grafted with a superior form, and soon attain a useful size again." This advice should be safeguarded. Never put a superior variety of a Vine on an inferior variety as a stock. I did so once, using a worthless foreign variety as a stock for a popular late Grape, which was growing alongside

of the inferior one, with only one object in view, namely, that of filling the space previously occupied with the spurious variety as quickly as possible. The result was that no gardener to whom I showed the bunches resulting from this union could recognise the said popular Grape growing alongside the same variety from which the graft was taken, and which was then bearing a crop of ripe Grapes of the ordinary size and shape as regards berry and bunch. The produce of the graft put on the foreign stock was not only altered in size of bunch, size and shape of berry, but also in flavour. A shoot of the Black Hamburgh grafted about the same time on a Strawberry Grape Vine was also greatly influenced for the worse by its union with the Strawberry Grape. Profiting by the experience thus acquired, I have ever since done what I ought to have done before—paused to consider what results the union of certain scions with certain stocks would lead to before proceeding with the grafting. There are, however, two varieties of the Grape Vine that may unhesitatingly be used as stocks without any fear of the varieties grafted on them suffering in any way by the union, but with a prospect of being improved thereby, namely, the Muscat of Alexandria and the Black Hamburgh. I should never think of grafting a Muscat of Alexandria upon a Syrian or Trebbiano with the view of improving the quality of the Muscat, though probably larger bunches would be secured in that way. Madresfield Court and Mrs. Pince's Black Muscat by being grafted on Black Alicante might reasonably be expected to colour better than they usually do on their own roots, though probably the flavour would not be so good in consequence; and I should expect the produce of a cane of Madresfield Court grafted on a Mrs. Pince to colour less satisfactorily than it would on its own roots, and *vice versa*. In short, everything should be done with a well-thought-out and properly-defined object in view. W. L. C.

Ripening of Pears.—The summer of 1879 will be remembered as one of the most sunless and wettest on record. In that year I took charge of the gardens at Holme Lacy. It was also in that year that the Woolhope Club commenced their series of exhibitions in connection with the "Herefordshire Pomona." It may, therefore, be of interest to "D. T. F." and other readers of THE GARDEN when I state that in those gardens never, in the experience of my then employer, did Pears ripen so irregularly or were of so poor quality. Even such early varieties as Beurré d'Amanlis and Beurré Superfin were hard, and it was far into November before the bulk of the varieties was gathered, and only those from the cordons on a south wall were fit to be placed upon the table. Josephine de Malines was not ripe until far into January, and other varieties were late in proportion. Even where the flesh was melting the flavour was insipid; therefore, I think the dictum of "T. B.," "that the more wet and sunless the season, the earlier the ripening of choice Pears," cannot be generally accepted. The summer of 1880 was more favourable, being very much warmer and Pears ripened up well, but the succeeding autumn was mild and wet, and the late Pears ripened up with unusual rapidity. Even Winter Nelis and Josephine de Malines were fit for use in the early part of December, and those people who neglected looking at their late Pears until the usual time of ripening, found them past their best. Whether the fruits are from trees growing on a south or west wall makes a deal of difference, and also whether on the Quince or Pear stock. The earliest fruits are always to be had from trees on a south wall and grafted on the Quince. As regards shrivelling, this will invariably be found with samples gathered a little too soon, although they may ripen up sufficiently to be of first-class table quality. It appears to me that the Pear of all fruits is more influenced by soils and localities than any other cause. With some of our earlier Pears it is well known that a succession off the same tree may be kept up a considerable time by intervals of gathering. The later the variety, the longer the fruits should remain on the tree.—A. YOUNG.

Melon Cox's Golden Gem.—There is no more handsome Melon than this, the fruits of the true va-

riety attaining a good size, averaging each 3 lbs. in weight and of perfect form, netting freely, the colour of rind when ripe being a rich golden yellow, while the flesh is thick, green in colour, and of excellent quality. I find it one of the best for the early crops and pot-culture generally, the plant being of fairly robust fruitful growth, no difficulty often being experienced in setting a good crop. It is especially valuable for showing in collections of fruit, and is hard to beat in competition with other varieties in the single dish classes. Fruiterers also give good prices for medium-sized fruit.—I.

THE PINE APPLE.

THE cultivation of the Pine-apple does not receive the attention in English gardens it formerly did a few years ago, it being one of the very first of our British hothouse fruits to succumb to the inevitable and increasing competition brought about by enterprising British skill and capital, combined with the sunny skies and other climatic conditions of foreign lands. Notwithstanding this and the extraordinarily fine appearance and comparatively low prices of these foreign Pine-apples, I have never found any of them to equal in flavour and lusciousness one of our best hothouse samples that had been well ripened and finished. In arriving at this decision, I have made every allowance for prejudice—always a powerful factor in such cases. On the other hand, I readily admit that all Pines that leave our hothouses are not of this character. At the same time I have nothing disparaging to say—beyond the above—against the foreign importations. Just the reverse, for by these means good wholesome Pines are brought within the reach of the middle classes. This in the case of English hothouse fruit could not be done, owing to the heavy expenses attending their cultivation. To produce high-class, weighty, and full-flavoured Pines in succession at all seasons of the year requires a good deal of skilful management, and this month is the best time to commence or to deal with plants unsatisfactory in health. Quick expeditious fruiting largely depends upon the preparation of the suckers, and a good many cultivators err in taking them off too small, instead of allowing them to reach a fair size on the old stools before detaching them. The chief difficulty with these small suckers lies in their being too long about their work, as it is not always easy to maintain the potting soil sweet and wholesome for the roots in pots that have to be plunged in fermenting material for two years and upwards. Every effort, therefore, should have been made to secure strong sturdy suckers to start with. Preference should be given to those hard and brown at the base. These, if rooted in 7-inch pots, and as soon as roots show through shifted into 12-inch or 14-inch pots, and grown on liberally, may be expected to produce fruit each weighing 6 lbs. to 10 lbs. in about twelve to sixteen months hence. Unsatisfactory plants should be cut over and re-rooted. The soil required is a fairly strong, turfy loam mixed with a little bone-dust, and according to the nature of the loam, a proportion of fine charcoal or coarse grit to keep the soil open. As soon as the roots reach the sides of the pots, clear guano water may beneficially be given, and if stimulants can be varied by doses of soot water or artificial manure, so much the better. The plants may receive this generous treatment with plenty of atmospheric moisture up to about September, when moisture and heat may be gradually reduced 5° or 10°, which will mature the growth and keep it quiet till the new year, when the plants will readily respond by throwing up fruit in readiness for spring and early summer ripening. For winter supplies, Smooth Cayenne is one of the best, and August is the best month to put in suckers of this, although suckers may and should be put in all the year round if ready. February and August are good months for putting in good batches. Pines are sometimes planted out, and grand results are obtained at Frogmore, Clumber, &c., the only drawback being too many ripe fruits at one time. Thoroughly decomposed night soil along with the potting material is a powerful stimulant, but it should be mixed long before using

and in moderate quantities, accompanied by plenty of the correcting grit or small charcoal.

Madresfield Court.

W. CRUMP.

ORCHIDS.

BOLLEA LAWRENCEANA.

SOME time ago "C. F." sent me some flowers of Bolleas and Pescatoreas for names, and amongst them was one of this species. It was marked No. 3 in the lot, and I have only recently been able to identify it. Bolleas are regarded as a section of Zygopetalum by many authors, but yet there is an apparent distinction in them. Bolleas have one-flowered peduncles, large and fleshy sepals and petals, and a frill on the disc of the lip. They are very showy when in flower. These plants are scarce in cultivation, although many additions have been made to the genus within the past few years. Many growers get tired of them because they cannot make large leafy specimens of them rapidly. Mr. Salter, when gardener to the late Mr. Southgate at Selborne, Streatham, used to grow them well. He had an objection to them, however, because they would not flower freely enough. Mr. Salter's Bolleas were potted in well-drained pots, the soil used being good fibrous peat, from which had been shaken all the fine particles, and some Sphagnum Moss. The plants were kept cool and very moist. Moisture is very necessary, because the plants have no fleshy pseudo-bulbs to fall back upon for support, and consequently they must never be allowed to suffer for want of water, or the loss of leaves will be the result. This is not in accordance with their natural conditions, for I have been told by travellers that in their native country they grow on trees—not in the gloomy dark forests, but in places where shade and a good amount of light may be obtained. In such positions they enjoy a great amount of air, and during the night they receive a deal of moisture, which falls even in the hottest weather. Bollea Lawrenceana produces flowers which each measure some 3½ inches across; the sepals and petals are broad, thick, and fleshy, and make a good round flower. The sepals and petals are waxy-white, broadly tipped with mauve, the lip being of a deeper mauve. The plant is named in compliment to Sir Trevor Lawrence, the president of the Royal Horticultural Society, and it has been in our gardens some twelve or fourteen years.

WM. HUGH GOWER.

Cattleya Trianae Johnsoni.—This is a fine variety I lately noted in flower. The sepals and petals are broad, round, and full, the petals being slightly undulated and of a soft delicate rosy-lilac; lip large and spreading in front, rich crimson, suffused with a shade of violet, yellow in the throat, and with a distinct marginal border of pure white.—W. H. G.

Cattleya Trianae Smithiæ.—This is another exceptionally fine form of the species, the flowers large, measuring 6 inches across; the sepals and petals, well developed, round and full, are rich rosy-purple. Like all the best forms of Trianae, the sides of the lip are rolled over the column, and here the colour is deep crimson, or crimson-lake, the spreading front lobe being velvety and of an intense crimson-lake. The throat has two large spots of yellow, the same colour running back a considerable way. This magnificent form is now flowering with Messrs. Pitcher and Manda at Hextable, and it is one of the best forms I have seen.—W. H. G.

Lycaste Skinneri alba.—This Orchid would appear to be cropping up more frequently than usual, for last week I noted a very fine variety in bloom in Messrs. Seeger & Tropp's establishment, and

this week I have to record a fine plant beautifully in flower in Messrs. Laing and Sons' nurseries, Forest Hill. The flowers are pure white and about 6 inches across, but I am inclined to think they will become larger under cultivation. It requires exactly the same treatment as the species.—G.

Cymbidium Lowianum.—The *Cattleya* house appears to suit this plant very well. When it is taken into consideration that these flowers will maintain their full beauty for several months, it shows at once what a valuable species it is for decoration. It is well, however, not to allow the flowers to impoverish the plants too much if they are expected to flower well next season. This Orchid should be potted in loam, and the pots should be well drained. It is well not to pot it too frequently, or to give it too large a shift, as I think it blooms best when a little pot-bound. Some plants of this species which were shifted some two or three years ago have only bloomed sparingly since that time, although before the shift they flowered very freely.—G.

DENDROBIUM PIERARDI.

This species, by reason of its easy culture, profuse flowering, and cheapness, is one of the best *Dendrobiums* for general cultivation. It was introduced to the Calcutta Botanic Garden by Pierard at the beginning of this century, and not long afterwards was sent over to England. It appears to have been the first of the Indian *Dendrobes* that flowered in this country, this event occurring at Kew. It is found in great abundance in a wild state, and its natural range extends over a very wide territory. According to Sir Joseph Hooker, it is very frequently met with in the hot valleys of the lower Sikkim Himalayas, where it grows on the trunks of fallen trees. Thence, it spreads southwards to British Burmah and Moulmein. It has slender pendulous stems, which in this country usually measure from 2 feet to 4 feet long; but in the Botanic Garden at Calcutta, where it is cultivated by being fastened on the branch of a tree, and its roots kept continually moist by artificial means, they reach a length of 6 feet. It is the general practice to grow this plant in baskets suspended near the glass, a method which allows the long flowering stems to be seen to great advantage. In low houses, however, this plan is often inconvenient, and the stems have to be trained erect, as has been done with the admirably grown and flowered specimen illustrated. The flowers, which are usually at their best in March, are borne on the stems of the preceding year's growth, being produced singly or in pairs at each of the joints on the upper two-thirds of the stem. Each flower is from $1\frac{1}{2}$ inches to 2 inches across, or it may be a little over in the best varieties or unusually strong plants. The sepals and petals are of a pale mauve tinged with rose; the lip is broad and flat, and of a soft primrose-yellow, marked with purple streaks at the base. The delicate contrast between the lip and the other segments, and the soft tone of the whole flower, make this one of the most charming of *Dendrobes*. As in all Orchids that are spread over a wide area, considerable variation is manifested in the size and shape of the flowers, some having more pointed sepals and petals, and others a broader lip.

The cultivation of *D. Pierardi* is the same as for *D. nobile*. I prefer to grow it in teak baskets, the compost consisting of peat fibre (from which all earthy matter has been removed), clean *Sphagnum Moss*, and lumps of charcoal. From the time the new growths begin to appear until the end of September, a stove temperature and a saturated atmosphere should be maintained, water, of course, being freely supplied. After the leaves show signs

of decay, the moisture should be gradually reduced until in winter no more than is sufficient to prevent the shrinking of the stems should be given. From October to February the plants should be in a comparatively dry position in a cooler house. It will be noticed from the absence of non-flowering stems that the specimen from which the illustration was made has been grown on the pruning system, and it undoubtedly stands as a powerful argument in its support. Some years ago a good deal of controversy arose as to the merits of this practice, which consists in removing the stems that have flowered and are, therefore, of no further value in that respect. Of course, with species like *D. Pierardi* which flower on the growths last made, it would not do to cut off these until



Dendrobium Pierardi.

the new ones that spring from them had almost or quite completed their growth. Although from the physiological standpoint the practice is wrong, robbing, as it does, the new stems of the food stored away in the old ones, its supporters have the strong argument that plants have been grown as vigorous and as well-flowered as those not so treated, a fact which those who have attended the exhibitions and meetings of the Royal Horticultural Society have seen for themselves. The reservoirs of food—as the old stems really are—have been evolved in a state of Nature to enable the plants to survive long and severe periods of drought. Under cultivation, although it is necessary, as I have already pointed out, to keep the plants almost entirely without water at one

season of the year, they are not, or should not be, subjected to anything like the exhausting conditions which attend their growth in Nature; consequently the need of a reserve supply is proportionately reduced. This, no doubt, explains to some extent the comparative indifference of some *Dendrobiums* to the absence of old stems. Plants grown on the pruning system require a higher temperature and a moister atmosphere than unpruned ones do. I advise all who contemplate adopting this practice to do so at first in a tentative manner. For myself, I confess to a preference for the older system. W. J. B.

Phalænopsis leucorrhoda.—This supposed natural hybrid between *P. Schilleriana* and *P. amabilis* is now flowering beautifully in the nurseries of Messrs. Pitcher and Manda at Hextable; the flowers, as large as those of a good-sized *P. Schilleriana*, are white, streaked and tinged with purple, this as well as the markings on the leaves indicating its hybrid origin.—G.

Odontoglossum Halli leucoglossum.—A very fine plant of this variety with large flowers and a very long spike is now flowering in Mr. Sander's nursery, St. Albans. It is a noble species and very showy, yet I cannot quite agree with older authorities and assert that Halli is the very finest of the species.—G.

Ada aurantiaca (J. R.).—From this person I have some spikes of this beautiful plant. The sender says: "I have nearly a hundred spikes in bloom." It is a magnificent Orchid for the cool house, and its rich, golden-orange flowers afford a striking contrast to those of the white-flowered *Odontoglossums* with which it thrives well. It likes a moist shady nook, and should never be allowed to become dry at the roots.—G.

Cattleya Trianae alba.—What a beautiful flower this is, and yet how rare the true form. I have received seven flowers, all purporting to be of this variety, but not one is of the true plant. Upon putting a sheet of pure white paper behind them, they at once displayed a tinge of lilac in the lip, and two did not require this test, as it could be seen plainly. These must all be relegated to the variety *delicata*. I would advise my friends to try the paper test before sending me any more so-called white flowers.—W. H.

Odontoglossum Phalænopsis.—This is an unusual time to see this flower, yet I was surprised last week to receive a spike of two blooms of very fine form and colour—the sepals and petals being round, full and pure white, the broad lip also white with two blotches of crimson, one on each side of the middle. It is a somewhat delicate plant, requiring plenty of moisture

in the air all the year round, and the temperature should never fall below 60°. This plant I never could succeed with under cool treatment.—W. H. G.

Phalænopsis Sanderiana.—A charming rose-coloured form of *P. amabilis*. From the blotches of white which are found sometimes on the leaves some suspicions have been aroused as to its hybrid origin. A beautiful lot of it is now flowering in the nurseries at St. Albans, the cheerful rose-coloured flowers forming an excellent contrast to those of *amabilis* and *grandiflora*. Lucky are those who live away from the influence of the London fogs, which have been very destructive to these plants this winter.—W. G.

Oncidium bifolium majus.—This is a dwarf free-flowering species with bright yellow flowers, spotted with bright brown; the plant in general aspect has somewhat the appearance of *O. Rogersi* in miniature. The spike, however, and also the flowers are much smaller. This plant is usually considered a late spring bloomer, but I saw it recently in bloom.

It requires the cool end of the Cattleya house, and appears to thrive best hung up near the glass, potted firmly in peat fibre and Sphagnum Moss.—W. H. G.

Masdevallia towarensis.—Although late for this plant to be in flower, several excellent specimens with dozens of spikes each are now in full beauty in the Wilton House collection, Southampton.—W.

Anthurium Andreanum album.—In this we have a beautiful albino form of the typical plant, one which I do not remember ever to have seen until recently. It is very beautiful, and affords a fine contrast to the type and other kinds.—H.

Anthurium Laingi.—This is another white-spined kind of great beauty, introduced, I believe, by Mr. Laing, of Forest Hill. It belongs to the floribundum type, and is deserving of attention from its large size and distinctive character.—G.

Anthurium Scherzerianum.—From James Cory comes a large and very deeply-coloured spathe of this species; it is really astonishing how this has improved by cultivation. The spathe now before me is of a deep blood-red, and nearly as large as that of the variety called Wardianum.—W. H. G.

Phalænopsis casta.—This, supposed to be a natural hybrid between *P. Schilleriana* and *P. amabilis*, is quite distinct in its character. The leaves are slightly variegated when young, but this fades away as they reach maturity; the flowers resemble those of *P. amabilis*, but the petals and upper sepals are flaked with purple or rosy purple, whilst the lateral sepals are more or less dotted and spotted with the same colour. It is one of the gems amongst this superb family of plants. I noted it lately in bloom in the nurseries of Messrs. Pitcher and Manda.

SUBURBAN GARDENING.*

GARDENING in any of its various phases is carried on under far greater difficulties within the radius of smoke and such fogs as we experience from time to time in the immediate vicinity of the metropolis. Not only is this the case within the metropolitan district, but the same difficulty has to be contended against and overcome as far as possible around all of our large manufacturing towns, some instances of which are probably worse even than we experience on this the western side of London. We suffer more undoubtedly from the deleterious effects of fogs, commonly known amongst us as London fogs, than from any other cause. A simple fog, such as that to be met with in the purer air of the country, does not do much or any harm to vegetation; in fact, during a continued drought it is beneficial rather than otherwise. It is the fogs we are accustomed to see, and even personally feel the effects of, that do the greatest amount of harm to plant life. This is caused no doubt by the vast amount of sulphurous fumes which, by reason of the heavier air above, are precipitated close to the earth instead of being carried away to a higher altitude and absorbed into the purer atmosphere. I firmly believe more harm is done by a few dense London fogs than by either severe frosts or accumulations of blacks and soot, of which we find, alas! far too much upon our Evergreens during the winter season. This black deposit is a serious drawback, tending to the choking up of the pores of the leaves and hindering their proper breathing powers. When we have the opportunity of comparing the contents of a country garden with one in this locality even we cannot fail to note the hardier growth of vegetation in general with the finely developed autumnal tints of trees and shrubs, or the more intense colouring that is imparted to such fruits as the Apple and Pear. This clearly denotes the beneficial effects of a clearer atmosphere and a relatively greater amount of sunshine. Herein also lies an important factor in plant life, and one that we cannot possibly overcome; in our case this deficiency has a weakening effect upon the resisting powers of vegetation. Where the growth of any tree or shrub is thoroughly matured in the autumn it will stand the strain of a sharp frost far more effectually. As an instance of this I would quote from observations made during the autumn in the Isle of Wight. In

visiting a well-managed garden there I saw several plants which grow in the open air all the year round with at times 10° or 12° of frost upon them. These plants with us would not be safe if below freezing point through lacking maturity; hence we are forced to give protection under glass in the winter season. Not only does this apply to plants in the open air, but it has equal bearing upon all tender subjects that are always grown for at least a portion of the year under artificial protection. Fogs and dull weather, even in heated houses, soon exercise a baneful influence. Nothing can make up for want of sunshine or a clear atmosphere. Out of doors, of course, but little growth is made during the winter, but vitality has to be sustained as at other times. From the causes I have named the growth of plants and shrubs is weakened considerably, thereby not being so well calculated to withstand either severe frosts or the pernicious effects of easterly winds, with which during the early part of the year we are fairly well acquainted. No doubt most of us have noticed the blistered or burnt appearance upon foliage (such, for instance, as the Ivy where fully exposed or the Strawberry) during the spring season. I attribute this to the fogs and easterly winds. The latter act, no doubt, with frost as purifiers of the soil, but they at the same time bring with them the impurities of London so to speak; thus I consider we are in a worse position than our opposite or eastern neighbours. Fogs, such as we experience, cause more injury through the low-lying districts on either side of the Thames than they do on higher ground, the fogs remaining longer in the valley. I have just quoted the Strawberry as suffering in the foliage. With me at Gunnersbury it loses almost all of its leaves. Oftentimes have I thought the plants, especially young ones, killed, or nearly so, after a sharp trial of their vital powers, but they generally break forth again in due time, although, as a matter of course, they are weakened considerably for the time being. Violets also present a sorry, woe-begone appearance in the winter and early spring, being completely denuded of their leaves.

Any close observer travelling towards the metropolis either by road or rail may note the gradual diminution of numbers of the Pine or Fir tribe, and many other cone-bearing trees and shrubs. This is due to the impurities of the atmosphere more than to the character of the soil; these trees do not in hardly any case thrive well in our locality, a few kinds only being reliable, and they even bearing no comparison with their country cousins. Being deprived of the beneficial shelter produced by belts, or lines of these useful and stately trees, we are thereby more fully exposed to the inclemency of the weather than we should otherwise be. In a small garden even a friendly shelter is most beneficial and the effect ever so much better when the selection can be made from a wider range of material.

I think I have now said enough to contrast "suburban gardening" with that carried on in the pure country air, the possession of which I for one so much envy our more fortunate friends who are further removed from us. In spite, however, of all our drawbacks, the success in matters appertaining to horticulture is often attained in as great a state of excellence as in the country gardens. Where it is possible to overcome the difficulties, the enthusiast, whether an amateur or one trained to the profession, endeavours to surmount the obstacles which beset his path and attain to as high a state of excellence as possible. We must make the best of the peculiar circumstances under which we are placed and aim at success where we have most hopes of succeeding. It is a common mistake (made even by those who ought to know better) that of overcrowding; in every department of gardening it is practised. In glasshouses the plants are too often seen so crowded together as utterly to spoil each other, with the idea, no doubt, that mere numbers will reward the cultivator with the best results. In such a case not only is more labour expended, but the returns are far less satisfactory, so also is the quality of the produce.

In the kitchen garden these remarks apply with

equal force, the produce of which when overcrowded is of inferior quality, and the resources of the soil wasted to a great extent in obtaining a poor return. With shrubs it is the same. When these are overcrowded they draw each other up in a weakly condition, resulting eventually merely in the survival not always of the "fittest," but of those which are the most vigorous in growth. With flower beds and borders it is the same. When the former are filled at what is termed the "bedding season," the plants are often too much crowded together; borders or groups of hardy flowering plants are also planted in many cases too close together, the result in each instance being a fairly good, but very shortened display instead of a lasting one. These errors are made in other than "suburban gardens," but in the case of the latter the injurious effects wrought upon the produce is intensified by reason of the counteracting influences as previously alluded to. By avoiding overcrowding we can better prepare our plants and shrubs to resist the peculiar disadvantages against which we have to contend, particularly in the winter season.

FORMATION OF NEW GARDENS.—Partial failure in newly formed gardens in the suburbs is undoubtedly caused by poorness of the soil, and by the totally unfit condition to which it has been brought in being trampled upon during the process of building. Beyond dispute we are often indebted to the speculating builder for some of our failures in villa gardens. When a pasture field is being laid out in building plots, and the builder takes possession, the first thing he sets about is to dispose of the turf and top spit of soil. Good-bye, therefore, to one of the greatest aids towards future success when the garden has to be arranged and planted. He does it, no doubt, to make the most he can out of his transaction—at least he thinks so, but I do not. In selecting a residence, does not a well-kept, well-stocked, and thriving garden add greatly to the general appearance of the surroundings? It forms a finish to the house itself, and when there is hesitation as to a choice, that with the good garden will invariably be chosen, other things being very nearly equal. That this is a fact I know from personal observation. I am acquainted with a builder who is alive to this matter, and always makes it a point to complete his gardens well. With what result? some may ask. Why, his houses are let whilst his neighbours have "To let" very prominently displayed. What ought to be done is this: all of the top soil should be removed from the spot chosen for the building and also for some distance surrounding the site, and stacked for future use after all of the building materials have been removed. This will give plenty of soil, so that the ground in many cases may be disposed in mounds or varied levels, for anything is better than one smooth, prim, level extent of ground. Mounds and undulations add also to the superficial area; this in small gardens is of importance, so that the utmost may be made in each case. The ground when carefully preserved does not require nearly so much or, in some cases, any manure the first few seasons, for it must be borne in mind that a strong and luxurious growth is not desirable; it will succumb sooner or later to the inevitable. What is required is a firm, solid growth, built up in an enduring manner. The soil previous to planting should be deeply dug, and if necessary drained also. Time spent in digging and re-digging is time well spent; it cannot be done so effectually after the planting has been completed. When the ground is not or cannot be immediately got into good condition for planting, it is a far better plan to delay that part of the work. When done it should be done well, each plant or shrub "planted," not merely "stuck" in the ground. Instances of the ill effects of bad preparation and equally bad planting are often to be met with. Who amongst us has not observed the many dead or dying plants when the work has been done in a slipshod way? Not that this is always the fault of the planter, for it happens at times that the plants are not well prepared for removal. These when grown too closely together in a nursery, crowded thickly in lines or beds, and not transplanted so often as they should be to obtain stocky plants with plenty of

* A paper read by Mr. Jas. Hudson, Gunnersbury House Gardens, before the Acton Horticultural Society.

fibrous roots, cannot possibly succeed as they should do when transferred to the garden they are intended to adorn. There is a rage now-a-days for cheap material in the horticultural world, as in other and varied ways. The consequence is the supply has to be cheaply produced with the least possible amount of labour; failure afterwards steps in and the work possibly has to be done over again and again before the result is satisfactory, time thus being lost, to say nothing of additional outlay. This leads me to allude to another important matter or two in respect to the obtaining of trees and shrubs of any kind. It is not advisable in the case of suburban gardens to go further away to obtain them than is absolutely necessary. Those that are grown in corresponding soil and surroundings are preferable to those from a distance, and possibly from a totally distinct soil; those in the latter case take much longer to acclimatise. There is a fashion, too (or shall I say a mania?), for auction sales. These may suit the trader, but no one else, in a profitable way. In such instances far too long a time frequently elapses between lifting the plants and their replanting, their fibrous roots being meanwhile dried up and injured by exposure. It may be thought that some of these remarks are superfluous, but my wish is to strike at the root of failure, thereby to avoid it as far as possible. Failures oftentimes occur, yet the cause cannot at the time be traced to its source, and therefore avoided in the future.

The arrangement of a garden of moderate size should, in my opinion, be totally void of any repetition of its parts or plans. Avoid formality by all means wherever possible, for the more varied the design the greater will be the attractions. The preponderance of any given plant or shrub here and there will also rob the garden of a portion of its charms. I have previously alluded to "over-crowding." This might give rise to the question of furnishing a newly-planted garden, so as to avoid a barren or bare appearance for the first few years. To overcome this, the permanent plants should first be arranged, and any openings of sufficient extent afterwards filled in with cheaper material. For the first few years a considerable quantity of annuals and herbaceous plants might be grown, or here and there an undergrowth employed that could be removed at leisure. When more immediate effect in important spots is required, it can be had by planting rather more thickly, but a thinning out should be adopted before one plant spoils another. These will often come in useful for alterations or filling vacancies. In all fresh planting, a dwarf bushy growth should be aimed at and encouraged by moderate pruning, so as to form a good base. Plants that are drawn up tall and weakly are more at the mercy of the wind, and very quickly become bare at the bottom, when with a little attention they would have been well furnished and less susceptible to injury. Evergreens should be judiciously mixed with plants that annually shed all of their leaves.

Climbing plants ought to be freely used, especially so in gardens of limited size; no bare brickwork should be seen where it is possible to get a climber of one kind or another to grow. Climbers, in fact, are not planted in larger gardens even nearly so much as they should be. The house, too, should at least be partially covered with climbers. Some people avoid this, thinking that they are conducive to damp; whereas, the opposite is in my opinion the case in nearly every instance. Supposing the damp is rising in a wall from the foundation, a vigorous-growing climber would in such a position tend to absorb the moisture instead. Climbers when judiciously planted add greatly to the effect of a garden; in small ones they aid in breaking up the formality, otherwise so noticeable. They may be adapted to pillars, arches, and rustic work without taking up any great amount of space. Trees of large size when fully developed should not have any preponderance unless there is an abundance of room, and then on no account allow them to be crowded together. It is not an easy matter to get shrubs to do well when the soil is pre-occupied and permeated with the roots of trees, especially the Elm and the Horse Chestnut. I do not for one

moment despise large trees in their proper positions; with plenty of room they are simply invaluable, not only to the garden itself, but in the landscape also. More often than not they are planted too closely together, and afterwards not thinned out before they are starving each other, ending their days when they ought to be in their prime.

In "suburban gardens" the lawn should not occupy too great an extent of ground; when it does so, it is at a sacrifice of general effect, as well as involving additional labour in keeping it in order. Neither is it well to depend so much upon summer bedding plants for display; these look well for a time, but do not afford so great a variety. Several plants of one sort are used for effect, but if carried to any great excess, soon create a sameness and general lack of interest. It is better to cultivate a selection of well proved kinds of herbaceous and tuberous-rooted plants. Annuals also are not grown so much as they might be—the Mignonette, Sweet Peas, and Stocks, amongst sweet-scented plants, for instance. Ornamental Grasses and Everlasting Flowers should have a little space allotted to their culture; the former are always useful to arrange with flowers, and the latter take the place of fresh flowers when these are scarce in the winter season. Provision should be made in these gardens for filling the flower-beds after the tender bedding plants have been either removed or destroyed by frost. Bare ground for more than six months in the year is objectionable, to say the least. This can easily be avoided by purchasing a few packets of flower seeds, such as the Forget-me-nots, Polyanthus, Primroses, Pansies, and Wallflowers. Bulbous plants, as Hyacinths, Tulips, Crocuses, Scillas, and Snowdrops, can also be had cheaply enough, and may be intermixed with the afore-named, which I consider is preferable to planting them by themselves. Crocuses, Snowdrops, and Scillas look exceedingly well if dotted promiscuously upon the turf where they are not likely to be trodden upon during the period of growth.

RENOVATION OF OLD AND NEGLECTED GARDENS.—This frequently has to be done, and it is not an easy matter to do it satisfactorily; it requires a deal of patience and some little time before any actual return is gained either in the produce or effect. It is better at once to dispose of all unsightly objects, and depend more upon replanting with fresh material rather than rely too much upon bringing old and exhausted plants back again to health and vigour. Reverting once more to trees, these if at all unhealthy should not be spared unless it is thought that by lopping them they can yet be made to do good service. Those also that are occupying too great a space, thus casting a shade upon their surroundings so as to do injury, should be partially lopped to give other things at least a chance of thriving. The soil in old and neglected gardens should be deeply dug and allowed to lie fallow for a time; in bad cases it would be better to bury the top spit and bring the second to the surface. A good deal may also be done by removing soil from one spot to another, changing it in fact; that, for instance, which has formed the lawn would do well for shrubs. A free use of manure in old gardens will always be beneficial in promoting a good growth without over-luxuriance. Unless the turf is good upon the lawn it will be better to dig it in than aim at renovation. In such a case the best way is to prepare the soil for and sow lawn Grass seed; this, with a little care and attention, will soon form a good sward. Weeds upon the paths never need give any great amount of trouble; they can easily be got rid of by a weed-destroying liquid, which also brightens the gravel, and prevents worm-casts being thrown up. In suburban gardens the kitchen garden does not come so prominently to the front; in fact in many it has either no space or but very little (some odd corner perhaps) given to it. I do not think it is advisable to allot much space to vegetable culture in gardens of limited size. Potatoes, for instance, can be bought cheaper than they can be grown. The Jerusalem Artichoke might well take its place; this forms a capital screen when in growth during the summer, being then ornamental,

and afterwards in the winter useful as a variety to the vegetables then in season. Herbs might be advantageously cultivated in many a garden where probably they are but little seen. They do not take up much room, but their utility is beyond dispute both in a fresh state during the summer and also when dried for winter use. Material for salads should receive more attention than is often the case. The small growing kinds of Cabbage Lettuce can be grown closely together. Mustard and Cress do not take much space, whilst it is not generally known that the Watercress can be easily raised from seed sown during the spring in a moist and partially shaded spot. From one such sowing on a square yard or two of ground a large picking may be made. French Beans and Scarlet Runners pay for growing; so also do Brussels Sprouts when there is room enough at disposal. Fruit trees should receive attention, but must not be too thickly planted. There is no reason whatever why Apples, Pears, and Plums, either as standards or bushes (the former being preferable when only a few are grown), should not be planted amongst the shrubs. They are all ornamental, particularly the Apples, when in flower and equally so when loaded with fruit in their season. For walls, Peaches, Nectarines, Pears and Plums all succeed well; so also do Cherries. The chief point to aim at is to avoid overcrowding the wood in order that it may be as fully ripened as possible. The two first named fruits should if possible be grown on south or south-west to west walls, taking the next best positions for the rest. In order to make the very most of the room and to secure as far as possible good crops of fruit in little space, I advise the planting of cordon-trained trees of Pears and the best of dessert Apples. The treatment of the trees under this mode of culture is as simple as it is possible for it to be, whilst it enables the grower to plant a far larger variety of kinds. For dessert purposes a large quantity of any one given kind is not essential, except in special cases. A greater variety will prolong the season of their use, and add very much to the pleasure derived from their cultivation. Arches may be formed over paths and cordon-trained trees grown upon them most advantageously. Fruit trees of excessive size monopolise too much of the valuable space at one's command, with the possibility of occasional failure or an unusually heavy crop. Such fruits as Currants, Gooseberries, and Raspberries all thrive very well, but the great error that is made with their culture is still that of overcrowding. The bushes are often planted far too closely together, and the individual plants also excessively crowded with wood. Strawberries pay well when good attention is given to their cultivation. They may be grown in various methods, but by all means plant a fresh stock of plants every year, and never keep any after the third year's fruiting. Do not be tempted by the plants looking extra healthy with a large amount of foliage. This does not often mean a proportionate quantity of fruit, but quite the reverse.

PLANTS UNDER GLASS are grown under great disadvantages during the dull season of the year, especially when fogs are prevalent. At such times the outer surface of the glass becomes thickly coated with blacks and sooty deposit. This imparts a shade which alone is prejudicial when the maximum of light is most essential to the well-being of the plants. After a period of such weather the glass should be cleansed. This is not done effectually by the rain; the deposit has to be moved or loosened first by a hair broom and then washed off. The difference between the appearance of houses so treated and those not cleansed is simply astonishing. The interior of houses should also be well cleansed in the autumn, this also greatly assisting to the same end. During dull weather when not foggy the temperatures should only be kept at safety point, according to the plants grown in the houses. A slight rise in temperature during a fog is, I think, an advantage; in my opinion it prevents the outer atmosphere from penetrating so much as it would do, and by the temperature being slightly raised the atmosphere of the house can be kept more congenial. Thorough exposure to the beneficial effects of the sun during September onwards will

also prepare the plants by the hardening process thus undergone to better resist the bad weather when it comes. High temperatures during the winter season are a mistake unless forcing is carried on, and this even has to be proceeded with most cautiously. Early forcing does not pay; the percentage by failure and partial success do not compensate for the extra risk incurred. The foregoing measures will greatly aid in overcoming the bad effects to which we are unavoidably exposed, but even then we feel the results when every caution is exercised. Close observation to the peculiar agencies which surround us is the only way to overcome our difficulties.

TREES AND SHRUBS.

SHRUBS FOR FORCING.

ONE of the most generally grown for forcing purposes of all our hardy shrubs is *Deutzia gracilis*, here illustrated. By some the plants are grown and flowered year after year in pots, while by others they are planted out and lifted in alternate years. Whatever plan may be fol-



Deutzia gracilis as a forced plant.

lowed, the great point is to secure good, clean, well-ripened shoots, for a young plant grown in this way with but eight or ten branches will yield a far greater display of bloom than one which is simply a mass of slender twigs. The *Deutzia* flowers do not remain fresh long after they are fully expanded; but beautiful as they are in that stage, I think the shoots when crowded with their charming pearl-like buds just on the point of opening are seen at their best. This *Deutzia* may, with very little trouble, be had in bloom from Christmas onward; whereas the larger *Deutzia crenata*, which blooms naturally much later in the season, cannot, as a matter of course, be induced to flower so soon in the year, though under glass it is a very beautiful shrub. The double forms of *D. crenata* retain their flowers for a longer period than the typical kind, and are therefore better adapted for forcing. In the variety known as *candidissima* or *Pride of Rochester*, for they appear to be one and the same, the rosette-like blossoms are pure white,

while in *rosea-plena* they are, especially towards the exterior, flushed with pink. Rosaceous plants contribute largely to the list of shrubs available for forcing, there being many of the Almonds, Peaches, Plums, Cherries and Thorns, as well as other things available for this work. Of these, the Almonds and Peaches will flower very early in the season with but little trouble, and much the same will apply to the Cherries, of which the double-flowered forms are the best for this purpose. That beautiful wall shrub, the Himalayan *Prunus triloba*, with its rich, rose-coloured semi-double blossoms, is one of the best of the Plums, though for a small structure the double Chinese Plum (*P. sinensis alba* or *rosea plena*) might dispute the position.

Pyrus malus floribunda, with its long wide-spreading branches wreathed with blossoms, is very showy, while the flowers of the little *Pyrus Maulei* supply a distinct shade of colour and remain in beauty for a considerable time. The graceful growing *Spiraea Thunbergi*, whose slender arching shoots are wreathed with little pure white blossoms, is one of the easiest of all

than on the plant, though as a flowering bush it will be much admired. One of the best for blooming in a small state is the Persian, while of the larger kinds *Charles X.* still holds its own, and no doubt we shall in time see some of Lemoine's double-flowered varieties more generally used in this way. *Staphylea colchica* is a good subject for forcing, its large clusters of whitish sweet-scented flowers being very different from those of any of the above-mentioned shrubs. The two *Forsythias* (*viridissima* and *suspensa*) with their golden bell-like blossoms, as might be supposed from their early flowering character, may be readily forced into bloom, and in a cool house will retain their beauty a considerable time. *Hydrangea paniculata grandiflora*, which does not bloom naturally till the end of the summer, has become a most popular plant for forcing. The *Guelder Rose*, if not pushed on in too high a temperature, will flower well, and being so distinct, it is sure to attract attention. While the merits of all the above have been considered from a floral point of view, there is one, the variegated *Negundo*, whose foliage is the chief attraction. If this is brought on gently, its leaves are produced much earlier than those in the open ground. There are a few other shrubs that may be forced into bloom. To mention a few, there are *Styrax japonica*, with pure white drooping bell-shaped flowers; *Magnolia stellata*, recently noted in *THE GARDEN*; *Berberis stenophylla*, the *Laburnum*, *Weigela*, the *Fringe Tree* (*Chionanthus virginica*), and the *Mexican Orange Flower* (*Choisya ternata*).

H. P.

MULCHING AND TOP-DRESSING CONIFERS.

IN hot dry seasons these trees frequently suffer from want of moisture; indeed it is not only in dry seasons that they are benefited, but they should be well watered every season early in the spring when about to start into fresh growth, as if the trees have a dense head of foliage the rains cannot get to the roots, and thus assist the formation of strong growth. Many large trees suffer in this way, and if the soil underneath them is got at in any way it is often found dust-dry. When practicable, a thorough soaking at that time will have a beneficial effect, and if the roots can also have a top dressing of thoroughly decayed manure at the same time, the effect upon the foliage is wonderful. I have seen Cedars that were condemned to be rooted up, having got into a cold and wet, or other unsuitable soil, take a fresh lease of life when assisted in this way. In many establishments the watering and mulching of specimen trees would become a serious business, as time could not be given to the work with so many other duties requiring attention, but in the case of isolated sickly trees means could be taken to assist them by treating as advised. Many Conifers grow rapidly and thus absorb all the moisture and goodness of the soil. Now that water is often laid on to gardens and pleasure grounds it is not necessary to water these trees as in years gone by; much can be done by hose pipes, allowing the water to run slowly and removing the hose at intervals. A good mulch of manure will then keep the roots in a moist growing condition for some time. Before the manure is applied the old surface soil and old dry leaves should be removed. The latter should always be cleared away once or twice a year, as they soon ruin the Grass if allowed to remain, and certainly do the trees no good. When the manure has been on the surface a short time the leaves will begin to have a better colour, and the roots, if examined, will be found coming to the surface. If the trees are in a bad state and on turf, the turf should be removed, and then the roots get the nourishment desired. The next question that arises is the sort of mulch required, and I find the trees are not at all particular provided it is thoroughly decayed. It is useless to put on manures in a green unfermented state. If it can be got, I like cow manure best, as it is cool and retains the

shrubs to force into bloom. While the above-mentioned list of rosaceous plants is a pretty extensive one, the Ericaceae are also a numerous class. To illustrate this, one has but to mention the *Rhododendrons*—a host in themselves, the various hardy *Azaleas*, *Andromedas*, *Kalmias*, and others. There are two very desirable shrubs to be found among the *Andromedas*, viz., the North American *A. floribunda* and *A. japonica*. *Zenobia speciosa* and its mealy-leaved variety *pulverulenta* are two useful plants for forcing, while mention of the little winter-flowering *Heath*, *Erica carnea*, will complete my list of plants of this class. These ericaceous plants possess one advantage over many others, and that is, they form such a dense mass of fibrous roots that they can be lifted at almost any time of the year without injury. No notice of shrubs available for forcing would be complete without mention of the *Lilac*, which is certainly very beautiful treated in this way. It is more frequently seen in a cut state

moisture, and the roots of Conifers seem to revel in it. When leaves are used as a mulching, some artificial manures can be used, and then thoroughly washed down to the roots. Wood ashes and guano mixed are valuable for this purpose. Liquid manure may often be used when not required in the garden. There are many other fertilisers that when mixed with new loam or suitable compost will do much good where animal manure cannot be got. Even soot should not be despised, as when mixed with crushed bones and soil it is a valuable manure, and possesses long-lasting properties.

Syon.

G. WYTHES.

Evergreens and the frost.—Between November 20 and December 10 I planted several hundred Evergreens in a rather exposed position. They have not suffered so much from the frost as I expected, the only subject seriously injured being the golden-leaved Euonymus. Aucubas, Berberis Darwini, Osmanthus, and Sweet Bays are somewhat browned, but I do not anticipate serious injury. Laurustinus is not much hurt; indeed I have seen this plant when well established killed nearly to the ground with frost of no greater severity and shorter duration than we have experienced this winter. The covering of snow which sheltered the plants during the first part of the time that the frost continued no doubt was of great value. Such subjects as *Olearia Haasti*, *Garrya elliptica*, *Azara microphylla*, and *Veronica Traversi* are uninjured. I must mention, however, that these plants were selected for important positions, and that they had been given more space to secure greater symmetry in outline. The result has been also to give them a greater degree of hardiness. The question will no doubt crop up again as to which is the best time to plant Evergreens—autumn or spring. Having been engaged in planting for a number of years, my experience is that the success of the operation depends more on the character of the weather prevailing after than anything else, assuming always that good plants are selected and that the work is done in a proper manner. I have planted at all times from the beginning of September to the beginning of May, and I have always found that the weather influenced the success or failure of the work more than the time at which the operation was completed. I do not fear frost so much as cold, piercing wind. Even now a freezing wind may come in March and do more harm than the frost so far.—J. C. C.

Seasonable decorations.—The Daffodils in their numerous varieties will now afford excellent supplies for cut flower arrangements. For some few weeks past the earlier ones have been obtainable, but now a greater variety will be afforded, and thus assist in the variation of the methods in which they are set up. These will be followed by others, so that there need not be any fear of sameness. Daffodils for arranging in a cut state should be taken from the plants before they are fully expanded; they will afterwards further develop and last a long time in good condition. As long stems as possible should be secured; thus when they have been two or three days in water and this needs replenishing, a small portion may be cut off. For foliage to arrange with the Daffodils, nothing, as a rule, surpasses their own; it is the most appropriate, and at the same time easy to set up with the flowers. Should it be desirable to arrange an extra large quantity in one vase, such as for an entrance hall or the centre of a dinner-table, then additional assistance is needed to afford greater facility for the prevention of crowding. For this purpose there is nothing to equal the shoots of *Mahonia aquifolia*, especially when it can be had with the deep bronzy tints so peculiar to it in some soils and situations. A few of these shoots should be first placed in the receptacle intended for the flowers, and somewhat closely together. Then the flowers can be placed in position without that fear of overcrowding which must inevitably ensue if some such means is not adopted. In all larger-sized arrangements the flowers, too, should be proportionately large; in smaller ones with only a few flowers, those of less size will look much the best. As an instance in

the latter case, what a beautiful effect can be made by a few flowers of the yellow Hoop Petticoat Narciss (*N. Bulbocodium*) with its citron-coloured and white varieties; so also can the single and double varieties of the Jonquils be advantageously used, and both with their own narrow, Rush-like leaves. For bold arrangements nothing will surpass those of the Emperor and Empress types with their own characteristic broad foliage to accompany them. Both single and double varieties are alike valuable in a cut state, but they should never be arranged together. Two or more shades of yellow look well in one vase, but if white is used, then one shade of yellow is preferable. Daffodils are at all times more effective when arranged by themselves; they do not even look so well when associated with the *Polyanthus* Narciss, much less so when put with anything of quite a distinct character. Another great advantage possessed by the Daffodil family is the complete absence of any exterior aid by wiring, not even gum, so much used with some flowers, being required. When more Daffodils are to hand than are immediately needed, some should be kept in a cool dark cellar till wanted.—J. H.

BOILERS AND FUEL.

THE difference in the theoretical fuel value of coke and anthracite is so very small, that it need not be considered in practice. No doubt there will be a difference in the working value of the two in practice, but this will vary with different boilers, and the matter would be an exceedingly difficult one to test with such irregular and uncertain work as is required in plant houses. Until this year the whole of my heating has been done by a boiler made of a coil of wrought iron steam pipe set in firebrick, circulating direct into a large wrought iron tank, which contained one gallon of water for every foot run of 4-inch pipe. The tank was fixed under the stage and made of a suitable size and shape to be entirely out of the way, and was entirely covered or jacketed to retain the heat. The water circulated from this tank and the heat was controlled perfectly as required by a valve quite independently of the fire, which was used only to retain the average heat in the tank. We never had the slightest difficulty in keeping an easy minimum of 55° in the severest weather without any night firing and without the slightest care as to regular firing. This arrangement I had in use for fourteen years without the slightest hitch or failure in any way, and on removing I fitted up a similar arrangement of boiler and tank for a conservatory, the boiler being in the cellar and the tank under the conservatory floor, covered with cast iron grids flush with the tile flooring. In this case no pipes are used and the heat is controlled by cocoa matting, which covers the grids more or less as required. The rule with this is that the boiler fire is lighted every morning, made up once during the day, and then left without attention until the following morning. In very severe weather the fire is kept going longer, but no care is taken to keep it burning during the night.

As a fair comparison with this I have four other houses heated by one first-rate tubular saddle boiler with water bars and working direct on to the pipes without tank reserve, this having been fixed in the place when I came. It requires the closest attention and a considerable amount of skill in firing up to keep the heat approximately steady, and the slightest hitch or carelessness would mean the destruction of part or all of the contents of the houses. After one winter's experience of the two systems I have decided to add to the saddle boiler arrangement a large reserve tank in one of the houses to reduce the risk and anxiety inseparable from a direct working system. I hear of many cases where it has been impossible to keep the frost out during the past severe season. With the tank arrangement any irregularity of temperature could only occur through the grossest neglect. In the tank-heated conservatory I can and do get any temperature I choose with perfect steadiness with the minimum of trouble, and by drawing the mat over the grid I can stop off the heat entirely at a minute's notice if the sun suddenly appears.—THOS. FLETCHER, *Grappenhall, Warrington.*

— I have used anthracite coal in large and

small boilers alike with satisfactory results. I am now using it for two old houses heated by flues, and there also it is proving superior to all other fuel tried, maintaining a steadier heat with much less attention. There is, therefore, no doubt that anthracite is a boon in the garden, combining as it does efficiency and economy with a minimum of labour and attention. Respecting its advantages over coke, they are many, among these being less cartage, less storage, less stoking, less ashes, fewer clinkers, no smoke, no night work, and a steadier heat. I pay more for the anthracite and less for the coke than E. Burrell does (p. 178), yet my fuel bill will not be so heavy for the present rigorous winter as it was for the mild one that preceded it, when coke was being used.—A. DOUGLAS.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

IN spite of the dense fog that prevailed over the metropolis on Monday evening last, there was a large attendance of members at the meeting of the general committee under the presidency of Mr. R. Ballantine. The proceedings were opened by some correspondence being read from Mr. Easy on the subject of the trophy offered for competition by Mr. Beal in class 39 at the recent centenary show, and Mr. Easy was in attendance with the trophy, which was said to be incomplete. The committee, however, could not interfere in the matter. The representative of the Dalston Chrysanthemum Society, referring to the new regulation as to the number of medals allowed to affiliated societies, explained that in their case the late Mr. W. Holmes was president of the society, and had held out as an inducement to affiliation the fact that medals of the National Chrysanthemum Society could be offered by local societies as prizes. We think some surprise was caused when the Dalston representative announced that forty-four medals had been offered for competition by them, and it is evident that some limit ought to be put upon such a wholesale distribution of the National medals at local shows, otherwise they will soon cease to have any value in the eyes of exhibitors.

A letter was read from Miss Holmes acknowledging in suitable terms the vote of thanks the society had passed for the assistance she had rendered in the secretarial duties during the past year. It was resolved that her letter, which referred in a touching way to her brother's labours, be entered on the minutes.

A motion was made authorising the transfer of the society's banking account to the Ealing branch of the London and County Bank, all cheques on it in future to be signed by the treasurer and the secretary, the latter of whom, it was arranged, was to report periodically upon the financial position of the society.

A request having been received for one of the society's certificates, the secretary announced that the stock was exhausted, and arrangements were entered into for the schedule sub-committee to obtain designs for a new one, and carry out the execution of such a one as they may think most suitable.

Offers of special prizes were reported as follows: Messrs. C. Sharpe and Co., £2 10s.; Mr. R. Owen, £11; Messrs. Pitcher and Manda, £6 6s.; Messrs. Cannell, £12; Messrs. Laing, £3 on account; Mrs. Myers, £2 2s.; two medals by the *Gardener's Magazine*, and several by members of the committee. Mr. E. C. Jukes, Messrs. Sutton, and Mr. Fidler had also promised additional support in this way, bringing up the total to very nearly £100. Mr. R. Dean then presented the report of the schedule sub-committee. The approximate sum available for prize money he said would amount to £425 between the three shows, which would be held as follows: Early flowering varieties in September, great show in November, and, instead of the ordinary mid-winter show as heretofore, an early winter show would be held on December 9 and 10 next. The amount of prize money to be allotted,

irrespective of special prizes, was £85 for the one in September, £298 for that in November, and £50 for the December show. Various alterations in the classes at each of these exhibitions were submitted for approval, but they are too numerous to detail here, and will appear in the schedule when printed in about two months' time. It may be briefly mentioned that in the September schedule a new class for six blooms of *Mme. Desgrange* or its sports has been instituted for amateurs only, and that the classes for *Roses* and *Hollyhocks* have been erased. The *Dahlia* classes and *Dahlia* prizes will be settled by the committee of the National *Dahlia* Society. At the November display the centenary class will be done away with. In the society's competition the incurred blooms are to be twenty-four distinct varieties, and in class 3 of last year's schedule the limit has been fixed at not more than two blooms of one variety. The cash value in this class has also been reduced, but 4th and 5th prizes have been added. Classes 5, 10, 11, and 14 have been withdrawn. In class 27 an alteration has been made as follows: "Each exhibitor will have for his sole use a table standing by itself of 54 superficial feet, and a new class of this kind has been made for amateurs, the table being in their case 18 superficial feet." In the open classes, a new one has been made for twelve single-flowered varieties in bunches of not less than six varieties, a silver-gilt, a silver, and a bronze medal being offered as the first, second, and third prizes respectively. To the prizes for the large group, similar awards of medals will be made in addition to the cash offered. At the December show a new class was decided upon for twelve blooms of *Princess Teck* or any of its sports. The judges appointed for the September exhibition are Messrs. Kipling and Beckett; for the November show, Messrs. Prickett, Beavan, Gordon, Mardlin, C. Orchard, and Harry Turner in *Chrysanthemum* classes; Messrs. W. G. Head and J. Hudson in the miscellaneous classes; and Messrs. Bennett and Miles in the fruit and vegetable classes. Those appointed for the December show are Messrs. Langdon and Castle.

The report was adopted.

The election to fill the retiring members' places on the floral committee resulted in the following gentlemen being appointed: Messrs. R. Owen, Beavan, Geo. Stevens, Mardlin, and Briscoe Ironside. The dates of the floral meetings were fixed for September 9, October 14 and 28, November 10 and 24, and December 9.

The new catalogue committee were next voted for, and after some discussion the following were appointed: Messrs. Harman Payne, Geo. Gordon, E. C. Jukes, Briscoe Ironside, and H. Shoemith.

Inquiry was made concerning the progress of the Holmes Memorial Fund, and a letter was read from the secretary, Mr. Lewis Castle, from which it appeared that the Aquarium Company had yet to render an account as to the result of the floral fête and bazaar given on behalf of the fund last December.

Mr. Dreer, of Philadelphia, was elected a foreign member of the society.

NOTES OF THE WEEK.

Date germinating in the open ground.

—This occurred in my garden last summer, but unfortunately the young plant succumbed to the winter's frost.—G. P., *Dublin*.

Galanthus Sharlocki.—This curious *Snowdrop* with its green-tipped segments and prolonged leafy spathe is in full bloom, but unfortunately more curious than showy. The grand forms of *Melvillei*, peculiar forms and allied species are well worth trying.

Scilla bifolia is just showing above ground. We have now many forms of this pretty species, the best blue being *taurica*, one with numerous large flowers, as also the white and pink-coloured varieties are especial favourites.

Cordylines.—In your interesting article on these stately plants, it is said that they seldom branch till they come to flowering age. I know of a plant only about 6 feet high which has branched almost from the ground, probably from some injury. *Cordylines*

seem perfectly hardy in the neighbourhood of *Dublin*. I have had several for eight or ten years, and never seen any injury from frost.—G. P.

Anemone blanda.—The severe frost and snow have been too much for this this winter, and it is just now beginning to show itself instead of about Christmas, as usual. It seems to us that this species is more difficult to manage in the south than in the north, where we are told it increases with great rapidity. We were told the other day by a London nurseryman that this charming species lasts only a short time with him, and has to be imported regularly. The present spring shows many blanks in our bed of *A. blanda*, although last year it was the admiration of all who saw it. A variety with white flowers has been imported in quantity this year, but we do not like it so well as the old azure-blue form.

Iris Bakeriana.—The writer on this at p. 140 may rest assured that I shall not give varietal names to such varieties as he mentions, but I hope he will not find fault with that I have named *I. B. alba*, a pure white variety, and another, major, this being twice the size of the typical plant. After *Iris Bakeriana*, *I. sophenensis* comes out, and it may be questioned whether the numerous varieties of this should not get names; they range in colour from bluish white and pale mauve to purple, lilac, red, and violet, but in consequence of the shades running one into another I think it best not to trouble about names. It is a distinct plant, originally imported and named by Professor Foster. His typical plant has tiny flowers of a dull, deep purple, with a flush of blue and a peculiar metallic lustre; my own plants came from another country, and show broader, fuller flowers in great variety of colouring. I expect soon to see several new forms of the reticulata group flowering for the first time in Europe. The question of the yellow *I. Danfordiae* can now be settled. *I. Bornmülleri* must be regarded as a different plant; all those at present in commerce being *I. Danfordiae*.—MAX LEICHTLIN, *Baden-Baden*.

Mimulus Lewisii, a recent re-introduction from America, is to our mind one of the best of this genus, and in conjunction with *M. cardinalis* formed the well-known *M. hybridus* of gardens. *M. Lewisii* was grown in the Royal Horticultural Society's gardens at Chiswick many years ago, and is the *M. roseus* of Lindley. It was soon lost, however, and only re-introduced a few years ago. It is found growing at an elevation of 8000 feet along the icy canyon streams bordering the glacier and lava beds. The plants are said to be found in large clumps somewhat like *Phlox paniculata*. The flower-stems vary from a foot to 18 inches high, and the large pink, violet-shaded flowers are produced in profusion during July, August and September. The leaves are soft, hairy, and of a fine yellow-green. *M. primuloides* is also a pretty, though little-grown member of this family. The flowers are pale or primrose-yellow, and produced in great numbers throughout the summer months. In autumn when the plants die down they form little bulbils, which in the spring again produce leaves and flowers. These bulbils must be protected in winter from birds, &c.

Camellia reticulata.—Both in size and elegance of form the flowers of this *Camellia* surpass those of any other species in cultivation. Notwithstanding this, it is almost as uncommon in gardens as the various forms of *C. japonica* are the reverse. One of the largest plants in the country is growing in the temperate house at Kew, where it is planted out and is now finely in flower. It is some 10 feet high and about the same across. Another fine specimen may be seen in the gardens of the Royal Horticultural Society at Chiswick. The flowers are 6 inches in diameter, sometimes even more, but without any of the stiffness of form which characterises most of the varieties of *C. japonica*. The petals are large and of the richest and loveliest shade of rose. As the flower is only semi-double, the petals are confined to two or three rows surrounding a large cluster of stamens in the centre; the arrangement, however, is quite irregular, this informality being increased by the deep undula-

tions of the petals. The species possesses the same free-blooming qualities as the commoner types, almost every shoot being terminated by a bud. When out of bloom it is easily distinguished from any other *Camellia* by its stronger growth and somewhat looser habit. The leaves also, instead of being glossy, are of a dull, dark green, the margin being minutely serrated. The specific name alludes to their close reticulation. It is a native of China and Hong Kong, having been introduced in 1824. For planting out in the conservatory it is eminently suitable, plants a yard high flowering at every point.

Rhododendron argenteum.—Under the older name of *R. grande*, a title the species in every way deserves, several examples of this *Rhododendron* are grown in the temperate house at Kew, two of which are now in flower. Regarded merely as a foliage plant, the species is worthy of cultivation, its whorls of oblong, deep green leaves, which are each sometimes far more than a foot in length, having a bold and striking effect. The under surface is of a grey, silvery white, a character on which the specific name is founded. In the matter of flowers, too, it stands amongst the finest of the Himalayan *Rhododendrons*. Although they are inferior in size to those of *R. Nuttallii*, *Aucklandii*, and others in the group with few-flowered, lax racemes, its only rival in the other section, with compact heads of numerous flowers, is *R. Falconeri*. Individually the flowers are perfectly bell-shaped, and about 1½ inches across the mouth. They are closely packed and a fine truss will measure 8 inches to 10 inches across. The corolla is white with a purple stain at the bottom. It is a native of the mountains of Sikkim.

Galanthus Fosteri.—I hope the Rev. Mr. Ewbank as well as Mr. T. Smith will permit me to remind them that a *Snowdrop* to be judged fairly ought to be several years under cultivation; besides, the flowers cannot show their entire beauty a few days after opening. All *Snowdrop* flowers extend and enlarge for at least a fortnight, and *G. Fosteri* is a very variable plant. The same bulbs that produced the flowers exhibited by Professor Foster at one of the meetings of the Royal Horticultural Society in spring, 1889, have since that time improved, and have given flowers nearly twice as large as those figured in *Gardeners' Chronicle*. *G. Fosteri* is a near relative, if not a form, of *G. latifolius* (Rupr.), and its best forms represent in shape, colour, and size the most beautiful *Snowdrop* I have ever seen.—MAX LEICHTLIN, *Baden-Baden*.

—It is surely erroneous to call *Galanthus Fosteri* a variety of *G. latifolius*, as I noticed was the case at the last meeting of the Royal Horticultural Society at the Drill Hall. It, no doubt, somewhat resembles that species in the form of leaf, but the resemblance, so far as I can make out, goes no further. *G. Fosteri* is much more distinct than some of the other species, and may be briefly described as having the foliage of *G. latifolius* and the flowers of *G. Elwesi*. The flowers are almost exactly those of *Elwesi*, but I am told that in robust specimens they are larger and finer. It is a fine species, and coming as it does from Amasia, in Asia Minor, proves perfectly hardy and flowers early.—D.

Orchids from Percy Lodge.—I herewith send a few blooms of *Dendrobium* in flower here. They are flowering well this season. The piece of *Oncidium* is from a plant received from Mexico, and has pseudo-bulbs similar to those of *O. sessile*. I should be pleased to receive the name. The spike from which the *Calanthe vestita rubra oculata* flower was cut has been in bloom for the past seven weeks, and has developed a good many such flowers. I think the bloom of *D. crassinode Barberianum* is a very good type of that variety.—*Geo. Cragg, Percy Lodge*.

* The flower of *Dendrobium crassinode Barberianum* is large and very brightly coloured. The blooms of *D. nobile* are also very good. The flower of *D. Wardianum giganteum* is very fine, not quite so large as the one recently noted from Mr. Buchan, of Southampton, but with broader petals, and consequently of a rounder and better shape. The *Calanthe* is very highly coloured. The

Mexican *Oncidium* is an old acquaintance (*O. maculatum*, or *Cyrtorchilum maculatum*, of Lindley), belonging to the integrifolium group.—W. H. G.

Scilla sibirica.—There are two new forms of this beautiful spring bulb now in cultivation, both from the anti-Taurus, from whence they have been introduced through Mr. Whittall. The first to bloom with us had single flowers of an intense deep blue, but, of course, not so showy as those of the type. The other, which is called *robusta*, is a strong-growing form, much taller and more vigorous than the old one, and altogether a decided acquisition. It appears, too, as if it would flower earlier, and if this be permanent it will be an additional advantage.

Azalea linearifolia.—This curious species differs from all other *Azaleas* in almost every character but that of floral structure. It forms a flat-headed bush 3 feet to 4 feet high, each branch being terminated by a tuft of narrow light green leaves, which are densely covered with hairs. The specific name is very appropriate, as the leaves, which vary from 1½ inches to 3 inches in length, are not more than one-eighth of an inch wide at the broadest part, and taper to a point. The flower is composed of five narrow petals, similar in shape to the leaves, each one being 1½ inches long and of a light rosy purple. This *Azalea*, which is a native of Japan, will grow out of doors if planted in sandy peat and given a moist and sheltered position. In the cool greenhouse it grows well, and during February and March produces its flowers in abundance. Except for those, however, who like to have curious as well as beautiful plants in their greenhouses, it is scarcely showy enough to gain an entry there, but outside it makes an interesting and pretty bush, and is certainly worth cultivation.

Senecio grandifolius.—This is a species of tall, strong growth, and when allowed full freedom at the root is of handsome and stately habit, its leaves being broadly oblong and from 1 foot to 18 inches long. On account of this character it is occasionally used in sub-tropical gardening. It is, however, as a greenhouse plant that it shows to best advantage. It flowers during February and March, producing several corymbs at the top of the growth, which together form a large and striking mass of bright yellow flowers, measuring on strong plants considerably over a foot across. It is of the simplest cultivation and propagation; cuttings taken from the young growths that spring out after the old stem has been cut back strike root readily. Afterwards they simply require plenty of water and manure. Useful plants for the stage may be obtained in one year from cuttings by growing them on into 7-inch pots. During July and August they may be plunged outside. The best effect, however, if space will allow, is obtained by planting three to six plants of different heights in a group in the conservatory border, the shorter ones in front hiding the bare stems of those behind. Owing to the quick growth of this species, and to the fact of its leaves lasting little more than a year, it is necessary to prune it close back each season after flowering, otherwise it gets leggy and unsightly. It is a native of Mexico.

Polygonum sphærostachyum has proved a much better plant than we anticipated. It seemed at first a difficult matter both to grow and to propagate it, but these defects have been overcome, and the plant is one of our very best subjects for rockery decoration. It is found in the alpine regions of the Himalayas, at an elevation of from 11,000 feet to 15,000 feet, but never forms large patches. The seeds drop off apparently before they are fully ripe, and, unless watched, are scattered by birds, &c., and never germinate. As soon as we see them begin to fall, we top-dress the ground in the vicinity of the plant with fine soil, and when all have dropped we cover over with half an inch of the same soil. We have now hundreds of seedlings of this beautiful plant, and hope this year to have a fine display of its handsome deep crimson flowers. It seems to love full sunshine, and thrives best in a loose rich soil. It is nearly allied to *P. viviparum* and *paleaceum* from the Khasia Mountains, and *P. affine*, perhaps better known as *P. Brunonis*. The seeds

of *P. sphærostachyum* may be taken off the plants and sown at once in a pan, pricking the seedlings off into boxes or pans when ready to handle.

Saxifraga luteo-purpurea.—This is one of the most beautiful of the early spring *Saxifrages*, sent out a few years ago under the name of *S. Frederici-Augusti*, under which name it is still known. The true *Frederici-Augusti*, if there be such a plant, belongs to *S. media*, with a spicate inflorescence and purple-brown flowers. I much doubt, however, its being distinct from *S. media*. *S. luteo-purpurea* is a natural hybrid between *S. media* and *S. aretioides*, and has been long known to botanists. It was described by Don in the Transactions of the Linnean Soc., 13, p. 397, as *S. Lapeyrousiana*, but was soon after lost to cultivation until re-introduced from the Continent under a new name. In habit and inflorescence it most nearly resembles *S. aretioides*; the flowers are numerous, in a loose head, and of a delicate primrose-yellow, the leaves long, pointed, green. It is one of the easiest to manage of all the *Saxifrages*, and one of the freest flowering, not even excepting *S. Burseriana*. *S. Moly*, raised by M. Moly between *aretioides* and *media*, is nearly if not quite identical with *S. luteo-purpurea*.

OBITUARY.

EARL BEAUCHAMP.

By the painfully sudden death of this nobleman, at the age of 61, horticulture loses one of its truest and most genuine patrons. The sad event occurred on February 19, from heart disease. His lordship had only just returned from attending a meeting of the Board of Guardians, and sat down to luncheon with the countess and family. At the table he was suddenly seized with the fatal attack and expired immediately in the arms of his attendant. During his lordship's lifetime he abolished the old primitive gardens at Madresfield, and re-made others on new sites, including modern and substantial glass erections more in accordance with the times. The splendid avenues of deciduous and coniferous trees, the flower gardens, the rockeries, &c., the result of his handiwork, are all familiar to readers. He also rebuilt nearly the whole of the mansion, and re-decorated a large portion. He also started and solely supported a horticultural cottagers' and tenants' show for the encouragement of thrift and industry, and for the benefit of those around him. His lordship is succeeded by his eldest son, Viscount Elmley, now in his twentieth year. C.

FRANK CASEY.

It is with great regret we have to record the very sudden death, at the early age of 55 years, of Mr. Frank Casey, of The Nursery, Upper Clapton. Mr. Casey left home shortly after noon on Thursday, the 19th inst., apparently in his usual good health and spirits, and was suddenly struck down in Liverpool Street Station while entering the train on his return home in the evening, expiring immediately. At the inquest held on the 24th inst. the medical evidence showed death to have resulted from syncope, consequent on fatty degeneration of the heart. Francis Linnaeus Casey was born near Youghal, Ireland, in the year 1836, and was connected with horticulture from the cradle. One of a family of eleven children, of whom two brothers, William and James, have been for many years and still are connected with the Clapton Nursery, he received his early training from his father at home. His energetic character, however, soon drove him to seek a larger sphere of action, and crossing to England, he obtained a situation with Messrs. E. G. Henderson and Son, St. John's Wood, at the age of 18. At the Wellington Road Nurseries Mr. Casey remained for some eight years, and in February, 1862, entered the service of Hugh Low and Co., of Clapton Nursery. Commencing under Mr. Hugh Low, the founder of the firm, he, one of a band of willing helpers, most of whom are still living, for twenty-eight years worked shoulder to shoulder with the late Mr. Stuart H. Low, first as a salesman, and then as gene-

ral manager, and on the death of the latter in April last, continued his faithful service on behalf of the sons, who by his death lose, not only a valued servant of the family for three generations, but a dear and trusted friend. His kindly nature endeared him to all with whom he came in contact, while none who knew him intimately will receive the news of his decease without feeling they have lost a true friend. The funeral took place at Kensal Green on Thursday, the 26th inst.

E. R. Cutler.—We have also to announce with regret the sudden death on the 24th inst. of Mr. Cutler, so well known in connection with the Gardeners' Benevolent Institution, at the age of 72. On the occasion of his election at the annual meeting on January 15, for the fiftieth time as secretary of the above institution, a handsome testimonial was presented to him. During the time Mr. Cutler has been connected with the Gardeners' Benevolent Institution he has laboured zealously on its behalf, and his sudden death will be regretted by a wide circle of friends and acquaintances. The funeral will take place at Woking Cemetery today (Saturday). The funeral train leaves the Necropolis Station, Westminster Bridge Road, at 11.30.

Traps for wireworm.—Potatoes, Carrots, and Turnips I abandoned for oil-cake and Kidney Beans. In soot I have found wireworm alive and flourishing. Oil-cake and Kidney Beans are the two best (see below). Dahlia roots are too dear, but I have caught fourteen in one piece of root. In a new Asparagus bed with alternate traps of oil-cake and Kidney Beans, from August 27 to September 27 I caught with Kidney Beans 276 wireworms, with oil-cake 67 wireworms. The oil-cake goes rotten, breeds maggots, and disappears. The Kidney Beans last the whole season, and bear digging up three or four times a-week. Put three or four beans in a hole, mark with a stick, and examine every two or three days. It is a trouble, but it pays, as the following shows. Four years ago I planted two beds of Asparagus in new land which had been Grass. In the first year every plant was taken but four. In the second year it was replanted and more than half were taken. In the third year the plants were made good and Kidney Beans planted all round the beds, but were not examined. All the plants of Asparagus thrived. I have never had a stick of Asparagus from these beds yet. In April last I planted a new bed also on recently turned up grass land. One hundred and one plants were put in and only one died. This bed was surrounded with oil-cake and Kidney Bean traps, and I shall be much surprised if there is not a dish or two to be cut this summer.—J. WHITWORTH SHAW.

Destroying ants (*J. Henderson*).—A very effective way is to place a little quicklime on the mouth of the nest, and wash it in with boiling water. If the ants have formed their nest at the root of a plant, a quart or so of warm water in which a piece of camphor has been dissolved will destroy them.

Fungus on Snowdrops.—I herewith enclose some Snowdrops. You will see they are covered with a fungus. I should be glad if you could tell me through THE GARDEN what fungus it is, and if there is any remedy?—S. A. LUFF.

*** When your Snowdrops reached me I could not find any trace of fungus on them, even after careful examination under a glass. The stems and leaves seem to have decayed just at the level of the ground. Has not the injury been caused by frost or some sudden change of temperature?—G. S. S.

Insects in soil.—I enclose some insects which abound in the soil here in great numbers. Would you tell me whether they are injurious to plants, Vine or Peach roots?—A. W.

*** The only living things I could find in the soil you sent were some very young earthworms. If there were any insects, they must have escaped. The box was much knocked out of shape. The worms would not injure the roots of plants and might be destroyed probably by watering with lime water.—G. S. S.

J. H. U.—There is no book on the subject you mention.

Names of plants.—*B.*—*Malvastrum balsamica*.—*J. C. & Co.*—*Pulsatilla Halleri*.—*J. Stapleton*.—*Chimonanthus fragrans*.—*T. Wilson*.—*Chimonanthus fragrans*.

WOODS AND FORESTS.

THE SWISS STONE PINE.

(PINUS CEMERA.)

THIS is perhaps more often planted as an ornamental tree than any other Conifer, for as it is perfectly hardy even in the most northerly stations of these islands, it has been extensively used for decoration. Then it is readily propagated from seed, is a free grower, of not too unwieldy proportions, and succeeds fairly well in a great variety of soils. Lambert was not far wrong in stating that this is one of the handsomest of all the Pines, a statement that can now be corroborated with greater emphasis than in the great botanist's day. Few trees, too, are so much improved by age as this Swiss Pine, not that it becomes grand with rugged bark and distorted limbs, like the Pinaster and some others, but the full beauty of the foliage and neat, not trimmed up, appearance of the whole tree is only fully portrayed in old specimens. It is of slow growth, a point in its favour for villa residents and owners of the usual three-quarters of an acre of ground, and where even the small space required by this Pine is measured out and surveyed times and times before the gardener gets the final order to plant.

The Swiss Stone Pine is suitable for the mild southern counties of England, a fact of which I became cognisant a few days ago in some of the parks and grounds which I have lately visited. It wants, to bring it quickly to perfection, a light, strong loam, although I have noted favourable growth when planted in peat bog made sweet by an admixture of pulverised clay and loam, the whole lying loosely upturned to a season's frost. That cold blasts and excessively low temperatures are, in this country at least, inimical to the full development of the Swiss Stone Pine I am convinced, and that a maritime site where the temperature is to some extent equalised suits the tree in a marked manner I have ample testimony. It bears hemming in as well, if not better than most others of its family, and this may easily be learnt on almost any estate in the country where a number of specimens have been planted. This fact I noted long ago, and have had it corroborated on numerous occasions since. This peculiarity of growing beneath the shade, or rather when hemmed in by other trees, is not so well known.

Being of unusually neat growth and of a bright pleasing foliage tint, this is an excellent subject for using as a specimen in any conspicuous position, but it looks all the better if the surroundings are in keeping with the tree. It transplants well even up to a large size, the roots being many and fibrous and holding together a good ball of soil. I have seen no good examples of the tree on chalk, but that does not imply that such do not exist. In Kent generally it is found of freest growth and largest size where a good depth of soil overlies the chalky or calcareous formation.

A. D. WEBSTER.

Making pits for hard-wooded trees.—This operation is necessary for all hard-wooded trees. In ordinary cases, slit planting is sufficient for trees of the Fir tribe, but hard-wooded trees will not succeed so well unless better pulverised soil is provided than can be got by slit planting. For trees of the size ordinarily got from the nursery, pits 2 feet in width, the depth being regulated by the nature of soil, will be sufficient. The pits should be dug some months previous to the time of planting, that the

weather may pulverise the soil, and make it more congenial to the tender roots of the young plants. Ordinary-sized hard-wooded plants, on gravelly soil especially with a southern exposure, will require pits of much larger dimensions. In such situations pits of the ordinary size will retain too little moisture to sustain the young trees; whereas if a greater area and depth of the soil are loosened and the stones removed, the original channels through which the water percolated are disturbed, and far greater power given to retain moisture. In such situations, Firs, especially if intended for standards, would require to be treated similarly, and even in ordinary soil, if Firs are of larger size than common, they will require pits prepared for them.

IVY ON TREES.

MR. J. B. WEBSTER'S note on the above leaves little more to be said on the subject, as he has so thoroughly explained that Ivy on trees is detrimental to their growth, though very ornamental. My plea for writing this note is to speak in its favour on old trees, or trees past their best. I am well aware of its bad effects on young trees, but for old examples and not required for timber it is very ornamental, and an old trunk that is often an ugly object is often made a pleasing one in the kept grounds by the use of Ivy and other strong growing creepers. To young trees it is most injurious, as besides binding the bark so tightly as to prevent growth, it also takes away from the roots much of the moisture and nourishment that should go to the trees. In the case of old specimens Ivy tends to prolong life, as it supports them, and thus prevents decay. I think Ivy on old trees and walls is most picturesque and should be encouraged, as it can often be done at little cost and many a bare trunk turned to good account. I use Ivy largely for covering old trees, and it answers its purpose well, keeping many an old favourite years longer than would be the case if not covered or supported in any way. I use the Irish Ivy chiefly for this purpose, though for small trees there are many other sorts suitable. Many of our old specimens have, unfortunately, seen their best days, and I use Ivy up the supports placed under them. Some of the supports are iron and others wood, but all are soon completely covered with Ivy and look very ornamental in the landscape. For larger trees Ivies and Virginian Creepers are used, and they look charming in the early autumn months. I find that whenever Ivy is used, it should get a good soil and plenty of moisture when young, as it soon grows when thus attended to, afterwards giving little trouble. When planted against old trees without any preparation it does not make a rapid start. As few nails should be used as possible. I use iron tacks and dark-coloured wire to support the Ivy at first, but this is not required long. Ivies may also be made use of in various ways; as screens for more tender plants they answer admirably, and are not at all unsightly. If used more freely for this purpose they would often benefit many of our choicer shrubs and trees which need shelter from east winds.—G. WYTHES.

I think that Ivy is not so hurtful to trees as is generally supposed, but I do not go so far as to think it does not injure some trees even to the extent of killing them. These, however, are the exceptions rather than the rule. Very much depends upon the trees it grows upon. On umbrageous trees with abundance of foliage, producing a deep shade, the Ivy is over-mastered, and never makes sufficient progress to do any harm. It is a plant that loves the light, and will not grow fast or well under the branches of a Sycamore or a Beech, for example. With scanty foliated trees, however, it is different. On the Birch it grows fast, and some of these have, in the course of time, been all but entirely covered from bottom to top. The last one fell, a few years ago, apparently killed by Ivy, which had covered it all but a few feeble twigs at the very top, all the side-branches having perished one by one previously. The Birch was about 60 feet or 70 feet high, and fell during a gale of wind, the trunk being quite rotten near the base. We have other trees of

the same kind and age and much larger ones also, but they are in good health; these have no Ivy upon them. The Birch, being a scanty leaved tree, of course the Ivy grows fast upon it, and over-masters it. It thrives well also on the Larch, and we have fine old specimens showing an even and tapering column of Ivy about 70 feet high, and 3 feet or 4 feet through 20 feet from the ground. The branches of the Larch are dead as far up as the Ivy goes, but the trees on which no Ivy is growing are in no better condition, and some of them not so good. They are all about eighty years of age, and the Ivy upon them cannot be much younger. On the Ash the Ivy makes some progress, and some of our old trees are clothed to near the top with it, side-limbs and all, and do not look in very good health, but whether due to the Ivy or not I would not venture to say. On the other trees that have good and ample foliage it never makes much headway, and we have no example of it on the Beech worth speaking of. It thrives on Scotch Fir, but on the Sycamore it is either dead or dying in most instances.—J. S.

In woodland scenery everyone is familiar with the effect produced by the Honeysuckle and Ivy; but, unfortunately, the Ivy clings with a tenacity that slowly, but surely destroys the life of its support. We have an instance of it here in the case of a fine specimen of False Acacia, the dark green Ivy on which forms a pleasing contrast to the feathery foliage of the Acacia, but the decreasing growth of the latter warns us that the Ivy must either be removed, or the tree allowed to die.—E.

The Willow.—The wood of the Willow is light, smooth, soft, and extremely tough. It will bear more hard knocks without splinter or injury than any known wood; hence, it is always used for making cricket bats. Whenever it can be obtained, it is used for the floats of paddle steamers and the strouds of water-wheels. It wears longer in water than any other wood; when it can be obtained it is always used as break blocks for railway trucks, and it is the only wood that will stand that kind of concussion and pressure without fracture. Its extreme elasticity and toughness render it the best of all materials for the sides and bottoms of carts and barrows where rough work, such as the conveyance of coal or stone, is carried on and where obtainable in sufficient quantity, it would be the best material in constructing carriages for passenger traffic on our railways, inasmuch as carriages made of this wood would be less liable to be broken into splinters by collisions. The wood of the Willow burns slowly and is not easily set on fire, a property which ought to be a considerable recommendation where it is necessary to use wood in close proximity to fire. At one time the Willow was always used by powder manufacturers for charcoal in preference to other woods, and was only discontinued because the supply fell short. The wood of the Willow is much esteemed by painters for their crayons; cork cutters use it for sharpening their knives on; and turners for polishing other woods when in the lathe; and, as cutting boards for shoemakers and others, Willow is in demand.—W. S.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

KITCHEN GARDEN.

EARLY CAULIFLOWERS.

If any vegetable pays for generous treatment it is the Cauliflower. The heads most appreciated are those of a medium size, close in texture, and pearly white in colour. In ordinary seasons the late Broccoli will generally be available till the earliest Cauliflowers come in, and in some gardens this will, no doubt, be the case, even in this exceptional season. But as almost every vestige of green vegetable is killed, the earliest Cauliflowers will be anxiously looked forward to, so care should be taken that this important crop does not receive a check in any way. To secure good results, the best position and the best soil should be chosen. For the earliest batch a south border should be selected, choosing a more open site for the succeeding crop. Unless a succession of suitable varieties is planted, early Cauliflowers are apt to come in with a "rush," especially where the precaution is not taken to plant a portion in a more open spot than a south border. To obtain a succession a portion should be planted under hand-lights or cloches, another batch on a south border, and the succeeding lot in the open. Generally only a very early variety is depended upon, but this is not a wise proceeding. For some years I have been in the habit of sowing at the same time as for the earliest batch the large Asiatic, which forms a good succession. The Walcheren is a well-tried old favourite, which often succeeds where the earlier selections fail, and is especially adapted for very light soils. The soil for Cauliflowers must be well pulverised, deeply worked, and also heavily manured. Good solid manure, however, is necessary, not decayed vegetable matter or garden trimmings. The plants must be quickly grown to secure high quality, for almost upon the slightest check "buttoning" will take place. Poor soil, want of sufficient moisture, and too early or indifferent planting tend to the above cause, so every means should be taken to guard against each and all of these evils. Very light or sandy soils are about the worst for Cauliflowers, but even in these almost as good results may be had by deep cultivation and abundance of manure. Unless in favourable localities and soils, it is a mistake to plant out too early, and in a general way the first week in April will be quite soon enough for planting in the open. It would be a very unwise proceeding to allow the plants to become too large before they are put out, as if taken up from frames when in this condition they often droop very much. The plants must not be allowed to become root-bound if grown in pots. It being very essential that the plants do not receive a check when planted out, a good rooting medium must be afforded when ready for pricking out or potting off. If grown in pots, it is a mistake for these to be small. Five-inch, or what are termed 48's, are as good as any, and although the plants in pots may be kept growing on in houses or on shelves near the glass during the earliest stages of growth, I much prefer to grow them in frames. When potted off, good holding soil should be used. Careful watering is also very essential, dryness at the roots whilst the plants are in pots being fatal to their well-doing. When the plants are pricked

out into frames, a layer of rotten manure should be placed over the bottom on a hard surface, and over this 2 inches or 3 inches of good soil. Two parts loam to one of old Mushroom bed manure forms a good rooting medium. When the plants are pricked out on a loose bottom the roots go down considerably deeper than they should do; consequently they cannot be lifted with good balls. When ready for planting, a thorough watering should be given overnight. For hastening on the plants to early maturity there is nothing better for the purpose than handlights or cloches, as under these they may be placed out much earlier. Four plants is about the usual quantity to place under a handlight, one being planted at each corner. Upon the removal of the handlights, the roots will no doubt be showing around the sides, and, such being the case, some soil should be banked up around the exposed parts. When put out in the open, deep drills should be drawn, and into these the plants should be placed, pressing the soil firmly round them. As it may be necessary to apply liquid manure or water if the weather should prove dry, planting in drills, besides protecting from the weather, is advantageous. On dry soils planting in drills is to be specially recommended. Hoeing is a very important operation in favouring free growth. A soaking of liquid manure may advantageously be applied just as the heads are forming, and immediately afterwards the drills should be drawn in to the plants, this, besides conserving the moisture about the roots, keeping the plants firmly in position. A. Y. A.

Potatoes.—There is little to be done in the weeding-out process with these so far as numbers of varieties are concerned. The sorts planted last year were very satisfactory, and will be again relied on, with three exceptions. I should be glad of the opportunity of testing the many good varieties annually sent out, but have only the space at my disposal to meet the requirements from the kitchen, and having found a thoroughly serviceable sort always grow it. Sharpe's Victor is the first early grown in pits, and also on a south border outside. I find it a little earlier and more productive than Ash-leaf. The next, a variety selected from Covent Garden Perfection, is only a few days later than Victor. Grown by the side of and under similar conditions to Early Puritan and Beauty of Hebron, it has proved rather better than either, and I have decided to rely on it entirely as practically the first early outdoors. It is not superior to these well-known sorts in quantity, but is a trifle earlier, more compact in growth, firmer in texture when first dug, and as good a keeper as Beauty of Hebron. The third on the list is Sutton's Seedling, undoubtedly one of the best introductions within the last few years. It is of good quality and a capital cropper. The Bruce is the fourth on the list. There are other late sorts which crop equally well with me, as Satisfaction and Imperator, and I have had an opportunity of seeing a number of different varieties in the immediate neighbourhood good, bad and indifferent, and the result of the inspection and eating is for the present to hold fast by The Bruce. My selection therefore for 1891 is Sharpe's Victor, the unnamed variety, Sutton's Seedling, and The Bruce.—E. BURRELL, *Claremont.*

Peas for market.—The west country growers, judging from the remarks by "J. C. C." on page 172, are not to be congratulated upon the progress they have made in growing Peas in the open fields. Have they never heard of William I. as being a very superior early variety? Twelve or thirteen years ago the growers around London soon discovered that this was superior to Sangster's No. 1, Caractacus, or any other small white-seeded Pea, and, unless I am much mistaken, it is still very popular. In the open fields it forms less haulm, and can be gathered from earlier than is the case with much coddled rows in private gardens. To succeed

William I. there are such well-tried varieties as Pride of the Market, Dr. McLean, and Princess Royal available, G. F. Wilson and Veitch's Perfection following upon these. According to "J. C. C." McLean's Best of All and Yorkshire Hero are now on trial, but is it not rather late in the day to try either of them? As it happens, Yorkshire Hero is only another name for Veitch's Perfection, and this "J. C. C." may discover if he is much interested in the experiments being conducted in his neighbourhood. Growers in the Vale of Taunton ought not to be behind the times, but rather ahead of them; and in fact could, if they tried, be among the first to send large quantities of Peas to the best markets. More often than not it is simply a waste of time and seed to sow in the autumn, the wiser plan being to defer sowing till the first favourable opportunity in February. The weather has been very favourable for sowing Peas this season, and good early crops should result. —M. H.

CARROTS.

CARROTS will do well in any kind of deep, light, and moderately rich soil, but a deep sandy loam is most suitable. It is essential to the production of clean, shapely roots that the soil should be of an open nature and free from wireworms.

PREPARATION OF THE SOIL.—Manure should be trenched or deeply dug into the ground after the removal of the previous crops early in the autumn. This allows time for the decomposition of the manure and the absorption of the gaseous matter arising therefrom by the soil. But if farmyard manure has been given to the ground only a short time before sowing the seed, a large percentage of the roots resulting therefrom will be forked and coarse in appearance. Lime, potash, soda, chloride of sodium, or common salt, and a surface dressing of soot may one and all be applied with advantage to the ground before sowing the crop. If the soil is of a stiff cold nature, it should be ridged up during the autumn, so as to expose it to the weather until the middle of the following March, when advantage should be taken of fine dry weather to level the ridges, adding thereto any light materials that may be at command, such as leaf-mould, wood ashes, coal ashes, burnt earth or sand. The ground having been prepared, enough fresh soot may be strewn over the ground to discolour it before drawing the drills. These should be from 1 inch to 2 inches deep, 12 inches apart for Nantes Horn, giving 3 inches and 6 inches more respectively between the rows for New Red Intermediate, Long Red Surrey, and allied varieties requiring more space. As early in February as the soil will work, a sowing of Nantes Horn or other approved early variety should be made in a warm and dry rather than damp situation, making another of the same variety a month later. A third sowing in the middle or end of June, according as the district is late or early, should be made for drawing young during the autumn and early winter months. About the middle of March the main sowing, consisting of Long Red Surrey and Altringham, or other popular and well-tested varieties, should be made. Before sowing, mix the seed with dry sand, sow thinly in the drills; then close the soil in with the feet, tread, and make level with a fine rake.

THINNING THE PLANTS.—As soon as a couple of inches high, thin the Nantes Horn out to 2 inches from plant to plant in the row, every alternate one being afterwards drawn as soon as fit for use, giving 6 inches and 9 inches between the plants respectively to such varieties as New Red Intermediate and Long Red Surrey. Advantage should be taken of showery weather to do the work. The weeds, which are sure to come up with the Carrots, should be pulled up at the same time. As much with a view to stimulating growth in the plants as keeping down weeds, a free use should be made of the Dutch hoe between the rows during the summer, stirring the soil to the depth of between 1 inch and 2 inches each time the Dutch hoe is used.

STORING THE ROOTS.—Towards the end of October or early in November, according to the season and district, the roots should be taken up

with the assistance of a four or five-tined fork, selecting a fine day for the work when the ground and plants are dry. In order to preserve their freshness the roots should be packed or stored in damp material which will not tend to absorb the moisture from them, and for this purpose the following is the simplest and most effectual method. The roots having been taken up in the manner described above and the tops cut off close to the crown they should be taken to a dry situation, such, for instance, as a border under a south or west wall or fence. Earth should be taken out at the end of the border so as to form a trench, 15 inches or 18 inches deep and of about the same width, and the digging of the ground be proceeded with. When the trench is filled and the ground has been levelled in the ordinary way, the soil should be cut straight down the whole width of the border, and three or four rows of Carrots be placed perpendicularly in the opening thus made, and digging be again proceeded with until the roots are all covered, burying the crowns about 1 inch under the surface of the soil. The operation is thus continued somewhat after the mode of transplanting young forest trees from the seed-beds in nurseries until the work is completed. Wintered in this way there need be no fear of fermentation, as is so frequently the case where a large bulk of roots has been put together, sometimes to the entire loss of the crop. In the event of severe weather setting in a slight covering of dry litter or Fern will be necessary. This should, however, be removed on every favourable opportunity and returned in frosty weather.

INSECTS.—The Carrot is subject to the attacks of several insects in soils which are annually dressed with rich farmyard manure, and which have not had a surface dressing of fresh soot given immediately before drawing the drills for the reception of the seed. Fresh soot is not only a sure antidote for the attacks of all insects making inroads on the roots of plants, but it is also a powerful fertiliser and purifier of the soil when judiciously applied. The young plants are frequently attacked by the Carrot plant louse (*Aphis dauci*) as soon as they appear. This takes up its abode in the crown and destroys the plants. Dusting in the early morning when the plants are damp with a mixture of freshly slaked lime and fresh soot will remove it. The maggots of the crane fly (*Tipula olaracea*) also occasionally work havoc among the roots. The caterpillars of the common Carrot blossom and Carrot seed flat-body moths (*Depressaria cicutella*, *D. dancella*, and *D. depressella*) do injury to the seed crop by devouring the seed, and seed vessels. They are, however, easily shaken off, and may then be collected and destroyed. The following varieties are the best to grow: Early Nantes Horn and New Red Intermediate are the most suitable for early work, either grown in frames on hotbeds or on south borders, Altringham and Long Red Surrey being the best long or main crop varieties.

H. W. WARD.

MARKET GARDEN CROPS.

"I AM filling up the ground left vacant by the destruction of the winter greens by the frost as fast as I can with early Peas, for the general scarcity of Cabbage which will be found during May and June is certain to bring early Peas into considerable demand." So spoke a market gardener the other day, and wisely too, for every day shows more and more how great is the destruction wrought upon all kinds of green stuff, Turnips included. The actual pinch of the scarcity has not been fully felt yet. So long as there are breadths partially unhurt these will be cleared off, and the stuff, no matter what it be, run into market to make way for Peas, Potatoes, and other summer crops. It is really doubtful whether it would not pay to sow early bulbing white Turnips now, as the demand must be considerable presently, and these would bulb freely before hot weather set in, provided frosts did not injure the young plants. Another good substitute crop would be found in summer Spinach, sown at once in rich soil and induced to make rapid growth and strong leafage. Where the entire breadth of green stuff was totally destroyed, the refuse has been ploughed in and the

ground cropped. The soil is working so wonderfully well, that cropping proceeds apace. The breadths of late-planted autumn Cabbages have suffered very much, even though the plants were well buried in snow during the worst of the hard weather. The general condition of these breadths seems to be about one-half dead, and the rest materially harmed. Very likely as a result of this harm the greater portion of these plants will run off to seed rather than heart in. So far as seed beds are concerned, the prospect is not encouraging, for the plants have had the stems very much injured, and not many seem fit for planting out. No doubt sowings made at once in frames if possible of some good precocious kinds of Cabbages would prove profitable, as plants must be in large demand presently. If sown outdoors the seed should be protected from birds. It seems difficult to determine how the requirements of the market will be met after a few weeks. Much of the material, such as Coleworts, Savoy, Brussels heads, &c., apparently sound, are found to have decayed centres, and consumers refuse to purchase any more of them. A very barren interregnum seems probable from the finish up of what little of green stuff remains until the coming of the earliest Peas early in June. We cannot in large breadths compete for precocity with the private gardener who has his warm borders and walled-in gardens to give needful shelter, and even then seldom gets an early gathering of Peas before the end of May. The winter has destroyed Cauliflower plants standing in frames or put out under handlights, and for these there is no resource but to make immediate sowings of Snowball or other very early variety, and get the plants out as speedily as possible. Even large breadths of these may be got out in favourable soils with every prospect of good profit resulting. The grower who strives by quick turning in catch crops to fill up the void in vegetables the recent hard weather has so generally created, will certainly be the best off in the end.

A. D.

HINTS ON POTATO CULTURE.

The following simple rules as to Potato culture, expressed in popular language, have been issued by the Agricultural Department of the Irish Land Commission to all Boards of Guardians applying for loans under the Seed Supply Act. It is intended to distribute them to the recipients of seed Potatoes, and it is hoped that the circulation of such a document which offers suggestions on the cultivation of the Potato, and the selection and management of the seed, may be of use, particularly where the success of that crop is a matter of such vital importance to the poorer occupiers.

SEED.—1. Keep the seed as cool as possible in spring, by storing in a cool house, or turning frequently whilst in the pit, to avoid sprouting, because the first eyes are the strongest and best, and if broken off the next eyes are weaker, and do not produce such good crops. 2. Reject any seed which looks diseased; do not even use the part that appears sound, because the spawn, which reproduces disease, lives through the winter in the Potato, and will develop in favourable weather. 3. Cut the sets a few days before planting; do not put them in heaps, but spread them out on a dry floor, and dust them over with air-slaked lime, letting the sets take up as much lime as will stick. This allows the cut surface to dry and harden before planting, and helps to protect from disease, because the spawn, which reproduces the disease, can live in the ground a long time, and finds easy entrance into the freshly-cut moist surface, especially when the sets are planted on warm, moist manure. 4. Do not cut the sets very small, because by doing so enough nourishment is not left to support the young plant, and a sickly plant will not resist disease. 5. Do not plant the sets very close, because the more the air can play about the stalks the healthier the plant will be. 6. Plant early, so that the tubers may be well developed before the period at which blight usually sets in, because the blight always produces the worst effect on the crop when young. 7. "Do not put all your eggs in one basket," but try planting a small quantity of well-known disease-resisting varieties; for instance, the

Magnum Bonum is a heavy cropper, very disease-resisting, and, though rather soft in the early season, as compared with the Champion, it keeps well right through the summer. 8. Do not use the very smallest tubers for seed, because they are often not fully grown, and therefore will not produce good results. You would not use the lightest and smallest Oats for seed; why do so with Potatoes? 9. Change seed frequently, and always select seed from a perfectly different class of land from that for which it is required; merely getting seed from a distance is of slight importance compared with getting sound seed from a different class of land.

CULTIVATION.—10. Keep the crop very clean, use the grubber and the hoe frequently, because by doing so you keep the plant healthy, and avoid its being choked with weeds, which help the disease to spread. 11. Always try to plant on fresh ground on which Potatoes have not been grown for several years, because the spawn, which reproduces disease, can live for several years in the ground, and could affect the sets as stated in No. 3. 12. Earth up repeatedly with fine dry earth after each hoeing or grubbing, because the coating of earth prevents a great deal of the fungus from reaching the Potato when it falls from the leaves; the coating of earth also protects the Potato from injury by slugs, vermin, birds, &c., and recollect that the disease enters the Potato most easily where the skin is broken. 13. Recollect that the Potato requires potash. On most arable land 3 cwt. to 5 cwt. of kainit per Irish acre is of great benefit. [Roughly speaking, an Irish acre is equal to 1½ of a statute acre.] 14. To produce its full effect on the crop, kainit should be spread in the autumn before planting. 15. Those who only grow small quantities of Potatoes for eating would do well to try cropping every alternate row with Carrots, Parsnips, or some such crop, so as to let the Potato drills be as airy as possible. 16. It is better to use a moderate dressing of farmyard manure, with a small dressing of artificial manure, rather than a heavy dressing of farmyard manure alone, because the warmth produced by a heavy dressing of farmyard manure encourages slugs, worms, &c., which injure the tubers, while the artificial manure helps to keep them away. 17. If disease shows itself, earth up well at once, so as to leave say 4 in. of fine dry earth over the tubers, because the earth-coating protects the tubers from spawn falling from the leaves.

HARVESTING.—18. Potato disease is not produced by thunder or electricity; the fungus spawn is living in the soil where Potatoes were previously planted, and in old decayed Potatoes, stalks, weeds, &c., in which it is carried over from one year to another; so avoid storing up seeds of fungus by burning all such rubbish, and do not plant Potatoes repeatedly in the same ground, because there is great liability of infection from the sources mentioned. 19. Thoroughly dry Potatoes before storing, and, if possible, dress them over with air-slaked lime. This has been found to be most beneficial in preserving them, and even to check the spread of disease in partially diseased Potatoes, and it does not injure the Potatoes for eating or for seed; about one bushel of lime will do for twenty-five bushels of Potatoes. 20. Do not pit Potatoes when damp; if pitted damp, pick them all over again on a fine dry day, and pit again when quite dry; a damp pit is most favourable for spreading disease among the pitted Potatoes. 21. On no account cover the Potato pits with old stalks, because the old stalks are a favourite home for the spawn which reproduces disease. 22. In 1890, other circumstances being similar, the following conditions produced the best results: Frequent change of seed, using good seed, not cutting the sets very small, planting in fresh ground, early planting, good cultivation, well-drained land. In the above directions the word "spawn" has been used to indicate those portions of the Potato fungus called "spores" and "mycelium" which propagate the disease.

The frost of 1890-91.—The long and severe frost which we have passed through has been general throughout England, while in Scotland it appears to have been less severe than usual. I hear from Cornwall that every part of the county has

felt the severity of the winter, that many acres of Broccoli in the neighbourhood of Penzance have been completely killed, and a large quantity of stored Potatoes has been frozen, while even in the Scilly Isles many things generally considered safe have been killed. As a contrast to this, I hear from the south-west of Scotland that the most severe frost of the winter has been 16°, about December 22. As the kitchen garden here is probably one of the coldest in the country, for though fairly sheltered, it stands low and near water, I thought the following record of frost might be interesting. The frost commenced in the first week of December, and by the 10th skating was general. From that time until January 23 the frost continued without intermission, the only semblance of a thaw being for an hour or two on New Year's Day. Over twenty times we had more than 20° of frost, the most severe being December 20, 30° of frost; 21, 29°; 22, zero; January 10, 30°; 11, 31°; 17, 27°; and on January 18, 24° below zero. The above readings were taken from the higher of two of Negretti and Zambra's registering thermometers, which hung side by side at 3 feet from the Grass, and which work within half a degree of each other. Needless to say, many things have suffered badly; how badly it is impossible yet to say. The names of those things alone which have been killed to the ground would make a long list, but many of them will break up again, and be all the better for the rude check they have had.—J. C. TALLACK, *Livermere Park*.

NOTES OF THE WEEK.

Lælia anceps Sanderiana.—I have sent you a spike of *Lælia anceps Sanderiana* which has borne six flowers. The plant that this spike was cut from had fourteen spikes in all and fifty-six flowers. I should like to know through THE GARDEN if anyone has had more flowers on one plant.—GEO. BEDDOES, *Howick House, Preston*.

Saxifraga oppositifolia alba as a pot plant for a cool house or corridor is not easily surpassed. If the plants be kept in a cold frame they will flower a fortnight or three weeks earlier than they do in the open. The flowers are always cleaner, and the trouble of watering in summer reduced to a minimum if the pots be plunged in cocoa-nut fibre in a shady spot.

Arabis albidia variegata.—Everyone knows the green-leaved trailing Rock Cress and its value for covering bare spots, &c., on the rockery. The variegated form, however, does not seem to be so well known, and yet it is well worth a place in any collection of plants. Its brilliantly variegated leaves form a feature at all times during the winter, and as it quickly forms a fine drapery of gold and green, it is well worth growing. It is perfectly hardy.

Lachenalias.—Messrs. Collins Bros. and Gabriel send us from their nurseries at Hampton two pans of Lachenalias. The varieties are Lachenalia Nelsoni and L. luteola. It is a wonder these bulbs are not more frequently grown, seeing how effective and long lasting the flowers are in cool houses at this season of the year. The blooms will last in good condition for a month or six weeks. Those sent have been in flower over a fortnight. Another recommendation is that fogs do not seem to injure them in the least.

Violets from Ireland.—I have to-day gathered nineteen bunches of Violets similar to the enclosed.—The Czar from the open air, the Marie Louise from a cold frame. The plants have been grown all last summer fully exposed in the kitchen garden, and removed to a cold frame in October. I have had splendid gatherings of Marie Louise all the winter excepting a short time in mid-winter when cold was exceptionally intense here.—A. BARKER, *Adare Manor Gardens, Limerick*.

. Remarkably fine, more especially the blooms of Marie Louise.—ED.

Orchids at The Highlands.—There are many Orchids which are considered to be more choice than *Cologyne cristata*, but I question whether we have many more chaste or useful at this season of the year. There can be seen just now a magnificent display of this fine Orchid at The Highlands, Minchinhampton. There are some very fine specimens laden with many hundreds of blooms. Two or three of these plants were carrying from 400 to

500 blooms each, besides many smaller examples which are flowering quite as profusely. In addition to the above I noted some very nice forms of *Dendrobium nobile*, also *Dendrobium Wardianum giganteum*, *Oncidiums*, *Cymbidium Lowianum*, and a very pretty variety of *Cattleya Percivaliana*.—T.A.

Korolkowia or Fritillaria Sewerzowi is a poor, miserable plant totally unworthy of a place in the garden, so difficult is it at times to distinguish the flowers from the leaves. As a curiosity it is passable, but as a garden plant a failure. The variety called discolor is doubtless an improvement and distinct as a variety, but even this is by no means beautiful. They are not hardy enough; at any rate, they do not stand well outside. Either the tubers or bulbs rot in winter, or else the leaves get destroyed by the early spring frosts.

Saxifraga Burseriana major.—The improved variety of *Saxifraga Burseriana* called in gardens Sax. B. major has been disappointing. The rosettes are larger, the leaves are larger, and the flowers are larger. Against this, however, must be placed the greater difficulty of management, especially in the southern counties, and also the thin tissue-paper texture of the petals. It evidently requires a treatment totally different from that of the ordinary form. I have grown the two under exactly the same conditions for several years, and beside the fine, healthy, lime-crust appearance of the type must be placed the miserable half-dead tufts of the variety major. My experience in pots has been even more marked. The type does exceedingly well, while major in most cases has been reduced by about half the tuft. The plants grow nicely for a time, when suddenly half the tuft will die without any apparent cause. Can anyone help me?—K.

Effects of the frost.—The illustration of the beautiful specimen of *Cordylina australis* in Cornwall at p. 161 must raise a sigh, I should think, from the breasts of many enthusiasts who are less favourably located, as it did in mine. Alas! two fine specimens here, 9 feet high, which had stood in a sheltered nook for the last ten years uninjured are now dead to the ground; the arctic winter just past has proved too much for them, notwithstanding that they were carefully wrapped round with sacks. Of course, I know they will break up again from the root, but before the time that they again attain the same fair proportions I shall most likely be amongst the things that were. Out of the general devastation here I append a few notes taken at random. Large Portugal Laurel trees and *Magnolia grandiflora* half denuded, and the mischief still going on. *Fuchsia Riccartoni* and *F. gracilis*, covering the dwelling house wall to the roof, killed to the ground. A large number of species and several crosses raised here of *Veronica* all dead with one exception—a tiny-leaved species whose name I do not know (I enclose a spray). This seems as hardy as a Willow; it is not even browned. *Ardisia japonica*, a pretty little shrub bearing small scarlet berries, dead to the ground. *Coprosma lucida*, an evergreen shrub bearing small transparent berries, entirely denuded of foliage. *Pittosporum undulatum* quite dead, the bark split from top to bottom. Two other evergreen species leafless. A species of *Cytisus* of tree-like form with fragrant flowers quite dead. *Colletia cruciata* and *horrida* against a wall badly cut. *Elæagnus marginatus* against a wall, last year's wood killed. *Jasminum revolutum*, under a wall, dead to the ground. Specimens of *Yucca recurva*, 6 feet high, after the frost broke up leaned to the ground and seemed killed. They were carefully staked and tied up. After two or three weeks they slowly recovered and now seem but little the worse for the great ordeal. *Gunnera scabra* and *G. manicata*, immense specimens, which bore last summer leaves 2 yards across, although the plants were well protected by a covering of their huge foliage—in a general way quite sufficient protection—have scarcely a living crown left. Nearly all the evergreen species of *Euonymus*, plain and variegated, are stripped. Of *Pentstemons*, what of them that is above ground is sere. But in contradistinction to all this havoc, out of nine species of Bamboo

growing here, *B. Fortunei variegata* is alone damaged; the rest are as fresh and bright as they were at the end of the summer; and *Phormium tenax* in the open ground surrounded by trees is quite unharmed.—J. M., *Charmouth, Dorset*.

The frost among the Roses.—I can confirm the sad news that "D. T. F." gives as to the destruction of Tea Roses by the late severe frost. I am perfectly appalled by the sight of my Tea Roses. I do not think any will be able to throw a decent flower this summer, and an enormous quantity are dead. At Exeter, one night that I was there, the thermometer marked 27° of frost. Mr. Walters tells me that his Teas are killed down to the ground. All my H.P. Roses look very sick; I am almost afraid to prune them, as they have hardly yet started. Many of my Azaleas (outdoors) have been killed, and I have lost every one of my cuttings of *Geraniums*, &c., which were in frames on a hot-bed. Strange to say, a *Camellia* that is growing in the churchyard is not killed. The winter seems over now, and although we have strong frosts at night, we have had nearly all through the month of February the most lovely weather. Fancy, not one drop of rain for thirty days, and only a few sea fogs. I know of no time more charming than this, and what makes it appear so very delightful to me is that it is the first spring that I have spent in England for six years. All over the garden bulbs are coming up; Snowdrops are in bloom everywhere, and the Crocus is very gay. I have planted hundreds on the lawn, and when the sun shines, as it really has done very often and very brightly here, the lawn seems to be strewn with golden flowers. Even to see the Hyacinths, Tulips, Lilliums, &c., pushing their bright green leaves out of the brown earth is a delight. They may not be in bloom, but we know that the blooms will come, and the freshness of the green is so charming. The Daffodils now are beginning to bloom here, and I doubt if there is any strain of flowers that will surpass them in bright colours or more varied shades of yellow. The whole collection of hardy bulbs which can be bought now for so small a sum is so beautiful, that not even the glorious flowers of midsummer can surpass it.—JOHN B. M. CAMM, *Monkton Wyld Vicarage, Charmouth*.

Passion Flowers.—Apropos of your plate of *Passiflora princeps* in THE GARDEN, Feb. 21, I would like to draw attention to the great value of its hardy relative *P. corulea*, especially in comparatively mild districts, such as this (Dublin). On sheltered walls it is as evergreen as Ivy, and of quite as deep a green, while it has a great advantage over Ivy in the profusion of beautiful flowers it bears from June or July till almost Christmas, many of which are followed by bright orange-yellow fruits which hang for a long time. It grows, moreover, with great rapidity, covering a large space in a very short time. Its variety *P. c. Constance Elliott* is not so hardy; its foliage is not of so deep a green, nor does it stand so well as that of the type, but it is very well worth growing, and its ivory white blossoms are very beautiful and mix charmingly with those of the old form. If I were limited to only one plant I should for every reason prefer the blue one. Respecting *P. princeps* (*racemosa*), I can bear witness to its great beauty and free-flowering qualities. In a small cool stove I had a plant which flowered without ceasing for sixteen months, and then apparently from exhaustion died. In summer the flowers were of a fine bright scarlet; in winter from deficiency of sun they were only of a pale brick-dust colour. Even if it never flowered it would be well worth growing for its exquisite foliage.—GREENWOOD PIM.

—Perhaps it may interest "W. W." to know that I have effected a cross between *Passiflora princeps* and *Constance Elliott*. It has not yet flowered, but the foliage is exactly intermediate between the two; *princeps* was the seed-bearer.—J. M., *Charmouth, Dorset*.

Lælia harpophylla.—Herewith I enclose a seven-flowered spray of the above beautiful Orchid. I do not know whether you would term it a good variety, but it is the best coloured with me out of several plants. It is valuable at this season of the

year. I have seen it recommended to be grown cool, but I grow it in the Cattleya house, a rather large and lofty structure, in which it does capitally. This *Lælia* also likes to be confined at the roots, as quite good-sized plants may be grown in 5-inch pots. The plants appear to thrive best when the roots can take a firm grip. During the growing season a very plentiful supply of water is necessary, and whilst at rest sufficient should be applied to prevent shrivelling. The temperature of our Cattleya house is about 55° as a minimum during the winter, but during the past winter it has been nearer 50° or 52°.—A. YOUNG, *Abberley Hall*.

* * A very good form.—ED.

Galanthus Imperati.—I have been trying to find out in what way *Galanthus Imperati* in its several forms differs from what is called in many gardens *G. Melvillei*. I am told that the latter were raised at Dunrobin Castle by Mr. Melville. It will be interesting to know if they were raised from *G. nivalis* seed or from that of *G. Imperati*. I can understand the form *poculiformis*, which is said to be a form raised at Dunrobin Castle, having a distinctive name, but it is not easy to account for the other forms, most of which I have seen, if names go for anything. *G. Imperati* is also said to be a variable kind, and has been much improved by cultivation, the form lately introduced from Italy under the name of *G. umbricus* being a very fine and free variety. Is *G. Imperati* as placed as a variety of *G. nivalis* correct? I have an idea that this bulb was first described as *G. nivalis* var. *grandior* by Tenore.—K.

Prof. Foster's Snowdrop.—I believe if cultivators will only exercise ordinary patience that this plant will prove to be one of the finest of all the Snowdrops at present introduced to our gardens. As seen at its best, it is already a bold, noble, and distinct thing. It is extremely variable, and may possibly prove to be a natural hybrid between *G. latifolius* and *G. Elwesi*, or perchance between *G. latifolius* and some form of *G. plicatus*, for I am by no means sure that *G. Elwesi* may not be itself of hybrid origin. Be my view a true one or not, it still remains a fact that *G. Elwesi* and *G. Fosteri* are garden Snowdrops of the very best and first quality. Lest some innocent readers should think I am a great original authority on the genus *Galanthus*, I should like to acknowledge how deeply I am indebted to Mr. James Allen, to Herr Max Leichtlin, and to the late Rev. H. Harpur Crewe, who really encouraged me to take an interest in these lovely flowers of the opening year. To Mr. Allen, the acknowledged authority on Snowdrops, I am especially indebted for information, and for many rare varieties of which he has generously presented bulbs from time to time during the last few years.—F. W. BURBIDGE, *Dublin*.

H.T. Rose Margaret Dickson.—This fine variety not having been mentioned in the remarks upon the new varieties of Roses contained in the able and interesting review of new plants and flowers of 1890 (p. 24), I am tempted to remind the gardening world in general, and rosarians in particular, that the above-named handsome Rose will make its advent to general cultivation during the present spring. Margaret Dickson is another addition to the fine series of Roses already raised and sent out by Alexander Dickson and Sons, of Newtownards, Co. Down, Ireland, and will, I venture to predict, prove to be the finest Rose sent out since the distribution of the late Mr. Bennett's grand seedling Mrs. John Laing, a Rose that has improved immensely in constitution and otherwise under extended cultivation, with the consequent result of becoming most popular with everyone. Having had many opportunities of seeing the Irish seedling during the past season, my opinion of the Rose was not formed in haste, and the very favourable impression it created at first sight has been more than confirmed by subsequent observation. It is thoroughly distinct in habit and growth, being robust and upright without being too rampant, and, like all Roses having an infusion of Tea blood in their constitution, it has remarkably handsome foliage; the flowers are large, of fine form, the exterior colour being pure white, shaded to pale

flesh in the centre. From what I saw of this Rose, I believe it to possess the good qualities of both its parents, it being, I understand, the result obtained from hybridising Lady Mary Fitzwilliam × *Merveille de Lyon*, without inheriting the extremely short growth of the first named parent. Margaret Dickson was shown finely during last summer and autumn not only in Ireland, but throughout Great Britain, having taken the highest honour possible for a new Rose to obtain at the National Rose Society's great provincial exhibition at Birmingham, where it received the society's gold medal; while another honour in the form of a first-class certificate was awarded on the same day at the Scotch Rose show at Edinburgh. I anticipate that our American friends will cultivate this Rose pretty extensively, as from its size and purity of colour it is admirably adapted for the production of cut blooms suitable to the requirements of their market.—W. J. GRANT, *King's Acre, Hereford*.

Rats destroying Hellebores.—It may be some slight satisfaction to Mr. Smith to know that his Hellebores are not the only ones to suffer from the depredations of rodents. More than one-half, sometimes more than two-thirds of my flowers are destroyed by mice, notwithstanding that I wage constant warfare against them. I have a rather large bed of seedlings, my own crosses, five or six years old; amongst them I know are some very distinct varieties, yet I have never seen the flowers of but a very small proportion of them. Scarcely are the bloom buds above ground than they are cleared. The same thing goes on year after year with *H. maximus* and a number of other species and varieties.—J. M., *Dorset*.

Ranunculus montanus.—The dwarf, large-flowered forms of this are valuable for the rock garden, but unless one sees what he is buying he may possibly get a plant though perfectly correct, still no better than our common Crowfoot. It seems to be a very variable plant, common all over Switzerland and the Pyrenees. In its dwarf state the flowers are large, of a brilliant yellow, the deeply divided glossy leaves being of a pleasing deep green. When it gets taller, however, it assumes a very weedy appearance, the flowers become smaller, and altogether the plant is very inferior. I last year asked for *R. montanus*, expecting to get the dwarf form which I had much admired in several gardens. But the plant received, although perfectly correct specifically, was not so good as *R. acris*. This, of course, may have been an extreme form, but it proves in a measure what I have stated above.—D. K.

Rhododendron præcox.—This is one of a valuable group of hybrid *Rhododendrons* for which gardeners are indebted to the care and skill of the late Mr. Davies, of Liverpool. It was raised from *R. ciliatum* crossed with *R. dahuricum*, and is recorded as having been exhibited before the Royal Horticultural Society as long ago as 1861. It forms a dwarf, rounded, many-branched shrub, with small oval leaves each 1 inch to 2 inches long. The flowers are borne in the greatest abundance in terminal clusters of two or three, the corolla being about an inch long and twice as much in diameter. The colour appears to vary considerably in depth of shade, but is usually of a bright rosy-lilac. The segments of the flower are oblong, and expand so much as to render it only slightly campanulate. This hybrid, as might be judged from its parents, is hardy, but on account of its early flowering deserves a sheltered position. When planted in peaty soil in a moist nook in the rockery, it makes a delightful spring-flowering shrub. It is also very useful for the greenhouse stage, flowering as it does during February and early March. If placed indoors in the late autumn it will only be necessary to give it the temperature of a cool frame to have it in bloom at that season.

Saxifraga Boydi, a pretty little hybrid figured in *THE GARDEN* recently, proves almost equal to *S. Burseriana* in the profusion of its flowers. It was raised by Mr. Boyd, of Kelso, between *S. Burseriana* and *S. aretioides*, and in appearance would pass for the former. It has, however, soft yellow flowers several on a stem, while *S. Burseriana* has invariably one only. It is one of the best growers

in this section. *S. Burseriana*, media, *aretioides*, *Vandelli*, and several others often suddenly die off. Indeed, I have few tufts at present with not more than a dozen healthy rosettes; all the others are brown and apparently dead. It is not so with *S. Boydi*, so far as I have seen, nor is it the case with *S. luteo-purpurea*, another hybrid, and the same may be said of *Moly*. These hybrids seem to have more robust constitutions than their parents; they are certainly more easily managed, and above all flower with equal freedom. *S. luteo-purpurea* especially is as easily propagated from cuttings or division as *S. Camposi* or any of the mossy section.

Edgeworthia Gardneri.—The genus to which this plant belongs is one but little known in this country, although *E. chrysantha*, the only species that was in cultivation until within a short time ago, is occasionally to be seen in the gardens in Southern France; it has also been grown for several years in the temperate house at Kew. Its value consists entirely in the foliage, which is of a deep green, and has a peculiar satiny appearance, but being deciduous, it is without this recommendation for several months of the year, and altogether cannot be said to merit general cultivation. *E. Gardneri*, however, which has just flowered at Kew for the first time, is a plant of much greater promise. The flowers are borne in a crowded head terminating the previous season's growth, and are narrowly tubular. The style of inflorescence and the shape of the flowers closely resemble those of *Pimelea*, to which genus and *Daphne* the *Edgeworthias* are allied. On first opening, the flowers are of a beautiful rich yellow, but afterwards grow paler until they become creamy white. They give off a strong and very pleasant fragrance. The seeds from which this plant was raised were sent to Kew from India. A drawing has been made for the *Botanical Magazine*.

Fog.—We have had nine days and nights consecutively of fog, sometimes so dense that objects 20 yards off were not at all distinguishable, sometimes thin and admitting of a little gleam of sunshine. Still, it has been constant fog. This fog is heavily laden with soot and obnoxious gases, so that it causes sensations of sickness and nausea, or produces in the throat a choking feeling as if it would suffocate you. Soil is becoming black with the soot deposit, and water such as stagnant ponds covered with a sooty scum. When the fog settles on the trees and later is condensed to moisture, the drip is literally of sooty blackness. The last series of fogs seem to be even worse than those of mid-winter, for then we had snow on the ground to give some life and brightness to the atmosphere. Such fog visitations are almost unprecedented, and seem all the more remarkable that we have had such a very dry winter; indeed, the rainfall since August last has been abnormally small, even the heavy snowfalls failing to furnish the needful moisture. Could we have a week's rain just now with strong westerly winds, both vegetation and humanity would be greatly benefited.—A. D.

Fruit trees for Hants.—Will any reader of *THE GARDEN* kindly advise us to the best fruits to grow on light sandy land in Hants? I have six acres which produce a luxuriant crop of Ferns, Gorse, Heather, and tufts of a spiry kind of Grass; these are being rooted out by trenching from 18 inches to 2 feet deep. The ground lies high and slopes moderately to the south and west. Water has been found at 110 feet from the surface; the subsoil is loamy sand. Early Potatoes planted in the trenched land last year are turned out quite rotten, though they were well manured and followed the Fern and Gorse, no crop intervening.—W. E. M.

Asphalte (*J. Henderson*).—Break up bricks to about the size of a hen's egg or rather smaller, mix with a little tar, and spread to the thickness of an inch in the bottom of walk, then mix stoke-hole ashes with tar to the consistency of mortar till it will work well on the shovel. Give about three turnings in about as many days, lay on the rough stuff—about 2 inches of this, spread a little brick dust on the top, and roll well; then break bricks to the size of Filberts and spread evenly on the top, and give another good rolling. Subsequent rollings may be given for weeks after. A good time to do it is after hot sunshine. If green edgings are at the sides, be careful not to lay it in wet weather.—T. R., *Streatham*.

KELSTERTON, FLINTSHIRE.

THE subject of our plate stands on the banks of the Welsh Dee, into which flows close by a stream of splendid water, which probably induced the Romans passing to or from Chester—a permanent camp—to use the mound on which the stables now stand as a camping ground, and gave the place the name of “Castreton” (or Camp Town), as it appears in Domesday Book.

In some old maps the word is written “Caelstryrn,” which is said to mean in Welsh “a place where ships were built.” From the rising ground at the back of the house there is an extensive view of the estuary of the Dee, which fifty years ago, before the railway and road intervened between the river and the

through a stone-built conservatory to the hall, which is Oak panelled and hung with many trophies of the chase, killed in different countries by the owner, Mr. Bate.

The chief features inside the house are the thick walls of the old part, the Oak dados and panelling, two very fine specimens of the Irish elk, and the other trophies of the chase. Outside, a fine Magnolia entirely covers the front of one wing, as seen in the engraving; while Wistaria, Clematis Jackmani, Roses William Allen Richardson and Gloire de Dijon, with Jasminum nudiflorum clothe the side of the same wing. The principal features of the outside garden are the many and varied kinds of Ivy, creepers, climbing Roses and climbing plants, which

ORCHARD AND FRUIT GARDEN.

REMEDIES FOR GRAPE SHANKING.

MANY and various are the theories propounded as to the cause of shanking or the premature shrivelling of the footstalks of Grape berries, but as yet no remedy has been given that would meet each and every case. The occurrence is only too common, and what baffles those who have thought much about the matter is the fact that quite young Vines are occasionally to be met with which are quite as much addicted to shanking as are very much older ones. That a too deep or otherwise defective root action, and sometimes no root action at all, is a frequent cause of shanking all must admit, but when the berries shank very badly in the case of quite young Vines, growing freely and rooting strongly in borders formed piecemeal and of ex-



Kelsterton, Flintshire, N. W. Engraved for THE GARDEN from a photograph.

house, flowed right into the garden at high tides.

The date of the old part of the house is 1616, which is also about the date of planting of some very fine Elms which stud the lawn, and form a short avenue to the gate furthest from the river. Conifers of different kinds are numerous, but none are large enough to be worthy of mention. There are fine specimens of Horse Chestnut, Sycamore, Ilex, Cedar of Lebanon, and a well-furnished Cryptomeria elegans about 15 feet high. An old Weeping Willow overhangs the front gate. The house is in the Queen Anne style, and has been partially rebuilt and added to in the present century. The entrance is

cover luxuriantly a high wall of grey stone running round the terrace and tennis ground. The paths leading up to this terrace have Rose arches of a pretty and rustic character, and the banks surrounding the tennis ground and sloping up to the terrace are covered with Ivy, and dotted with Junipers and Retinosporas.

The hardy herbaceous border is a particularly good one, many of the plants having been planted by Frank Miles when he was painting at Kelsterton. The Daffodils and Irises of many different kinds are an especially beautiful feature; in fact, almost all the year round there is some flower or other brightening the border.

cellent material, some other causes must be found. First discover the cause—the effect is only too palpable—and then apply the remedy. In one large garden I am acquainted with Grapes are grown very extensively and well, but shanking in connection with the Black Hamburg has invariably taken place every season. Lifting, light cropping, and finally a clearance of one house and replanting with young Vines was tried. This, as far as the Black Hamburg was concerned, was no remedy, as the very first bunches produced on some of the best rods I have ever seen shanked badly, there being no improvement during the next three years the Vines were grown and fruited. This led to inquiries being made as to where the original stock came from, and it was proved to have been on the place for at least a century.

The eyes from which young planting canes were raised for the principal vinery were taken from the Vines in a very old house, the crops on the latter invariably being spoilt by shanking. Those in the new house were certainly very far from being failures, but still, shanking is a source of much worry to the gardener in charge, and always will be while the same Vines are grown. Unfortunately, more planting canes were raised from these to accompany several other varieties planted in the old house previously mentioned to take the place of the ancient Vines destroyed. The Black Hamburgh, as before stated, commenced at once to shank badly, but Madresfield Court, Gros Maroc, Foster's Seedling, and Buckland Sweetwater alongside of it did not fail in any way, but have produced very superior crops for several years in succession. Evidently, the cause of shanking in this case is to be attributed to the stock, this being debilitated and unsuitable for propagation. The surest, and indeed only remedy in this and any other similar instances would be the destruction of the Vines, and which may be either wholesale or gradual if only complete, a fresh start being made with young canes obtained from a healthy non-shanking stock. There is more in this than many perhaps will be prepared to admit, but my experience with shanking Vines fully confirms the by no means original theory just advanced.

What might be termed ordinary shanking is undoubtedly brought about by faulty culture, overcropping being the most frequent cause. The effect of badly overcropping is sometimes life-long, or at any rate it scarcely pays to attempt the renovation of Vines that have been weakened in every way by repeated reckless overcropping. To overcrop Vines is a senseless proceeding, retribution following closely upon its occurrence. Not only does shanking often take place when the Vines are overcropped, but the value of the Grapes produced, owing to their colouring badly, is much below what it would have been had a more intelligent practice been followed. Vines cropped too heavily also failed to root properly, and this coupled with neglect, either as regards watering, mulching, or feeding, leads to deep root-action—long, naked, or fibreless roots being all that can be found. Whether or not overcropping is the cause of a deep root-action does not greatly affect my argument, though it is very certain that Vines with their roots far below the surface are very liable to shanking. The remedy in the case of Vines that are not too decrepit to pay for re-invigorating is root-lifting, at least two-thirds of the border being wheeled away, the roots that are found being carefully preserved, pruned somewhat, and relaid much nearer the surface this time in good fresh compost. This radical measure is usually carried out in the autumn or as soon as the crops are cleared off, and while yet the foliage is fresh and green. If the work is properly done, fresh root fibres will be formed before the leaves fall, and a much healthier start is made the following spring. As it happens, nearly as good results attend root-lifting in March, or just as the Vines are bursting their buds, and I have actually lifted and transplanted Vines to a distance of two miles without losing a crop. Those who have never tried what they can do in the way of either moving or partially lifting Vines at this time of the year may perhaps adversely criticise my advice on the subject, but let them first give the plan a fair trial before condemning it.

There is yet another frequent cause of shanking, this time wholly unconnected with either the stock or border, and which is not often taken cognisance of. The barbarous proceeding

of annually skinning and scraping the rods and then dressing them with some obnoxious compound is a most faulty practice, and which cannot be too often condemned. Rods subjected to this treatment seem to lose the power of forming any more rough bark, and they remain nearly or quite as naked as they were when first hard scraped. This undue exposure of the sap wood, first to strong insecticides, and then to all vicissitudes of the weather, seriously cripples the energies of the rods, and although they may continue to bear well for some time longer—for the Grape Vine is a long-suffering plant—the stems fail to make any further appreciable progress. In fact they shrink rather than expand, and this contraction must lead to a serious rupture of the sap vessels, shanking following upon this faulty circulation of sap. Shrinking and consequent evils will also result if the Vines are grown too rankly during the years the main rods are forming, gross canes containing an excess of pith, and which in time is almost certain to shrink. There is also a possibility of clinging too long to old rods, whether large or comparatively small. Such eventually become clothed with much knotted spurs from 9 inches to 12 inches in length, and an examination of these ought to convince any thoughtful person that anything like a free flow of sap to and from the young growths is simply impossible. What wonder is it, therefore, if shanking takes place? It is hardly possible to re-furnish old rods with a new set of short healthy spurs, though it sometimes happens that if old spurs on healthy Vines are sawn cleanly off near to the main rods young shoots will be produced from buds that have been dormant and unsuspected for a great many years.

A change of rods—quite young canes being substituted for the worn-out old ones—is advisable, either as a remedy for shanking or as the first step towards recovering Vines from a sickly unprofitable state, the other remedial measures in the form of lifting the roots and relaying in fresh compost being carried out early in the autumn. At disbudbing time a well-placed shoot, as low down on the old rods as possible, should be reserved and taken good care of, this being given good room and allowed to extend up the roof. Generally speaking, exhausted Vines are not capable of forming and properly ripening strong young canes to the full length of the house, but this difficulty can easily be obviated by laying in a second shoot half-way up the rod, the lower one being stopped when the starting-point of the upper cane is reached, and the latter when it is nearly up to the end of the trellis. These young canes, having their lateral and sub-lateral growths kept stopped at the first joint, swell to a good size and ripen well. Soon after the crops, and which ought not to be heavy, are taken from the old laterals, saw off the upper half of the old rods and all the spurs on the lower half. This being done while the Vines are in full leaf, there will be no bleeding, and the young canes will have a better chance of ripening thoroughly. There will be no loss of crop, and, in fact, what those responsible have to guard against is overcropping. If the lower cane is gradually extended to the full length of the roof, the rest of the old rod can also be sawn off and the house will then be furnished with new rods throughout.

W. IGGULDEN.

Storing Apples.—Some fine samples of Blenheim Pippin Apples sent from Esher were placed before the fruit committee on the 10th ult. These, it seemed, had been stored in a barrel with meadow hay; the result, not of course looked for, was that

the fruits were greatly impregnated with the perfume of the hay, and were in consequence appreciably deteriorated. It does not appear needful that any packing whatever should be employed, as, whatever material be used in barrels, it is almost certain to affect the flavour of the fruits more or less. In this particular instance many of the fruits also had become soft or woolly, evidence that the dry hay had exhausted the juices of the fruits, or else that the atmosphere in which they had been kept had been too dry. Plenty of home-grown Apples look tempting enough in February, but, unfortunately, too many of the samples have little edible quality.—A. D.

PEACHES ON OPEN WALLS.

VERY rarely have the prospects of a good crop of Peaches on open walls been so apparent as this season, the trees being literally covered with plump and healthy fruit buds, the progress of which has been very rapid during the past exceptionally sunny days for this time of the year. It is to be hoped that they will not come on too rapidly. I have known them quite as forward in previous seasons, when with the precaution of covering the trees at night-time and on cold days, the set has been all that could be desired. The past exceptionally fine autumn ripened up the wood, but I never knew nor remember the leaves remaining on the trees so late in the season as last year. It might have been inferred that the wood had not ripened up satisfactorily, but such was not the case. Quite two-thirds of our trees were partially lifted early in November, but all are equally satisfactory. The buds are now coming on apace, and the trees ought to be fastened to the walls as quickly as possible, as I cannot see what advantage is gained by deferring this operation until the buds are on the point of opening. Where a considerable number of trees are grown, and other pressing work needing attention, such work as tying has to be performed as opportunity offers. The trees having been all fastened in position, the next operation consists in giving them a good washing of soap-suds, or, what is to be preferred, a decoction of Quassia chips and tobacco water which effectually cleans the trees.

PROTECTING THE BLOSSOM.—To make certain of a good set of blossom the trees will have to be effectually protected as a safeguard against frost and cold winds, the latter being almost as destructive as frost. There are various contrivances for protection, but circumstances will govern this operation. In our own case we have a movable glass coping fitted with squares of Hartley's rough-rolled plate. The squares are easily fitted in position when the buds are on the point of opening. The fronts of the trees are effectually protected with a woollen net, which, besides letting in light, forms a very warm covering, quite capable of warding off several degrees of frost. We do not allow the covering to remain continually over the trees, but only at night-time or on cold days when perhaps easterly winds prevail. We always draw down the blinds about 4.30 p.m., and do not remove them the following morning until 9 o'clock, or even an hour later. We have 100 yards of wall to cover, and the operation of letting down the blinds and drawing up the same takes about twenty minutes. By taking the precaution of letting down the blinds before night comes on and not drawing them up until the time stated, the temperature about the trees is conserved to a considerable extent.

SETTING THE BLOOMS.—Whilst every precaution is taken in securing a good set with the trees under glass, those on the open walls are generally left to themselves. Surely there is need of every attention in securing an even set with the outside trees. On bright sunny days there are generally plenty of bees about, but instead of depending solely upon these busy little workers, it is as well to guard against failures by going over the trees at mid-day with a camel's-hair brush—not a small pencil—but a brush about 1½ inches long. After the blooms are set, the covering and uncovering should have quite as much attention until all danger of frosts or cold nights is past. By not taking this precaution the foliage is

apt to become affected with blister. It is by exposing the young and tender foliage to cold winds or frosty nights that this evil is often brought about. As soon as the fruit has set and is swelling the trees are very liable to be affected with green-fly, or even the black aphid, which latter is very destructive. To guard against any such attacks the trees should be thoroughly washed with the decoction of tobacco water and Quassia chips. I generally give three applications on alternate days to be followed in the morning by a washing with soft water through the garden engine. Prevention being better than cure, it is much the wisest plan to guard against any such attacks. I also give a dressing about every ten days or a fortnight right up till the second swelling. A washing on fine evenings through the growing season is also very beneficial to the health of the trees and corresponding growth of the fruit.

DISBUDDING AND SECURING THE GROWTHS.—Although the growths do not require disbudding so early as in the case of trees under glass, yet they must not be allowed to become too forward before this operation is commenced. The strongest shoots should be removed at first, and the trees should be gone over afterwards at intervals of a few days until the whole of the growths not required are removed. The "heeling" in of the future bearing wood must be proceeded with as this extends, taking care to expose all fruits as much as possible. Especially is this necessary at the commencement of the second swelling, when the colour will extend rapidly. I have not yet mentioned the thinning of the fruit, but this must not be done with a niggardly hand. Thin early and well, taking particular care that too many fruits are not allowed to remain through the exhaustive process of stoning. It is rarely that Peaches drop from trees on open walls. As soon as the second swelling commences, remove all fruits not required and re-arrange the growths so that the fruit may become exposed as much as possible. One fruit to a square foot is a fair crop, but with large growing varieties 15 inches is none too much space. Throughout the growing season water must be freely applied, and the surface should be mulched with littery manure as soon as warmer weather appears. Mulching also keeps the roots nearer the surface than they otherwise would be, this being a great assistance towards perfect finish. **A. YOUNG.**

Abberley Hall.

POT CULTURE OF MELONS.

THERE is much that might be stated in favour of growing a few or many Melons in pots, and doubtless equally strong arguments against the more general adoption of the practice could be urged. It answers well in all cases where an early crop of fruit is desired, and it is perhaps the best where either a number of untried seedlings or many named varieties are grown. In some few instances that have come under my notice pot culture is resorted to throughout the season, and being well understood the results are highly satisfactory. A few varieties would appear to be particularly well adapted for pot culture, among these being Cox's Golden Gem, Victory of Bath, Hero of Lockinge, Imperial Green-fleshed, The Countess, Amberwood Beauty and Blenheim Orange. Most probably a considerable number of other varieties would also do well in pots, but those I have named have succeeded best with me, most of them repeatedly. Those, therefore, who have raised a good batch of Melon plants for growing on mounds or beds of soil will do well to grow a few of these in large pots, and thereby secure a few early fruits from the latter, and a good succession from those of the same age only planted out. It is not necessary to give up the best positions to the pot plants, as the latter will usually succeed satisfactorily if stood on walls, strong back shelves, and other spots not far from the glass. What they require is plenty of heat, light and moisture, and it is possible to grow excellent crops at the back of three-quarter span-roofed houses, the fronts of which are devoted either to Pines planted out, Melons, or even Cucumbers. When hard driven for space I have grown a few pot plants in mixed plant stoves, and in all probability shall do so again this spring.

The start ought not to be made with either the weakest plants or any that have become badly root-bound, the latter especially being worthless for any purpose. Everything depends upon their being grown quickly, and for pot plants strongly. Supposing the seedlings are raised singly in 3-inch pots, they may well be transferred direct to the fruiting pots; but in the event of the latter not being ready just when the plants are well rooted, then ought a shift to be given, this being done to prevent a stunted growth. No particular size of pots is necessary, but those ranging from 14 inches to 18 inches in diameter are the best if available and there is good room for them to stand. For shelves 12-inch pots may be used, the plants, when there is any choice in the matter, being cropped according to the extent of pot room afforded. Rather strong turfy loam roughly chopped up, a liberal sprinkling of bone-meal being added, answers well for pot Melons; and, failing this, use the best loam procurable, adding mortar rubbish and bone-meal to this. For the smaller pots, a little good half-decayed manure may well be mixed with the loam. In each and every case the pots should be lightly drained, rough turf being placed over the few crocks used, and the pots filled with soil long enough for it to become well warmed through prior to receiving the plants. If need be, however, the heap of soil may be quickly and thoroughly warmed by means of heated bricks placed in the middle, and it may then be used at once. A fairly brisk hotbed of leaves, or leaves and manure, can be assigned Melons in pots. Such would give them a capital start, this being the plan adopted by those who cultivate them largely. In this case the pots can be plunged almost as thickly as they will go in a single row, and either rather high, loosely, or firmly, according to the heat of the bed. Being duly filled with soil, the plants can be put out without much further trouble, in any case being very firmly potted and disposed rather high. For the early crops at any rate hotbeds can be dispensed with, but the start will not be so strong, while very much more water will be needed while the crops are maturing. I find it advisable to start the pot plants on the beds formed principally for the successional Melons, and when they have made good progress they are transferred to walls and shelves near the glass to fruit.

Melons in pots ought not to have to form a considerable length, or not more than 18 inches of stem before the roof trellis is reached, the aim being to get fruit set before the plants become much root-bound. Good care ought to be taken of the primary leaves, but the side shoots from the soil to the trellis should be rubbed out directly they show themselves. Once up to near the roof, progress is rapid and strong. The leader in every case should be allowed to grow from 2 feet to 3 feet, according to space, before it is stopped, and unless fruits are obtained from the laterals which soon form, it is of little use retaining the plants. Take good care of these, therefore; thin out early where somewhat thick, stop at the second joint beyond the female flowers or embryo fruit, closely rub out all sub-laterals or secondary growths, and pinch out all superfluous shoots generally. Fertilise the flowers as fast as they open, and if three fruit will not swell on the plants in large pots and one or two on those in smaller sizes, be content with as many as will, as it is a risky business removing any on the chance of effecting a better set on the latest formed laterals. At the outset, or till the plants are growing strongly, water ought to be given somewhat sparingly, but later on they must have it freely and often, liquid manure being also given frequently. At no time ought the plants to flag for want of water, and occasional surfacings of bone superphosphate or some kind of special manure prepared for fruit growers will act most beneficially. Overhead syringing may be resorted to when the house is finally closed for the day, but in this and other respects the Melons in pots may well be treated much the same as the other contents of a forcing house, only they must not be shaded more than can be avoided. There ought to be no drying off, the plants being kept watered so as to prevent flagging up to the time of cutting the

fruit. It is quite useless to keep them for producing second crops, and those, therefore, who obtain their principal supplies from pot plants must sow about every three weeks or thereabouts in order to have successional batches coming on.

W. IGGULDEN.

LATE PLANTING OF FRUIT TREES.

OWING to the severe weather of the last two months much planting that would have been finished by this date will necessarily have to be undertaken somewhat later than usual, and I well know many persons object to it. I do not say they are wrong in one sense, but much depends upon the planter and the condition of the trees. If the trees are well rooted, planted carefully, and afterwards mulched, they will do well. The severe weather will have caused many fruit trees to be in a resting state much longer than usual this year; therefore the grower will have some little satisfaction in this respect, as it will prolong the planting season and keep the buds dormant. Of late years we have had bitter experience of the month of March and even later, as when we have had a warm January and February the sap has commenced to flow and the trees have suffered later in the spring. Therefore, this season, I do not see why trees planted late and attended to afterwards should be neglected. I must here notice the great improvement of late years in the lifting of fruit trees in the nurseries, as now they come to hand in splendid condition, the roots being as carefully handled in most cases as the tops, and rightly so. This goes a long way towards success, and a tree lifted with care scarcely ever goes wrong. Indeed, in many cases the lifting is what is wanted, if care be taken in replanting and mulching. No doubt much of the success in this respect is obtained by more frequent removals in the nurseries than formerly. The shifting to other quarters after the planting season is nearly finished is one of the chief secrets of success, as the trees may be planted much later and with every chance of success than when they were not moved so often. We see how well these trees do in nursery quarters transplanted late, and of course they only get ordinary treatment, as in nurseries it is impossible to mulch and water large numbers in the way individual examples can be attended to in private places. I should not advise late planting for old trees, but for young ones, transplanted yearly, little doubt on the score of non-success need be entertained, provided they are attended to afterwards. I have lifted successfully even large trees of stone fruits for indoor work when frost and other causes have prevented early transplanting at the proper season; the roots, however, had been prepared the year before. Much can be done to assist the trees when late planted by a good mulching of decayed manure. Even strawy litter may be used if other cannot be obtained, but whichever is applied a good mulch should be placed over the roots after planting and watering, renewing it again at midsummer or earlier if the weather be dry and hot.

G. WYTHES.

Nyon, Brentford.

Kitchen or dessert Apples.—In THE GARDEN, Feb. 14 (p. 159) Mr. Bunyard opens up a wide and interesting question, as soil and locality exercise a vast influence on colour, size, and flavour of Apples. Here on our light sandy soil many varieties only considered fit for cooking are very good for dessert. Cox's Pomona is excellent, also Bess-pool and Cellini. The following have for some years produced good and well-flavoured fruit: Red Hawthornden, Lady Henniker, Hoary Morning, Duchess of Oldenburg, Frogmore Prolific, Lane's Prince Albert, Maltster, Wormsley Pippin, and a few others, including the kinds mentioned by Mr. Bunyard. Bismarck I have not yet fruited, but have tasted some that were very good. I quite agree with the remark, that, as a rule, Apples are picked too soon. As mentioned by Mr. Watkins in THE GARDEN, Feb. 21 (p. 153), it is remarkable what an extra amount of colour a few days longer on the trees give, while the flavour is greatly improved. I always leave the fruit on the trees as

long as possible, and have had reason to be pleased at the size, colour, flavour, and long-keeping qualities from such practice. For market it is absolutely essential that the fruit be of good size, nice colour, and fair quality. My experience is that such varieties as Margil or Ashmead's Kernel are of no value in growing for profit. Only grow the very best, and the demand will greatly exceed the supply—at least, such is my experience. Much, however, has yet to be learned in this about packing. One need only take a walk through Covent Garden to see how slovenly vast quantities of fruit are sent there. Until fruit generally is more carefully and tastefully packed in this country, the American and other fruit growers abroad will continue to reap a rich harvest from the Britisher.—S. T. WRIGHT, *Glenston Court Gardens, Herefordshire.*

VINES BREAKING WEAKLY.

I HAVE some Vines which have been allowed to become very dirty with bug, and the greater part of the fruit had to be cut away about Christmas. I took off all loose bark and then washed them with soft soap water, and afterwards I gave them one dressing of Gishurst's compound, about 6 ozs. to the gallon of water. I have two houses, and they were both dressed alike. The first or early house I started about a month since, and although the wood is very strong and, I believe, ripe, the buds generally look in a half-starved condition. Some are now three-quarters of an inch long and very thin, while others are almost dormant. I have of late been washing them with chilled water and syringing them. The next house, which is much cooler, looks a little better, breaking more regularly. I might add that I dressed two Peaches that are planted in the cool house with the same material, and although I lost a great many buds, the others broke nicely, and after standing apparently almost still for a week they are now growing well. I lately saw some Vines that had been dressed with paraffin last year, and the shoots broke well, but were very thin until they were about 3 inches long. They then stood perfectly still for three weeks or a month, and some died completely down, while others went on and got over it, and have some nice bunches of good fruit. What I should like to know is, first, will mine act in a similar way to those dressed with paraffin, and is there anything I can do to assist them? I have already found some bug on the early Vines.—MEDICOS.

* Judging from the way in which the Vines are breaking and behaving, "Medicos" was a little too thorough in his cleansing process. In all probability the rods had in previous years been subjected to bad treatment in the way of skinning, scraping, and dressing with insecticides, these never yet being effectual, a few bugs invariably escaping, while they are very injurious to the Vines. Gishurst's compound is very largely used as a winter dressing for Vines, and is generally considered safe and fairly effective. "Medicos" used it too strongly, 4 ozs. to the gallon of water being ample, and in most cases where it is used clayey water, near the consistency of paint, is added. Used in clear water and extra strong, there is every likelihood of its injuring the cells and sap vessels of Vines denuded of their natural covering, and this is what evidently happened in the case under consideration. Petroleum or paraffin is even more searching and dangerous, this being capable of penetrating through anything of a porous nature, and ought not, therefore, to be ever used near Vine rods. It cannot be mixed or held in solution, and even when used with syringing water, there is always a risk of too much oil being taken up at one time with the syringe. Once that or any other strong insecticide has been brushed into the Vine rods, there is nothing that can be done to undo the evil that may follow. The daily spongings or washings given by "Medicos" are now of no avail. All he can do is to keep up a gentle heat and maintain plenty of moisture in the air, and if the disbudding, stopping, and other details are properly carried out, he may yet have a fairly good crop of Grapes. The first growth is generally the outcome of what food is stored in the rods, and at the joints especi-

ally, mingled with the first rush of crude sap from the roots. This supply being to a certain extent cut off, owing to the effects of the insecticide, the shoots are weakly and soon cease to lengthen out. While at a standstill, high temperatures, or any much exceeding 55° by night to 65° and 70° by day, ought not to be kept, an increase of 5° all round taking place when the second flow of sap occurs. When the rods are injured by strong insecticides, the shoots in addition to being weak are also very brittle, and tying down ought to be put off as long as possible. Some Vines annually break weakly, this being especially the case with the Muscat of Alexandria; but they soon improve in vigour and produce highly satisfactory crops. This always happens in one of the best house of Muscats in the country, yet no insecticides ever come into contact with the rods. "Medicos" and all other growers who are troubled with mealy bug on their Vines ought now to keep a close look-out for any that have escaped the winter dressing, that being the surest method of getting rid of them.—W. I.

FRUIT PROSPECTS.

IT is not possible to reside in a fruit-growing district without realising the intense interest felt in the prospects of the coming season, so far as fruit products are concerned. It is natural, of course, that such concern should be shown, because not only the growers and those in their employ, but all who have business or other relations with them feel how great is the importance to a district of a good fruit crop. The comparative lack of fruit last year greatly reduced the ordinary takings of the growers and the earnings of the workers. The terrible destruction wrought amongst the vegetable crops, the injury done to the Wallflower and Violet breadths, all serve to add to the general depression. No wonder then that there is considerable anxiety as to the probable fruit crop of the coming season. So far as experience goes, I have never seen a better promise or a more hopeful outlook. The buds are just now, at the extreme end of February, as dormant almost as they were a month ago, and there is no possibility that any can suffer from undue early expansion. Apart from the abundance of buds and their plump appearance, this is the great hopeful feature in the prospect, because we have seen in some previous springs such hopes blasted by undue precocity. We hear in this district little or no complaint of birds injuring buds. The harm of this nature is usually done in gardens where belts of trees and shrubs afford too abundant cover for birds and the fruit trees cover only a limited area. In this locality we have little, if any tree or shrub cover; far too little, in fact, for the good of the orchards at certain periods; hence birds have comparatively little shelter, except such as they find amongst the orchards or hedgerows. Sparrows are our chief feathered neighbours, and they find no lack of food about the manure heaps so plentiful in market garden areas. Perhaps those gardeners who suffer in their fruit breadths from the attacks of birds might mitigate the evil somewhat did they feed the birds liberally at critical periods, especially just at the time when the bud-scales of bush fruits are moving, as then the birds do the chief harm. Comparatively little is heard of the caterpillar pest in this district. Generally the trees are kept clean and fairly well thinned, but without doubt the chief deterrent to the progress of the caterpillar is found in the constant hoeing practised in orchards and the deep forking about the roots given in the winter. Dressings of manure forked in about trees and bushes stimulate growth and check insect development, whilst where there are no bushes, but Violets, Wallflowers, Daffodils, or other flowers grown beneath trees, then the soil is so deeply worked that any incipient larvæ would be too deeply buried to be harmful. Altogether, we find in the present appearance of trees and bushes every promise of a good fruit season; indeed, it has been well said that if a good fruit season does not now follow, we can never hope for one henceforth. We had a magnificent ripening autumn, a severe winter, which all authorities agree in believing to be indi-

cative of a good fruit season following; the spring is late and dry, and buds are fine and restful, and the conditions, therefore, could hardly be more favourable. A. D.

Wired Peach walls.—A note in THE GARDEN (p. 159) on this subject speaks of the bad effects of wiring walls if the trees are not loosened in the winter months. This latter plan should always be adopted, as it retards the trees and often saves the bloom. I have noticed that galvanised wire is much worse than ordinary iron, and when the galvanised is used it should always be painted, getting three coats of paint before the trees are tied to the wires. It is also best to give a thorough coating of paint or varnish to all ironwork, as in severe weather it prevents the shoots or branches from coming in direct contact with the iron and preserves the bark from injury, as well as being of great benefit to the iron, keeping it free from rust. I should not have troubled you with these notes if your correspondent had advised painting the wires, that being an important point, as at times it is not always possible to loosen all parts of the trees. It is also of great benefit to the trees in hot seasons, as when the wire is against a warm wall, galvanised wire when not painted causes the bark of tender trees to scald. I do not like galvanised wire in any form indoors or out unless it is painted. For indoor work, when only a small size is required, I like copper wire.—G. WYTHES, *Syon.*

Marketing fruit in Germany.—A method of marketing fruit which originated in Schleswig, but which has extended to many other parts of Germany, has proved successful in securing buyers against a bad article, and in giving an opportunity for good growers to make sales of a good article. Samples of various fruits are placed in dishes for exhibition in a saleroom by growers, who are prepared to furnish various kinds. The buyer has only to write his name and address on a card, with the quantity he wishes, and leave it at the central office, with the number of the plate. The order is then forwarded from the office to the grower, who in turn delivers his goods there. Here the fruit is inspected, and if it comes up to the sample in quality, it is forwarded to the buyer. If it proves inferior, it is returned at once to the grower. A grower who on three occasions furnishes goods inferior to samples is excluded from the market. The office receives 10 per cent. commission for inspecting, forwarding, &c.

Plums for West Yorkshire.—"An Old Subscriber" in THE GARDEN (p. 159) makes inquiry for a suitable Plum for West Yorkshire. Having had some practice in a district not a great many miles from "An Old Subscriber," I will give the names of some I found to succeed. In the first place, the soil he gives a description of is not a good one for Plums, as they like a strong rich loam. I never forget the Plum trees of Worcestershire, especially round the Vale of Evesham, where the soil is as described. I well remember many growers there used to merely stick the trees in—they could scarcely be called planted—and they bore enormous crops. Having the same difficulty to contend with as "An Old Subscriber," when in the north I tried a few of the most prolific bearers from the Plum-growing district. Previous to planting I did what was possible in providing a more suitable medium than our light gravelly soil—and procured plenty of heavy soil and clay and gave the roots something to hold to. The trees did well, but required lifting every two or three years, as when the roots got into the old soil they failed to bear freely. Plums delight in a strong soil—at least such is my experience, and I gave the trees a good dressing of the heaviest material I could command (not manure, but plenty of rough heavy loam), and though the crops could not approach those in more favoured districts, they were fairly good. The best kinds were Pond's Seedling, Victoria, and a local Worcestershire variety called Pershore. This last I can strongly recommend. If the soil was made sufficiently heavy for it, I never knew it to fail. I do not think it is much grown in the north; indeed, I never met with it. The fruit is rather above medium

size, obovate, with a short neck, the skin yellow or apricot colour, flesh pale yellow, juicy, and rather sweet. It is one of the very best preserving Plums I have met with. The fruit ripens in the north towards the end of August, and on a wall is very fine. The tree is very hardy, and does well as a standard in many places, but I grew it as a bush, in which form it did very well. Washington also did well, and I should be inclined to include Prince Englebert, as it was a good (indeed, it was one of our best) keeping variety. I do not think standards would do at the height named—380 feet above sea-level. I would advise dwarf bush culture and walls. Plum trees should get abundant mulchings and waterings, as I find if the trees do not get these, they soon go wrong.—G. WYTHES, *Syon, Brentford.*

TREES AND SHRUBS.

FRUITING TREES AND SHRUBS.

IN the case of many of our hardy trees and shrubs, their most attractive stage is during the

outline, owing to the somewhat drooping character of the branches. The seed capsules are of a bright red colour, and when they open the orange-coloured fruits hang suspended therefrom by slender threads. In this stage they remain a considerable time. In the winter, when devoid both of foliage and fruits, this *Euonymus* is remarkable for the regular arrangement of its branches and the smooth reddish-green bark. There is a variety of the common kind in which the capsules when ripe are white, and though not so showy as those of the normal form, they nevertheless furnish a pleasing variety. Many of the *Cotoneasters* are remarkable for the beauty of their fruits, among which may be specially mentioned the Himalayan *C. affinis*, which forms quite a tree, and bears large clusters of glowing crimson-coloured berries. These bunches of fruits are so large and heavy that they frequently cause the shoots which support them to bend over with their

little evergreen *C. microphylla* is very pretty when the brownish-crimson coloured berries are nestling among the neat deep green foliage. A species with very bright coloured fruits, *C. horizontalis*, is at present but little known, yet it is in many respects a very desirable shrub. This forms a low growing shrub with horizontally arranged branches, which, from their regular frond-like character, remind one to some extent of the South American *Azara microphylla*. The berries are brighter than those of any of the other dwarf *Cotoneasters*, being of a clear vermilion tint where fully exposed to the sunshine. A great many of the Thorns (*Cratægus*) are remarkable for their showy fruits, the brightest coloured of all being the Fire Thorn (*Cratægus Pyracantha*), which is so well known as a wall shrub. The best form of the *Pyracantha* is that known as *Lelandi*. The common Hawthorn is very ornamental when laden with fruit, and, as may be often seen, some individuals are, in brightness of colouring as well as in other features, very superior. The N. American *Cratægus coccinea*, so valuable as a late flowering Thorn, is also very showy when in fruit, while the large, berried kinds, of which the Tansy-leaved Thorn may be taken as an example, are both distinct and ornamental. In this the berries are about the largest of any of the Thorns, of rather a peculiar flattened shape, with large adherent bracts, and when ripe of a rich yellow colour.

The Dog Roses with their brightly-coloured hips are so conspicuous in many of our hedgerows, as to direct attention to this feature in the case of Roses in general. The Japanese *Rosa rugosa*, handsome in foliage and in flower, is equally so when in fruit, and especial mention must also be made of the almost black-berried *R. spinosissima*, the crimson *R. cinnamomea*, the scarlet *R. villosa*, and the equally bright *R. lucida*. In the genus *Pyrus* may be mentioned many of the cultivated Apples and Pears, the various forms of the Siberian Crab, *Pyrus Maulei*, and above all the Mountain Ash or Rowan, which forms such an autumn feature, especially in some parts of Scotland. Of Berberies, the common European *Berberis vulgaris* is very showy, while to this must be added *Berberis Thunbergi*, which attracted such a large amount of attention last autumn when exhibited at one or two of the horticultural meetings. It was awarded a certificate by the committee more, I think, by reason of the intensely bright tint the foliage assumes before it drops than for the beauty of its fruits, which in this country are often borne but sparingly. Of the evergreen species, *B. Darwini*, with deep purple berries covered with bloom like a Grape, is very free fruiting, while most of the *Ma-honias* deserve notice. One of the finest of all berried shrubs is our own British Sea Buckthorn (*Hippophae rhamnoides*), a large loose growing bush with long slender twigs, which are clothed for about a foot of their length with crowded clusters of bright orange-coloured berries the size of peas. Another very showy shrub by reason of its large bright-coloured fruits is the European Box Thorn (*Lycium europæum*). Among berry-bearing shrubs the *Skimmias*, not so much grown now as formerly, must be assigned a place, and another evergreen group is furnished by the numerous varieties of the *Aucuba* to be met with in our gardens. Of white-coloured fruits, the Snowberry (*Symphoricarpos racemosus*) stands almost alone, there being in addition to it a white-fruited variety of *Pernettya mucronata*. These *Pernettyas* have become very popular of late years, and no wonder, as they are all neat evergreen shrubs, perfectly hardy, generally laden with beautiful little Lily of the Valley-like flowers



Fruiting branch of the Broad-leaved Spindle tree (*Euonymus latifolius*).

autumn months, when their great profusion of brightly-coloured fruits forms a very prominent feature, and adds greatly to the beauty of our woodland scenery. Among the shrubs which are especially noticeable in this respect is the broad-leaved *Euonymus latifolius* (here illustrated). This species, which is a native of a considerable tract of country in Southern and Central Europe, was introduced into British gardens early in the last century, yet at the present day it is by no means common. About nine or ten years ago a few fine sprays of this *Euonymus* were exhibited by Messrs. Veitch at one of the autumn meetings of the Royal Horticultural Society. It was then awarded a first-class certificate, and attracted at the time a considerable amount of attention, the plant in question being recognised by few, while it was regarded as a most desirable novelty. This species of *Euonymus* when allowed space for its development forms quite a small tree, with a rather dense rounded head, of a very elegant

weight, and from this circumstance, when the specimen is tall, they are rendered even more conspicuous than would otherwise be the case. The sub-evergreen *C. Simonsi*, an upright-growing, much-branched bush, with neat foliage and a great profusion of bright orange-scarlet berries, is a well-known and very beautiful shrub. *C. bacillaris*, one of the tree-like species, has small brown berries, but in such profusion are they borne that the entire specimen appears often to be of that hue. The

in the spring, and in autumn covered with a profusion of fruit. We have now a great number of varieties, among which are to be found berries of various hues. This notice of ornamental-fruited trees and shrubs might be so far extended as to embrace many other subjects, but I will only mention two—the Holly and Mistletoe. Of the Holly, the yellow-fruited form might be more often planted than it is, as it possesses all the desirable qualities of the common kind. T.

Veronica Girdwoodiana or Goodwini.—Being a great admirer of the many and various and most curiously distinct forms of shrubby Veronicas and constantly on the look out for any of the forms still wanting to complete my collection, which now numbers some thirty different varieties, I accepted recently with alacrity and gratitude the kind offer made me by a distinguished florist friend in England to send me a young plant of a Veronica bearing the second of the above cited names which I had never before heard of. On receipt of the plant I was accordingly much disappointed to find that instead of being new to me it was only what I already possessed and had grown for many years under the name of *V. Girdwoodiana*, and which I believed to be a seedling from *V. diosmæfolia* crossed with some other variety. On submitting the question of these names, however, to the curator of the Edinburgh Botanic Garden, who is probably the greatest authority on these Veronicas in Europe at all events, he informed me that the name of Goodwini was only a gardener's perversion of the name *Girdwoodiana*, which had been given to Veronica sent to him to name by a Mr. Girdwood by his predecessor in the curatorship, Mr. Macnab; also that the idea that it was a seedling from *diosmæfolia* was erroneous, as it was a totally distinct species which he had recently identified as being identical with one indigenous to Australia, and there known as *V. formosa*, which must henceforth be accepted as the correct name of this Veronica, which is an exceedingly pretty one with racemes of bright blue flowers.—W. E. GUMBLETON.

Root propagation of trees and shrubs.—Many of our hardy trees and shrubs can be propagated more or less readily by cuttings of the roots, and in the case of some of them it is the method usually employed for their increase, while for others, owing to the fact that seed is available or from some other cause, it is rarely followed. The roots may be taken at any time during the autumn and winter months when transplanting is going on, divided up into lengths of 3, 4, or 5 inches, according to the character of the plant, upon which will also depend the treatment given them. Where carried out on a small scale, the root cuttings of our various hardy trees and shrubs may be dibbled into pots or boxes of sandy soil at such a depth that the upper part of the cutting is just below the surface, or they may be put into the open ground and covered with a frame; while where carried out on a more extensive scale, the cuttings may be made in the autumn and winter and laid in in some moderately moist soil and protected from frost. On the return of spring, they may be planted out in some sheltered spot in the open ground. Wherever they are kept during the winter care must be taken not to excite them, as a certain amount of time is necessary for the wounds to heal, and undue excitement before that has taken place is apt to be fatal. Where putting in a few of such things as the cut-leaved *Rhus*, *Clerodendron trichotomum*, *Aralia Maximowiczii*, and *Dimorphanthus mandschuricus*, I succeeded well by inserting the cuttings in pots as above detailed, and wintering them in a cold frame; then, on the return of spring, they were taken into a gentle heat, where before long the young leaves made their appearance above ground. In a general way all those plants that push up suckers or shoots from various portions of the roots when in a natural state can be propagated from root cuttings, though even then some will grow much more readily in that way than others. Among the trees and shrubs that can be increased

in this manner may be noted *Ailanthus glandulosa*, *Paulownia imperialis*, *Cladrastis tinctoria*, or *Virgilia lutea*, and the False Acacia (*Robinia pseud-acacia*) and varieties. To these may be added the Japanese *Idesia polycarpa*, *Bignonia radicans*, several forms of *Rhus*, *Kœlreuteria paniculata*, some of the *Caraganas*, *Broussonetia papyrifera*, *Xanthoceras sorbifolia*, and *Clerodendron trichotomum*. The Japanese Quince (*Cydonia japonica*) in its many and varied forms can also be propagated by root cuttings, and from the freedom with which many members of the genus push up suckers, it should also be available for the increase of the various ornamental members of the Plum family, such as *triloba* and *sinensis*.—T.

THE FLOWERING ASH.

(*FRAXINUS ORNUS*.)

FOR small lawns, or where space is confined, few trees are better suited than the Manna or Flowering Ash. Of neat growth, rarely exceeding 20 feet in height, perfectly hardy, and of the most persistent flowering nature, this somewhat rare tree is highly valued wherever it has been planted. Then its requirements are of the simplest description, it succeeding well in light loam overlying gravel, or, indeed, in almost any soil that is not unduly saturated with moisture. It certainly dislikes in a marked manner stiff cold loam or that approaching clay in texture, but in almost every other class it grows with the utmost freedom, and soon attains to a goodly height and with a well-balanced head in proportion. From the common Ash (*F. excelsior*), the casual observer would have some difficulty in detecting the species in question, but when in full flower the great differences are at once distinctly perceptible. Few trees, it must be admitted, have a more pleasing and ornamental appearance during June and July than the Flowering Ash, the clustered panicles of pure white, sweetly-scented flowers, which are borne in the greatest profusion, imparting to it a charm rarely to be found amongst hardy deciduous subjects. When viewed from a distance, the tree seems as if composed of a mass of waving plumes, the flowers on fairly-sized specimens being so thickly produced as almost to hide the pea-green foliage from view. The Flowering Ash is a tree of unusually neat appearance, the head being well rounded, while the branches are symmetrically arranged around the trunk, and, being twiggy and lithe, impart an easy and refined air to the specimen. This is usually the case whether the tree be sheltered or exposed. Being a native of Southern Europe, the Manna Ash may be relied upon as perfectly hardy in most parts of Britain—the southern half at least—while it requires no extra care either in planting or after attention.

Propagation of the tree is brought about by grafting or layering, the latter being the preferable mode, as the young plants so obtained start away freely into growth and soon form neat, bushy specimens. There is one objection at least to grafted specimens, and that is the scion, if not carefully united to the stock, is apt to get broken off during stormy weather, while it not at all unfrequently happens that the point of union of scion and stock is much enlarged over the general size of stem, and so a by no means neat appearance has been brought about. When we consider that the Manna or Flowering Ash is one of our most ornamental of park trees, one of the easiest to manage and perfectly hardy, the only wonder is that it has not been more extensively planted. True, around London and in several of the southern counties of England, fairly good specimens are occasionally to be seen, but for all that it may well be

described as a rare tree, and one with which the general planter is not well acquainted. Now, however, that its good qualities are fully set forth, and that it has proved itself one of the most accommodating and hardy small-growing trees, it is to be hoped that so distinct and desirable a subject will yet receive the attention that its merits justly entitle it to.

A. D. W.

THE INDIAN BEAN. (*CATALPA BIGNONIODES*.)

BRANDED with the title of "half-hardy," this handsome North American tree has not made that headway in our parks and gardens that could have been desired. That it is perfectly hardy in Southern England at least, one need only pay a visit to some of the Kentish estates, or, indeed, almost any of those in the adjoining counties, and there ample proof of how well it succeeds, and that even during our most severe winters, will be provided.

The fine old specimens in the grounds of Holwood Park and at Camden, the residence of the late Emperor Napoleon, clearly point out how well adapted this particular species of *Catalpa* is for planting as an ornamental tree, the ample pea-green leaves and panicles of creamy-white flowers, speckled with purple and yellow, rendering it one of the most distinct and conspicuous of hardy trees. As seen in this country, the Indian Bean rarely exceeds 30 feet in height. The Holwood specimen is 32 feet and bushy in proportion, the large leaves, which are downy on the under sides, being plentifully produced. Individually, the flowers are large, borne in open compound panicles, and thickly spotted or speckled with violet-purple, and yellow in the throat. They are produced in great quantity, and impart when fully expanded quite a gay appearance to the tree, while, being of good substance, they last for a considerable time.

Old specimens of the *Catalpa*, as seen in this country, have usually a rather meagre appearance, this being caused to a great extent by planting the trees in too close proximity to others for the sake of shelter, and whereby many of the lower branches and branch tips are either killed outright or caused to wear a sickly, half-decayed appearance that is the reverse of ornamental. The branches, too, being somewhat brittle, are easily wrenched from the main stem by the wind, and these, if not promptly and properly attended to, cause rotteness to set in, and thus the bole of the tree becomes unhealthy and unsightly. A little timely pruning and dressing of the amputated limb with suitable tar or paint will avert and ward off disease, and the unpleasant connections associated therewith. Planting in unsuitable soils is also, I have noticed, a fertile cause of disease in the *Catalpa*, it delighting in a light warm sandy loam, stiff cold soils being decidedly inimical to the welfare of the tree. Our finest and most pleasing specimen of the Indian Bean is growing where but a couple of feet of loam overlies a deep bed of rough gravel, and there it bears the inclemency of the weather without a shadow of harm, and flowers with unusual freedom from year to year.

Perhaps nowhere does this *Catalpa* look better or show off to perfection its large light green leaves and conspicuously tinted flowers than when planted directly in front of some dark-foliaged shrub or tree, as the Yew, Holly, Scotch or Austrian Pine, or the Portugal Laurel. As a lawn specimen it occupies the front rank amongst flowering trees, but it is all the better when standing alone to be placed in such a position as to escape the prevailing winds of the particular district. The planting season being again upon us, I might urge the lovers of our more ornamental trees and shrubs to include a specimen or two of the Indian Bean in their orders, knowing well that if planted and treated as above directed, it will eventually turn out to be one of the most distinct and desirable of hardy flowering trees.

A. D. W.

Daphne Mezereum grandiflorum.—This name is sometimes bestowed upon the autumn-

flowered variety of the Mezereon, also known as autumnalis, and of which a coloured plate was given in Vol. XXXV. of THE GARDEN, in company with a variety of the Japan Quince (*Cydonia japonica* Moerloosei). It is an old, distinct, and at the same time little known form of the Mezereon, which by London is described as with larger leaves than the species, and producing its blossoms in the autumn. Owing, however, to the severe weather setting in so early, the blooms did not open with us till the new year, but it was then, however, in flower before the ordinary Mezereon. Although Loudon mentions the larger leaves, no notice is taken of the increased size of the blossoms, which latter character has suggested the varietal name of grandiflorum. All forms of the Mezereon are certainly very beautiful, but they are at the present day sadly neglected. Besides the common kind there is a variety with flowers of a darker colour, usually met with under the names of rubra or atropurpurea, and another in which the blossoms are pure white. This last has also berries which when ripe are of a yellow colour. In addition to those previously mentioned, there is a variety whose white flowers are double, but this is a very scarce form. One very probable reason for the Mezereon being so seldom planted is that it is not at all a good subject to transplant, its few deep descending roots having scarcely any fibres, while on sandy or gravelly soils it will not flourish. The conditions most favourable to it are a good deep loamy soil that is quite free from stagnant moisture, and yet at no season of the year parched up in any way. The Mezereon will succeed where pretty well shaded, and, on the other hand, if the roots are in a cool, moist medium, it will thrive where exposed to the full rays of the summer's sun.—T.

ORCHIDS.

DENDROBIUM SUPERBUM.

THE flower with the, to me, disagreeable smell resembling Turkey Rhubarb, received from G. Lumley, is this species. It used to be known as *D. macrophyllum giganteum*. The name *macrophyllum* had previously been given to another plant of quite a different appearance, and ever since the change took place the plant appears to have declined in popularity. This Orchid is one of the many discoveries of the famous Hugh Cuming, who sent it from the Philippine Islands to the Messrs. Loddiges, who flowered the plant for the first time in the year 1839. The plants that used to be seen at the London shows up to about 1860 were magnificent, Mr. Schroeder, Mr. Day, and Mr. Warner being famous for their fine specimens. It is a stout growing plant, and loses its leaves a short time before it flowers. The blooms now before me are each $5\frac{1}{2}$ inches across, the sepals and petals are of a rich rosy purple, lip of the same colour, but the basal part is stained deeply with reddish purple and frilled all round the margin. The sender says his plant is bearing twenty-five flowers, but he does not tell me if these are from one bulb. I have seen nearly double that number upon a single stem. This Orchid deserves more attention. It should be grown in hanging baskets in a very warm and moist atmosphere. The baskets must be drained thoroughly, and the soil should consist of the usual material for these plants, i.e., good fibrous peat mixed with Sphagnum Moss, and sundry nodules of charcoal. During the growing season, which often continues until late in the autumn, the plant must never be allowed to suffer in the least from want of water. As soon, however, as the bulbs appear to have finished growing, water may be gradually withheld. At this time the plants may be removed to the cool end of the Cattleya house and kept quite dry. About December the leaves will wither and fall away, when I advise that the plants be

removed to the warm end of the same house, but still kept dry, so long as the bulbs do not suffer. Upon the first sign of the flowers appearing, a little water may be given at first, increasing the supply by degrees. Its usual time of blooming is about the end of March, and the flowers last a fortnight or three weeks in good condition. When the flowers are past, the plants will begin to grow, and the baskets should have any old or decayed material taken out and be refilled with new and sweet soil, taking care not to injure the roots already existing in the soil; this should be pressed down firmly, well watered, and the plants removed to the warmest house to make new growth. At this rate Mr. Lumley's plants will start into growth about the end of March, and thus he will not find them continue to grow very late into the autumn. If he wants the plants to flower at a later period next year, I would advise him to prevent if possible their early growth by keeping them cool and dry. There are several white forms of this species, but these are seldom seen. W. H. GOWER.

Dendrobium nobile pendulum.—This grand variety sprang from the collection formed by Mr. Rucker at Wandsworth, and flowers come to me from Mr. Cypher, Queen's Road Nursery, Cheltenham. They are of great substance, each measuring some $3\frac{1}{2}$ inches across, the sepals and petals heavily tipped with rosy-purple, the remaining portion white; lip large and handsome, the reflexed tip rosy-purple, behind which is a broad zone of white. The whole basal part is heavily stained with deep velvety maroon. It is a magnificent form.

Dendrobiums from Cheltenham.—Mr. Cypher, of the Queen's Road Nursery, sends me a gathering of beautiful hybrids. Amongst them are the finest form of the old *D. Dominianum*, partaking in the sepals and petals of the bright lively cherry colour of *Linawianum*, with the addition of the deep maroon spot of noble in the base of the lip, a fine three-flowered raceme of *D. Ainsworthi*, and flowers of *D. Ainsworthi roseum*, which differ in having the entire lip, saving the tip, covered with intense rosy-crimson. Some flowers of *D. splendidissimum grandiflorum*, much like those of a gigantic *Ainsworthi*, but brighter, and measuring upwards of 4 inches across the petals, were also included.—W. H. G.

Orchids from Derbyshire.—From Mr. Barker, The Gardens, Burton Cloves, Bakewell, comes a very nice gathering, principally of *Dendrobiums*. Of *D. Wardianum*, No. 2 is by far the best form sent, the colour on the tips of the sepals and petals being very much deeper and brighter than in No. 1. The flowers marked No. 3 are good ordinary forms. The flower sent as *D. nobile* is the ordinary form. *D. Ainsworthi* and *Ainsworthi roseum*, the latter variety larger than usual, and with more colour in the sepals and petals, are also good. The *Cattleya Trianae* represents a good ordinary form of the plant, and the *Brassavola* is glauca; had it been *B. Digbyana*, the lip would have been fully as large again, whilst all round the edge would have been a deep fringe; the two species cannot be mistaken.—G.

Orchids from Liverpool.—Mr. R. Young, of Sefton Park, sends a very interesting box of flowers, amongst them being *Cattleya Trianae ampliata*, a large form, measuring 7 inches across. The sepals and petals are of a very pale lilac; lip large and prominent, prettily undulated, and of a delicate pale mauve, stained in the throat with yellow. Another form (*C. T. virginalis*) has fine, broad, pure white sepals and petals; lip prettily frilled, also pure white, the front lobe stained with pale mauve, the throat rich yellow. Another handsome form bears the name of *C. T. quadricolor*. This is the name first given to the species in this country, and figured as such in the *Botanical Magazine*, t. 5501. The sepals and petals are light rose, front lobe rich crimson, with a pale rose-coloured marginal border,

the throat deep yellow. *C. T. nivalis* has small bulbs, and the flowers, small and compact, measuring only about 4 inches across, are pure white, saving the front lobe of the lip, which is stained with rose, the throat yellow. A very fine variety of *Odontoglossum Rossi majus* and the pure white *Laelia anceps Williamsi*, which has a faint stain of yellow on the disc, and the inside of the side lobes streaked with crimson; a fine form of *Cypripedium Boxallii atratum*, having the dorsal sepal heavily spotted with black and the upper half of the petals rosy-crimson, the same colour also thickly distributed inside the pouch, showing through to the upper side; a good ordinary form of *C. villosum* and a form of *C. insigne*, which is very close to that named Halli by Professor Reichenbach, and a form of *Odontoglossum Ruckerianum* make up the contents of the box.—W. H. G.

SHORT NOTES.—ORCHIDS.

Cymbidium aloifolium (*J. W. Hamburg*).—This is the name of the specimen sent. It is by no means either new or rare. There is a figure of it, t. 387, in the *Botanical Magazine* of 1797, under the name of *Epidendrum aloides*. This represents exactly the flowers sent.—G.

Odontoglossum Alexandræ (*B. Phillips*).—Your plants have been subjected to too low a temperature when not ripe. I have seen several collections presenting the same appearance this winter, and in every case they had been subjected to 30° or 32°, which I think is far too low.—W. H. G.

Cattleya Mossiæ matutina.—This is a name given to an early-flowering variety of this fine old *Cattleya*. I recently saw it when at St. Albans in the middle of February, and I was told the plants had been gathered in quite a new district. The flowers have the colour and scent of the old form.—W.

Cattleya Trianae quadricolor (*E. Brown*).—This appears to me to be the flower sent. Mr. Bateman described and figured this in the *Botanical Magazine*, t. 5504, in 1865 from a plant in the famous Ruckerian collection, but it had been named *Trianae* by Reichenbach and described in 1860, so that the name *quadricolor* has become a varietal one.—W. H. G.

Dendrobium luteolum (*J. Seaforth*).—The flowers you send are both varieties of this species; the one with short green hairs on the lip is named *chlorocentrum*. It differs, too, in bearing flowers much larger than the type. Although not a showy plant it is very useful, flowering at the end of winter and beginning of spring. It is a native of Burnah.—W.

Odontoglossum Rossi albens.—This comes to hand from Mr. R. Young, of Liverpool. I think the same form came to me a short time since, but I was unaware it had received a name. The flower is as large as that of a good form of the species. The petals and lip are quite white, the sepals only being blotched all over with light green spots of irregular size and shape.—G.

Cattleya Trianae.—A flower of a very beautiful variety of this comes from Mr. Broome, of Sunny Hill, Llandudno. It measures 7 inches across; the sepals and petals are deep rosy-lilac, and the lip is bright rich magenta-crimson, stained in the throat with yellow. Mr. Broome says this is a welcome flower, its colour being very bright and cheerful.—W. H. G.

Laelia grandis tenebrosa.—I am advised by Mr. Grimsditch, of Liverpool, that he claims to be the first introducer of this variety, and mentions August, 1888, as the time. I certainly saw it at about the same time with Messrs. Sander, of St. Albans; then Messrs. Cowan and Co., of Liverpool, had some; and Messrs. Charlesworth and Shuttleworth recently sold a fine lot of them.—W.

Oncidium macranthum (*Orchid*).—I cannot tell what is the matter with your plant. I should imagine there is something wrong with its roots. Turn it out and if they are diseased prune them back and wash them. Put the plant into a small pot with crocks only, keeping it very cool and moist, until it puts out fresh roots, when it may have some peat and Sphagnum put about it.—W. G.

Anthracite coal versus coke.—Your correspondent A. Douglas claims for anthracite as against coke "no smoke and less cartage." As a ton of anthracite goes as far as a ton of coke and weighs as much, it is hard to see where the less cartage comes in, and as both fuels are smokeless, there can be no

advantage either way on this point. For the heating and steady work, no doubt anthracite is better, but for boilers worked with a reserve tank, as described by me in your last issue, there is no advantage to compensate for the extra cost of anthracite. The only advantage under such conditions is the compactness, but this is not worth very much, and as anthracite is here fully double the price of coke, it is totally out of the question.—THOS. FLETCHER, Warrington.

THE USE OF FOLIAGE AMONG CUT FLOWERS.

DURING the past few years there has been a considerable advance made in the selection of a greater variety of foliage to arrange with flowers. This is undoubtedly a step in the right direction, and one that affords to the floral decorator a yet more extended field of application. In the past far too much reliance was placed upon Maiden-hair Fern (*A. cuneatum*), not that I would for one moment disparage this most useful plant. It has done good service for many years, and will do for years to come; in fact it is hard to beat. But there is a possibility of having, as the saying goes, "too much of a good thing." Maiden-hair Fern, even when repeated here, there, and everywhere in arrangements, becomes tiring and lacks interest. This never need be the case with such a wealth of varied and suitable foliage, which can be selected suitable to each given case, either in form or colour. Such a selection is not merely confined to our stoves and greenhouses, but from hardy shrubs and trees there is an abundant choice, so that it is possible to find something in most cases to meet the case in point. During the autumn time, for instance, there is almost a superabundance of foliage, which in its varied and rich glowing tints may be advantageously employed. All shades, too, can be had that are in any way desirable, from the greens in various tints, through the yellows and bronzes, up to the bright reds. Many of these are peculiarly adapted for arranging with Chrysanthemums, the colours harmonising extremely well, particularly so with the soft colours of so many of the Japanese varieties. This is a case in point where but little Maiden-hair Fern need ever be used. For a good lasting kind of foliage to arrange with Chrysanthemums we have Mahonia (*Berberis*) aquifolia. When this old, but most useful shrub assumes a rich bronzy tint in the late autumn and winter it is exceedingly useful. So also is it in the summer time with the same tints (almost) in its young leaves. Then it can be arranged in good keeping with the white Water Lily and pale-coloured Roses. I have often used it in small pieces as backings to coat flowers and for sprays. The Japanese Maples with their elegant and finely cut foliage in various shades are other instances of suitable application. These might be frequently used with good taste in bouquets, and no one could for one moment say they were too common for such purposes. They have also the advantage of lasting well in a cut state. In passing, I might suggest that these elegant Maples should be more extensively planted. I do not think in a winter like the present even there would be much fear of injury when protected from the east and north. The variegated Negundo (a close ally of the Maples) is also suited to many arrangements; so also are the golden veined Japanese Honeysuckle and the elegant foliage of *Azara microphylla*. *Berberis Darwini* can be suitably employed in various ways. The smaller leaved Ivies are most serviceable, both in sprays and single leaves, especially those with a bronzy tint upon them. They may be worked into mixed arrangements of flowers with good effect, looking well in rustic baskets, coat flowers, and sprays. The slender shoots of *Jasminum officinale* (the common white) can be turned to a good account even without its flowers. The tips of the shoots of the golden Privet and those of the golden variegated Yew are singularly beautiful when used in a young state. The Parsley-leaved Bramble is very elegant and suited for large arrangements. Note should also be taken of the bronzy-tipped shoots of some of the Oaks, which in a young state are most

effective; the best of these are to be obtained from Oaks growing in hedgerows or coppices. *Ampelopsis Veitchi* should not be lost sight of; in many ways this is more suitable than the large growing Virginian Creeper. In arrangements of cut Roses one need not go outside of the family for foliage; take, for instance, the soft colours of many of the Tea-scented kinds; with these nothing is more appropriate or suitable than the points of the shoots or single leaves with the bronzy red colour in them; the darker-coloured kinds of Hybrid Perpetuals look best with greener leaves. As another instance, take the Narcissus and Daffodil family; can anything be better suited to associate with the flowers than their own leaves? Yet they are not made use of so freely as they might be. Tulips are another instance in the same direction in which their own beautiful foliage far surpasses Maiden-hair Fern even as an accompaniment. When a few *Eucharis* flowers upon the spikes are arranged together, a few of the smaller leaves suit them well; failing these, those from the *Aspidistra* might be taken. When spikes of *Calanthe Veitchi* or *C. vestita* varieties have to be grouped together, the leaves of the *Aspidistra* can again be turned to a good account. The diverse coloured and many forms of the leaves in the Begonia family furnish us with capital foliage material, the larger kinds more particularly for bold arrangements; these look well upon a white cloth as a groundwork for large flowers. Amongst other stove plants of which good use may be made are the leaves of the Crotons when well coloured and where they can be spared; the drooping narrow-leaved varieties look exceedingly well when arranged in the glasses of silver epergnes, being more suitable to such than to those of glass. Upon special occasions I have cut off the tops of highly-coloured Crotons when they have been too tall for my purpose and used them as table plants or with flowers, and then put them into the propagating pit the same evening, striking them without any difficulty. *Dracenas* when too tall, but with well coloured tops can be treated in a similar way. *Peperomia argyrea*, an aroidaceous plant somewhat after the *Alocasias*, but with smaller leaves, is very useful in small vases; it looks well when used with *Eucharis* blooms in specimen glasses. *Caladium argyrites* is, of course, well known, being suited to many purposes, but the small leaves of other kinds can also be employed in a similar way. Those who have tall plants of the *Aralias*, such as *A. Veitchi*, *A. V. gracillima*, *A. elegantissima*, and *A. leptophylla*, and contemplate cutting the plants down, can, prior to doing that work, employ the leaves in decorations. I have used these with capital effect upon a dinner table, laying the leaf flat, making it thus serve as a mat to stand small glasses upon. For the same purpose, but in a larger way, Palm leaves may be used. *Thrinax elegans* I have found to be one of the most suitable in this respect. Long sprays of *Asparagus plumosus nanus* can be put to the same use, but for stems, *A. tenuissimus* is, I think, the best. Another good form of the African *Asparagus* is *A. deflexus*; this is, I consider, the most beautiful of all the family, making a lovely plant for baskets, and when cut for suspending around the trumpet-shaped glasses with tall stems. Long shoots of *Cissus discolor* are useful in many ways with light-coloured flowers. *Cyperus alternifolius* and its variegated form are both of good service, but most in keeping when used with liliaceous flowers. Both the leaves and slender shoots of *Paullinia thalictrifolia* can be turned to good account for special purposes, but being of rather slow growth it would not be advisable to cut it freely. The long trailing shoots of *Myrsiphyllum asparagoides* produce a beautiful effect when suspended from tall vases or used as climbers for glass stems in the same way as one would employ the well-known *Lygodium scandens*. Amongst other Ferns of which sufficient use is not often made, are the small-growing *Davallias*, such as *D. bullata* (one of the best for summer use), *D. Mariesi* (beautiful for coat flowers), *D. elegans* (good for autumn and spring use), *D. tenuifolia Veitchiana* (an elegant variety, with rather long fronds). Of the larger kinds, *D. polyantha* is one of the best.

Of the larger-growing Maiden-hairs, *A. Bausei*, *A. Williamsi*, the old *A. formosum*, the well-known *A. farleyense*, and *A. cardiochlena* will be found useful. *A. concinnum*, with graceful, arching fronds, is a worthy companion to the common Maiden-hair. *A. mundulum* has struck me as being a good sort also. *A. rubellum* and *A. tinctum*, both tinted kinds, are very useful in special cases. Of Ferns with long fronds, we have *Goniophlebium subauriculatum*, and other species, with *Nephrolepis exaltata*, *N. pectinata* and *N. davallioides*, all of which are fine for tall vases. Fronds of the golden and silver Ferns can frequently be used effectively with white and yellow flowers. Of other material more frequently suited for use as small plants in a dwarf state there are *Fittonia argyroneura* and *F. Pearcei*, the former, with its pale green and silvery-veined leaves, being the most effective. Amongst other good things are *Cyrtodeira fulgida* and *C. metallica*, the latter being, I think, the better of the two; both are, however, worthy of more extended cultivation. The flowers of *C. metallica* are a brilliant scarlet, contrasting well with the metallic green of the foliage; it grows freely in a moist stove. A good quantity of *Selaginella denticulata* and its golden variegated form should always be available when much decoration has to be done; some compact tufts also of *Panicum variegatum* are frequently useful. In conclusion, I would draw attention to the beautiful colours of many Carrot leaves during the autumn, but there are still other selections which can be made from hedgerows and ditches; the leaves of the wild Parsley are an instance, these often dying off a beautiful shade of rosy pink. To all who take an interest in cut decorations I recommend a more extended use of foliage; possibly we should not then hear of or see so much of overcrowding in floral arrangements. Too many flowers are often used, which is in itself a waste, but a further waste is made by adding foliage to partially hide the flowers and give a so-called light appearance which in reality is nothing of the kind. J. HUDSON.

GARDEN FLORA.

PLATE 795.

THE CHINESE ROSE.

(*HIBISCUS ROSA-SINENSIS*.)

(WITH A COLOURED PLATE OF A BUFF-COLOURED VARIETY.)*

THIS *Hibiscus* has been in cultivation in England more than 150 years. The type has single crimson flowers each 3 inches across, and is supposed to be a native of China and India. Owing, however, to the fact that it has been a popular garden plant almost all over the world, apparently from a very early period, it now occurs wild in many countries as a garden escape. As in the case of so many plants which have long attracted the attention of cultivators, this *Hibiscus* has developed numerous varieties, some of which are widely different from the type. There is a single-flowered variety, rich crimson, as in the original, but the corolla is nearly 6 inches across. Another has large semi-double crimson flowers, another is double and coloured scarlet with yellow edges, whilst others have white, pink, variegated, or buff-coloured flowers. Two years ago Mr. Ross exhibited from the gardens at Pendell Court a variety with double cream-coloured flowers. The plants also vary considerably in stature, some growing into large bushes 15 feet high, with stout woody branches and large leathery

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, Sept. 25, 1890. Lithographed and printed by Guillaume Severeyns.



HIBISCUS ROSA-SINENSIS. VAR.

leaves, others attaining only a few feet in height with smaller and thinner foliage. In the variety known as Cooperi we have a pretty stove foliage plant, the leaves being lance-shaped and green, marbled with creamy white and crimson.

To see these plants in all their flower glory one must visit some tropical country where they are cultivated and flower magnificently. They are also used as fence plants, bearing the shears well and forming a handsome, glossy-leaved, evergreen fence. Some of the varieties thrive fairly well with us when planted in pots, but none of them are so vigorous in growth and flower as when

flowers will stain the skin a dull purple, which may be changed to bright red if rubbed with an acid, and therefore the Chinese ladies in search of a cheap paint may use them for the purpose reported. I have read that a black dye is obtained by boiling the fruits, and I have also read in Firminger's "Gardening for India" that this Hibiscus rarely fruits in India. The flowers last several days in water, and those of the single varieties are particularly elegant when arranged in vases.

In 1879 a figure was published in THE GARDEN of *H. schizopetalus*, an African species, introduced by Kew, and now a de-

flower very freely and are easily multiplied from cuttings. I have seen bushes of them 10 feet high, and so thickly covered with flowers as to look like a rosy cloud at a distance. There are all colours amongst the varieties now known, from white to yellow, blue, crimson, with all manner of combinations of these. Although perfectly hardy in England, this species is a good greenhouse plant, and I have seen it cultivated in stoves with success. Indeed in many parts of India it is as popular in gardens as *H. Rosa-sinensis*. No good shrubbery is complete that does not contain a selection of the forms of *H. syriacus*, and at least as much may be said in regard to *H. Rosa-sinensis* as a stove plant.

W. W.

THE WEEK'S WORK.

ORCHIDS.

THE weather during the past week has been very peculiar, the fogs being denser than in the previous week, and leaving a thickish coating on the glass roofs of the houses. The fogs, fortunately, have cleared off generally about noon. We will now have a plentiful supply of *Cattleya* blooms until midsummer; the varieties of *C. Trianae* are opening very freely, and with them are still associated a few fine blooms of *C. Percivaliana*, a richly-coloured and most lovely species. It was stated somewhere that only one flower, seldom more, was produced from each sheath. This may be true as regards some of the earlier imported and poor varieties with the contracted labellum. The varieties with broadly opened labellum, tinged with the most lovely orange-yellow colour, produce mostly two, and sometimes three flowers from each sheath. The flowers do not stand quite so well as some in the hot sunshine of the early days of March. We already find the shading material necessary both for the *Cattleya* and the East Indian Orchids, and where the cool house is fully exposed, it requires shade as much as either. All the houses require more moisture in the atmosphere, and the evaporating troughs, which have been kept dry up till now, should be filled with water. It is a question whether it is right to fill the air with moisture rapidly evaporated from troughs cast on the pipes to obtain the requisite degree of moisture. For some species of Orchids it may be desirable; those, for instance, that grow naturally in damp, hot districts, but for *Cattleyas*, *Laelias*, &c., I am not sure if we ought to obtain the moisture by rapid evaporation from the hot-water pipes. There has been more sunshine than usual at this period of the year, so that we have been able to obtain a high temperature in the afternoon by sun-heat alone. The paths and stages are sprinkled with water every afternoon when the houses are shut up. This is also done in the morning, and in hot, dry weather at midday. We do not shade unless it is absolutely necessary. In the cool house we are watering all the plants much more freely. They had not received enough water during the winter to keep the surface Sphagnum in a healthy growing condition, so that when the plants were not repotted they were all surface-dressed, and it is now a test of good cultivation to see the Moss growing freely on the surface. This applies to all the occupants of the cool house with few exceptions. I have seen the *Disas* doing well in cool houses, and they require water almost every day, and may be watered overhead or syringed with a fine rose on the mornings of sunshiny days. I am not sure whether we do not err sometimes in keeping these plants too close and in too high a temperature. I have yet a vivid recollection of the splendid plants grown at Chatsworth under the care of the late Mr. Speed in a cool Heath house. They may be still grown there under the same conditions, and only last week I saw a healthy lot of plants in a cool pit, and was told that they had been frozen through



The Syrian Hibiscus (*H. syriacus*).

growing in a border in a sunny stove. In the large house at Chatsworth this genus used to be a conspicuous feature, a considerable number of species being represented by large bushes, which flowered freely all the summer through. Although perfectly happy in a tropical temperature, yet *H. Rosa-sinensis* may be grown in a warm greenhouse, where it will flower freely if allowed plenty of sunlight. There is a story told of this plant to the effect that its flowers are used by the Chinese ladies to dye their eyebrows, and by the Europeans in India to black their boots, hence the name shoe flower which is sometimes given to this species. The juice of the

servedly popular stove plant. The figure was accompanied by a paper on some of the ornamental species of Hibiscus by Mr. W. B. Hemsley, F.R.S. This paper is worth consulting by anyone interested in this genus. Twenty-two species are commented upon. There are altogether about 150 species of Hibiscus known, and a considerable number of them have been in cultivation in England at one time and another. The only really popular kinds amongst those that are with us now are the Chinese Rose, *H. schizopetalus*, and the hardy *H. syriacus*. Of this latter we have now many beautiful varieties, all quite hardy and most useful border shrubs. They

during the frost. When I saw them they were quite green and healthy looking. Most collections of Orchids contain a plant or two of *Nanodes Medusæ*; it succeeds best in an airy, cool part of the house, suspended in a teak basket close to the doorway. There is not much work in the Cattleya house. All the things require more water; the *Odontoglossum citrosimum* pushing its flower-spikes with the young growths can take a good supply. We grow our plants in pots, but as they are grown in teak baskets suspended from the roof of the intermediate house in Messrs. Sander's Orchid establishment at St. Albans with the spikes drooping, they are certainly more effective. *Odontoglossum vexillarium* is treated the same as recommended for the plants in the cool house, but we place these on the shady side of the house, and *O. citrosimum* on the sunny side. They have been treated in this way for more than ten years. The flowering period of *Cœlogyne cristata* is over, and all the plants will be repotted, using fibrous loam with some good light fibrous peat and Sphagnum. Our plants are of large size, and the pots are filled quite half full of drainage. These large plants must be repotted every second year, as they produce in that time masses of roots enough to absorb all the nutriment in the potting material. Any other Orchids about starting into growth may be repotted if they require it. One useful autumn-flowering plant we grow very successfully here is *Lælia autumnalis*. It is now starting into growth, and should be repotted. The plants are grown quite close to the glass roof in a house with *Lælia majalis*. They receive scarcely any shade during summer, merely a very thin screen in hot sunshine. The pretty little *Lælia albida* may also be repotted or planted in baskets, for this species seems to do best suspended from the roof on the sunny side of the Cattleya house.

J. DOUGLAS.

FRUIT HOUSES.

BANANAS.—These are most appreciated from November onwards, or after other choice fruits are somewhat scarcer. If strong fully-grown plants with their pots, tubs, or much limited borders well filled with roots, are not interfered with, nor unduly excited beyond what happens in the way of increased temperatures in ordinary plant stoves, these will naturally throw up strong flower-spikes, either during May or early in June. Unless extra high temperatures are kept, fully six months must elapse before the fruit is fit to cut, this bringing the supply well up to midwinter. Should a cluster or clusters of fruit be wanted earlier, and they can be had in August and September, strong, well-rooted plants in tubs, or No. 1 pots, ought at once to be plunged in a brisk bottom heat, such, for instance, as fruiting Pine-apples are treated to, and this, coupled with a rather high top heat ranging, say, from 65° to 70° by night, and 10° higher in the day-time, will soon bring up the flower-spikes. Fruiting plants should have a little of the surface soil removed and be given a rich top dressing. Once it is seen the stem is swelling or the flower-spike is advancing, there being no fresh leaf growth on fruiting plants, they cannot well be fed too much, this largely determining the weight of fruit that may be set.

PREPARING YOUNG PLANTS.—*Musa Cavendishi* is the variety principally, or in most cases solely cultivated for fruiting, this being of sturdy growth and the most certain to produce large clusters of fruit when sufficiently large and strong enough to do so. The old plants only fruit once, after which they should be cut down and destroyed. By this it will be seen two sets of plants must be grown constantly in order to have fruit every autumn, young plants being prepared during one year to fruit in the next. Strong suckers can usually be taken off the old plants in the autumn when their fruit is maturing, or they may be left on the old stools till the present time. In the former case they are placed singly into 12-inch pots, kept steadily growing in an ordinary plant stove all the winter, and shifted into their fruiting pots, tubs, or pits, as the case may be, at the

present time. When left on the old stools they can now be detached with a good ball of soil and roots attached, and at once placed in their fruiting quarters; or, if they are planted out, the suckers may be reduced to one in number, the strongest being naturally selected, and the rest potted off if need be. Partially or wholly lift the selected suckers, and replace in fresh compost. Musas being strong rooted and gross feeders, should have a very coarse and rather rich compost, that consisting of two parts of roughly broken up turves to one of the best flaky manures procurable, with half-inch bones freely added, answering well. Failing turves, use the best loam obtainable, and add mortar rubbish and broken bricks in addition to the manure and bones. Water somewhat sparingly at first, and when rooting strongly, give abundance of water and liquid manure frequently. Assign them a fairly light position, plenty of head room, and ordinary stove plant treatment.

SUCCESSIONAL VINERIES.—Vines started early in February ought now to be breaking and growing strongly, and will require close attendance. For instance, if the lower buds on any of the young rods fail to burst into growth, the upper portion must be still further depressed, or even brought sharp round to near the front of the house, and this check to the first rush of sap will most probably give the lower buds a better chance. Much also may be done towards equalising matters by the timely removal of all superfluous buds, and in particular by stopping the more advanced of the laterals at the second joint beyond the bunches, the point being picked out with the finger and thumb. It is a mistake in any case to long delay either disbudding or stopping. There ought never to be any need to use the knife for shortening laterals or the sub-laterals, a few or many of these being daily pinched out, and thereby avoiding any wasteful processes. It is soon seen which are the most promising breaks, these having no sharp points. On all spurs the end buds invariably produce the largest bunches, but in order to prevent objectionably long spurs, it is advisable to also in some cases lay in a back growth, stopping this at the fifth joint, shortening back to this lateral at pruning time. The more strongly the Vines break, the greater the necessity for more care being exercised in tying down the laterals. They draw out of their sockets very easily, but not if the tying down can be delayed till flowering time or thereabouts. When the wires are near to or within 12 inches of the glass the rods may well be suspended from 6 inches to 12 inches of the wires, and this will give sufficient head-room for the foliage as long as need be. They can be fastened to the wires when the laterals are ready for tying down. High temperatures, especially in the night-time, should be avoided, from 55° to 60° answering well up to flowering time, when, in the case of Muscats especially, there ought to be an increase of 10° or thereabouts. Day temperatures with fire-heat should be 60° to 65°, with an increase of from 5° to 10° with sun-heat, air being given somewhat sparingly and the houses closed early, so as to run up the heat to near 90°. When about to flower, raise the temperatures much as advised for the night-time. The rods, young growths, walls, and floors should be freely syringed in the morning and again at mid-day, or when the house is closed, up to the time the Vines are in flower, when overhead syringing must cease altogether.

LATE VINERIES.—The time has now arrived for starting these. If much longer deferred this may necessitate the application of much fire-heat in the autumn, in order to have the crops ripe in September. By starting somewhat early, Muscats are less liable to shrivel badly and more air can be given to black Grapes, thereby ensuring their perfect colouring, while all keep better if ripened more with the aid of sunshine and air than fire-heat. If the inside borders are at all dry give them a good soaking of water, and if not already done, those supporting strong Vines may well have a liberal surfacing of fresh compost with special manures added, on this being placed a mulching of strawy manure or some other substitute for the same. A moist atmosphere and a gentle heat best favour a strong

regular break, this being most easily maintained by frequent syringings of the rods, walls, and floors, also by giving little or no air, and only enough fire-heat to keep the pipes just warm. When the Vines are breaking strongly more fixed temperatures and which may correspond with those recommended for the successional Vines will be advisable.

CROWDED VINERIES.—If all, or nearly all, the laterals, pushed forth by strong young rods are retained, the chances are the leaves will soon become far too crowded to perform their functions properly. Nothing is gained, but, on the contrary, much more may be lost by crowding either the rods or laterals, yet it is a far too common practice. Black as well as white Grapes want a certain amount of daylight, but will not be injured by a thin canopy of strong healthy leaves. When the rods are less than 4 feet apart and the laterals left about 9 inches instead of being nearer 18 inches apart on each side of the rods, the shade afforded by the leaves causes the bunches to become spindly, and also to set badly. Then, again, the foliage is far too sickly and thin in texture to properly assimilate the crude sap, and both crops and roots suffer accordingly. A smaller number of both rods and laterals will produce quite as many bunches, far more, in fact, than ought to be left on the Vines, these being of larger dimensions and setting better, the berries swelling to a greater size and finishing in good style. The young rods therefore may well be disbudded more freely than heretofore, while the number of old spurs and also old rods can be greatly reduced by disbudding now, the work of sawing them off being delayed till the Vines are in full leaf, when there will be no bleeding.

PRACTICAL.

PLANT HOUSES.

GREENHOUSE SOFT-WOODED PLANTS.—Amongst these the main stock of the large-flowering and fancy *Pelargoniums* should now be potted into their blooming pots. Large pots are not in any case needed, but merely a shift will greatly help them and be found quite sufficient. Nearly all loam, with some leaf-mould or well-rotted manure, will suit them well, potting pretty firmly, or more trouble in watering will eventually ensue. When potted, those which are in any case dense and bushy will be considerably improved by a little tying out. This can either be done with small stakes or by tying material alone with a string secured around the pot below the rim. Crowding of the shoots should be avoided, and if it is not possible to do any tying out I would rather thin out the weakest ones than let them draw each other up spindly. Keep the plants as near the glass as possible, and ventilate freely when the weather is favourable. A close stuffy atmosphere is not at all to their liking; in fact I do not care to keep any kinds of plants so much excluded from fresh air as some growers advise. Green fly will not be found so troublesome upon *Pelargoniums* when ventilation is carefully attended to. Those who do not possess a good stock of the scented leaf varieties will do well to look after this matter. I find they are much appreciated, especially the varied forms of the Oak leaf type. They strike well at this season of the year, and come in very useful for the conservatory during the summer months. *Aloysia citriodora*, or the Lemon-scented Verbena, is a valuable plant for its perfume. Where it is possible to plant it out in some odd corner it comes in very useful for cutting, and the same plants also supply a good stock of cuttings for propagation, to be grown in pots through the season for furnishing the houses when other flowering plants are rather scarce. *Harrison's Musk* and the common form with its compact variety are all most serviceable plants in pots, and worthy of more notice than they often receive. They, too, can be made to fill in the gaps when vacancies are made after the *Pelargoniums*, *Calceolarias*, &c., are over, taking meanwhile but little room to grow. I find the first named is best put into a little warmth to make cuttings; the others can be treated in a cold frame very well. Whilst remarking upon sweet scented plants, I would advise the planting out of *Daphne indica* in a well drained border; in this manner it makes a much

better growth, and is far more satisfactory than in pots. Those who have it should thus try it if they have a convenient spot to spare, and the improvement in its growth will soon be manifest if hitherto it has not been doing well. It does best in a peaty soil, but if the spot chosen for it is rather shaded it would be immaterial. Some of the best examples I have seen were partially shaded.

SEED-SOWING.—Some seed of the Ten-week Stocks should now be sown to form a succession to the intermediate kinds that have been kept through the winter in small pots. If placed in a gentle heat it will soon germinate, and as soon as fairly up the pots should be removed to a cool house near the glass. Water must be given sparingly, or the young plants will damp off. For this sowing I prefer the scarlet, purple, and white varieties each by themselves; in this manner it is possible to regulate the number in each colour. If an early batch of *Celosias* is required, some seed should now be sown in a brisk heat, pricking the seedlings off in an early stage and giving them all the light possible. Some pots should also be prepared for a crop of *Mignonette* to succeed the autumn sown; for this purpose the pots should be well drained, and upon the drainage a layer of fowls' manure, if at hand, should be placed, afterwards filling up with loamy soil, which should be rammed as hard as possible before any seed is sown. For pot culture the French variety *Machet* is one of the best, flowering well in a dwarf state with enormous trusses of bloom.

J. HUDSON.

THE KITCHEN GARDEN.

SPRING SOWN ONIONS.—It is some years since the ground was in so good condition for seed sowing as at the present time. Many people make it a practice to manure and either dig or ridge the plot over in the autumn, with the intention of bringing the soil into a well pulverised condition through the ameliorating influence of frost and snow. Such being the case, the ridges would have to be broken down and the roughly dug ground would also have to be lightly forked over, it being very essential that there should be a fair depth of well pulverised soil for the reception of the seed. The state of the ground may have led some people to be in rather too much haste to sow the Onion seed. On very light or gravelly soils more limit may be allowed, but, as a general rule, any time after the first week in March, or rather on the first opportunity after that date, is suitable for sowing this crop. When sown earlier the seeds are longer in germinating, and when they do appear through the soil the plants do not start freely into growth, especially if an unreasonable time should follow quickly on the sowing of the seed. Previous to sowing, the surface should be freely dusted over with soot, and if the Onions from previous experience are subjected to the attacks of the Onion fly, a sprinkling of salt in conjunction with the soot should also be applied as a preventive. After applying the above dressing the ground should be broken down with a rake, and as the Onion succeeds best with a firm root-run, the whole bed must be equally trodden over. Broadcast sowing is sometimes adopted, but the system has little to recommend it. Sowing in drills is the best system. The drills should be drawn 12 inches apart and about half an inch in depth, for if the seed is placed too deep the produce is apt to grow coarse or not bulb freely. The seed should be sown thinly. Independent of the time wasted in thinning, the roots of those remaining are in danger of having their root-hold weakened. Unless where growing too thickly, I never thin spring-sown Onions, for as they grow they push each other on one side. The bulbs may not be so large as when thinning takes place, but they are certainly of a more useful size, and they keep much better. As soon as the seedlings appear above ground the surface must be slightly hoed, taking care not to work too close to the Onions. The hoeing should be repeated as often as necessary, both as an incentive to free growth and keeping down weeds.

AUTUMN-SOWN ONIONS.—These are much better than might have been expected, and, judging by our own, there is but little difference in their ap-

pearance when compared with those in other seasons. The ground should be prepared as for the spring-sown, and equally trodden over. Plant out in rows 15 inches apart and 4 inches or 5 inches between the plants. This distance in the rows would be too close, however, to remain for coming to full maturity, but as Onions are generally required through the early summer months, every alternate one should be pulled for use. Where space is limited, the ground may be utilised between the rows of autumn-planted Strawberries, the firm root-run suiting this crop admirably.

LEEKS.—It is now time the main crop of Leeks was sown for the ensuing winter's produce. The raising of the seedlings does not require a great amount of space or a large quantity of seed. An ounce of seed will raise a large number of plants suitable for any ordinary household. The seed may either be raised in a small bed, or a row might be set apart alongside the Onion plot. The seed should be sown in drills, and the plants be allowed to remain until of the height of 10 inches or 12 inches, when they will be ready for transplanting. An open site should be selected, and the ground be deeply dug and heavily manured, and previous to planting dressed with soot. For ordinary use, plant in rows 12 inches apart, and the same distance in the rows. When ready for planting a clean hole should be formed with a dibber. Into this hole drop the plant, just merely fixing the soil about the roots. The stems as they grow will draw out and fill up the holes, and become blanched quite sufficiently without earthing up. In fact, earthing up as sometimes advised is a mistake, it being quite unnecessary on light and gravelly soils. Trenches may be dug out and into these a layer of manure placed. Fill up with soil, leaving a space of about 2 inches for watering with either liquid manure or clean water if the weather should prove dry. The Leeks should be planted with a dibber in the trenches in the same manner as stated above when planted on the level. The best Leeks I ever had were during this past winter, and they were not earthed up, being planted sufficiently deep in the first place.

EARLY HORN CARROTS.—There are very few establishments where early Carrots are not appreciated, and the sooner they can be had the better; such being the case, the earliest opportunity should be chosen of making a sowing of the Early Horn on a warm south border, this sowing forming a succession to that in frames. The ground should have had no very recent additions of fresh manure. The seed should be sown thinly in drills about 9 inches apart, and if the ground should happen to be in a rather lumpy state, the seed should be covered and the drills filled up with sandy soil. If a few lights could be spared for hastening on a portion of the crop, they could not be put to better advantage. The lights would only be necessary to give the seedlings a start.

RADISHES.—Radishes to be appreciated must be quickly grown, and such being the case, it is useless to expect good produce from poor ground. In such soils the growth made is very slow; consequently the produce is very tough. Sowings should now be made in the open air and be continued at intervals of ten days. Instead of sowing in different places, as it were, the best system is to set apart a border, say a south one, for the earliest supplies. As the season advances an east border is to be preferred, as being cooler. The soil should have the addition of some rich material, but not rank manure. Unless the soil is very fertile, a mixture should be made up of well-burned garden refuse, old potting soil, and either old Mushroom bed manure or well rotted manure, the whole being spread on the site to the depth of 6 inches. Such material will grow Radishes well, and during a dry time water should be freely applied. The natural soil of our garden is very unsuitable for the quick growth of Radishes, but by adopting the above course of treatment I have not the least difficulty in securing a good supply of crisp well-flavoured roots throughout the season of growth.

AUTUMN BROCCOLI.—A week or two since I referred to the autumn Broccoli. This is a very im-

portant crop, as by about three successive sowings, the supply, if the autumn should prove favourable, often reaches to Christmas. As we never know how the ensuing season will turn out, it is as well to be provided with relays of plants to meet any possible emergencies. In hot and dry seasons the late Pea crops very often partially fail. In these cases the autumn Broccoli come in very acceptable, however early they may turn in. The first sowing, as previously advised, under glass forms a very important link, and the plants, if duly pricked out, can be put out with the Autumn Giant Cauliflower. A sowing in the open air at any time during the first week or two in March, or up to about the 21st, forms an admirable succession. With another sowing during the first week in April heads may be cut up till Christmas, if the weather should be at all favourable for their coming to maturity, or with the assistance of a little protection.

Y.

STOVE AND GREENHOUSE.

PLANTS FOR EDGING.

NOTHING adds so much to the beauty of a group of plants as a suitable edging of some dwarf material. This applies in every instance where plants are grouped for effect. In groups arranged for exhibition I have sometimes seen *Adiantums* laid on their sides to form an edging to hide the pots, but this practice should at once condemn a group, for there are many suitable plants which would answer the purpose much better when placed in a more natural position; besides which, they may be utilised for the same purpose in the conservatory or other plant houses, and while they occupy but little space they give a pleasing effect and a good finish. Of plants suitable for the purpose—

ISOLEPIS GRACILIS stands foremost. This may be grown with little trouble and is readily increased by division. When it is desirable to increase or renew the stock, a few of the old plants may be broken up, and if they have not stood long enough to get weak and unhealthy, they will soon start away. Provided the plants are in a fairly warm house, they may be broken up at any season of the year. They should be potted in a rich loamy compost. Like most Grasses, this likes plenty of moisture at the root and to be well exposed to the sun. Liquid manure may be used freely after the pots are well filled with roots.

PANICUM VARIEGATUM.—This pretty variegated Grass is a good companion for the above, but requires rather more warmth. During the winter it must be kept in a stove temperature. This may be propagated from cuttings; several cuttings put in a pot and stopped once after they are rooted may be left to grow and spread over the pots. Light sandy soil should be used, as when treated too liberally it loses its variegation. In the summer-time it may be used for the conservatory, and will keep well for a considerable time, but during the winter it is of no use except in the stove.

FICUS REPENS is a very serviceable plant both for covering walls and as an edging plant; it is also a good plant for covering baskets, &c. For *Nephrolepis* and other Ferns which do not hang over the sides of the baskets this forms a pretty covering. As an edging plant it should be grown several plants together and may be allowed to grow to any length according to circumstances. Cuttings taken from the tips of young growing shoots will root freely in the stove propagating pit; they may be put into small pots several together and potted on after they are well rooted. They will do well in any ordinary compost. A great recommendation to this plant is that it succeeds well in a cool greenhouse, and when used for decoration it will bear a good deal of rough handling. There is a variety, *F. r. minima*, which has much smaller leaves, and for some purposes is more desirable, but for general use I prefer the old type.

SELAGINELLAS.—There are several of these which may be recommended, but none are more serviceable than the old *S. Kraussiana*, or *denticulata*, as it is generally named. *S. K. aurea*, a most desirable variety, is rather more dense in habit,

and when grown under a good light it has a beautiful golden yellow hue. *S. Poulteri* forms a nice contrast, being of a deep green; it is perhaps a little too slow in growth to become much used for ordinary decoration, but where choicer plants are appreciated this should find a place. *S. apoda* is another dense compact growing species, and the beautiful bluish tinted *S. caesia* must be included; this, however, requires more heat than the others named. All the *Selaginellas* require replacing with young stock, and they are easily established. I like to put the young tips in in little tufts several in a pot; they should be put in the pots that they are to be grown on in. The pots may be filled three-parts full with rough siftings or other loose material and surfaced with a little better compost. The *Selaginellas* like plenty of moisture, but they suffer from excess, especially where the pots are not well drained.

TRADESCANTIA ZEBRINA is a useful old plant for edging, growing freely under almost any conditions. For elevated stages where the long growths can hang down it is very effective, but it requires renewing from time to time, otherwise it gets ragged and untidy; the variety multicolor is very pretty, but inclined to run out. When propagating, the best variegated shoots should be selected, and while the plants are growing the shoots which revert to the normal form may be cut away; if grown in light sandy soil it will not run out so much as when treated more liberally.

Other plants might be named for the purpose, but the above will be sufficient for general use. Although a neat edging in plant houses is rather the exception than the rule, I believe that where attention is paid to this matter it is thoroughly appreciated by all who pay any regard to neatness and finish. It also shows off the more interesting objects to better advantage.

F. H.

Propagating *Coprosma Baueriana* variegata.—This certainly can, as mentioned on p. 177, be propagated by means of layers, but there is no particular difficulty in increasing it by cuttings if the ordinary propagating appliances are at hand, and one or two rules be borne in mind. The best cuttings will, as a rule, be obtainable in about a month's time, and will root all the more readily if the plant has been some time previously in the warmest part of the greenhouse. They should be formed entirely of the current season's shoots cut off at a joint, and the bottom pair of leaves having been removed, they must without delay be dibbled into well drained pots of sandy soil, when after watering, if placed at once in a close propagating case kept at a temperature rather above that in which they have been growing, they will, if carefully attended to in the matter of watering, shading, &c., soon root. The one great element of success is to take care that the cuttings are at no time allowed to flag, as if this happens it will greatly militate against their chances of rooting. There are very few plants whose cuttings suffer so much from being allowed to flag as those of this *Coprosma*, in which respect *Luculia gratissima* bears it company.—H. P.

***Eucharis amazonica*.**—Mr. Tallack's able reply on the above plant (p. 175) will go a long way to convince those who think his treatment wrong. My only objection was the growing of these bulbous-rooted plants in vineries on account of introducing mealy bug, which everyone knows has a special liking for the *Eucharis*. But he states it is almost unknown with him; therefore he can do what others could not with these and many other plants. I can agree with him in every particular as to the temperature he gives his plants. As I observed, the foliage is much stronger and the plants healthier in every way with cooler treatment. I have stood these plants in the summer months in the open for six or eight weeks when required to be kept back and just shaded with tiffany or under a north wall, and they never suffered. Of course the pots were filled with roots. The bottom-heat I advised—65° to 70°—was very slight, merely to give the bulbs a start, and is not necessary if

close treatment after repotting is carried out. Much depends upon the strength and size of bulbs; such bulbs as Mr. Tallack's would have sufficient vigour to start into the new compost without bottom-heat of any kind. My stock was limited, and I was anxious to get enough for two dozen 8-inch pots to fill a pit, and that was one reason for giving bottom-heat just to increase size of bulbs and fill the pots with roots. It is surprising how long a healthy lot of *Eucharises* will do without moisture and remain green, so that I can understand Mr. Tallack's plants not losing all their foliage when at rest. No doubt he obtains a much larger quantity of bloom at one time than if the plants flowered oftener, but as I find the *Eucharis* more useful when it can be had more frequently in bloom I do not dry the plants off so much. Otherwise my treatment is very similar to that practised by Mr. Tallack.—GEO. WYTHES, *Syon*.

PLANTS FOR FURNISHING.

DURING the time propagating is in hand it is well to make special provision for all kinds of plants required for house and table decoration. This is a branch of gardening that has advanced of late years with rapid strides, and it is hardly too much to assert that in many cases it is at once one of the most important and vexatious of the many items that come under the control of the gardener. The demand is constant, and the necessity for change constant, and one has to provide for all seasons of the year, and to allow for the many losses that seem inseparable with the name of furnishing. I do not propose treating of the choicer things used for the purpose, as *Orchids*, or quantities of forced stuff requiring considerable expense to bring it to perfection, but only of such things as can be grown by and are consequently within the reach of all those possessing a greenhouse and one other structure, as a heated pit, vinery, or intermediate house. *Dracena indivisa*, *Ficus elastica*, *Palms* in variety with the green and variegated *Aspidistra* are in great request during the dull months, and all are very serviceable; only if young *Palms* are used they should be constantly changed, or the foliage will soon suffer. The *Aspidistras* are among the most useful of all plants for the purpose, and the demand for the variegated variety is so great, that the majority of nurseries are very short of fair-sized plants. I notice a foreign correspondent calls attention to a miniature *Calla*, compact and sturdy in habit, and very free-flowering; this ought to be a valuable acquisition. To the above may be added the many capital varieties of *Pernettya mucronata*, perhaps the best of all berryed plants for house work. They stand well both in foliage and berry a considerable time—a most favourable contrast to *Solanum capsicastrum*. A supply of dwarf and trailing plants, such as *Tradescantias*, *Selaginellas* in variety, *Panicum*, and, as the season advances, such things as *Achimenes*, *Harrison's Musk*, and the white and blue *Campanula*, must always be on hand to complete the filling of large vases. There are few things more generally useful, or that have a longer season than *Azaleas*, and they can be used from the beginning of the year until May is well advanced. It would seem somewhat invidious to select any particular varieties of this fine old plant when nearly all are good. I may, however, make special mention of *Deutsche Perle*, a most valuable *Azalea*, and one that stands remarkably well either as a plant in the house or in a cut state. When small plants of this are once obtained there is no difficulty in keeping up a succession of bloom if a few are introduced at intervals into a gentle warmth. They should be well cared for after flowering, grown on for a time in a nice genial temperature, gradually hardened, and placed out of doors when all danger of frost and biting wind is over, say the second week in June. If the position chosen for them is not naturally partially shaded, they will require attention in this respect if the weather prove very hot and dry. Two useful little plants for spring will also be found in *Boronia megastigma* and *Saxifraga pyramidalis*. The former

will stand house work better than one could expect and is always welcome for its delicious scent, whilst the *Saxifraga* is a general favourite. The advent of summer brings so many flowering plants, that there is little trouble in making a selection and keeping up the supply until September is well advanced. *Fuchsias*, standard trained and naturally grown *Heliotropes*, *Francoa ramosa* and the two varieties of *Campanula pyramidalis* are a few useful things that occur to me at the moment of writing. Tuberous *Begonias* are unfortunately short lived indoors, but for dinner-table decoration, either on a large or small scale, they are very effective. The doubles are most serviceable, well grown sturdy plants in the scarlet and pink shades. I generally grow a small batch of *Gloxinias* in 4-inch pots for a similar purpose; four or five of these in a large bowl when the blooms are well out make a handsome centre piece. A batch of *Mme. Desgrange Chrysanthemums* comes in handy for large vases towards the end of the summer, to be followed from October onward by representatives from the autumn and early winter-flowering varieties of this popular flower. It is as well to grow some of the latter for this special purpose, choosing the most suitable varieties, so that the show house need not be stripped at intervals for such requirements. I was thinking the other day whilst transplanting some *Starworts* that a few of the best of these would do well for large bowls or vases, so have accordingly saved a batch of *ericoides* and *dumosus* to be potted up as soon as possible. The latter is very late flowering with us; indeed we were cutting its long sprays in company with the last of the outdoor *Chrysanthemums* when December was fairly well advanced, so I should fancy if it will stand the indoor atmosphere it is likely to prove very useful. If the demand is great at any special time for church decoration it is well to work up a stock for this purpose, so that the house supply does not fall short. Outdoor flowers are generally well to the fore for harvest festivals, but at other times white *Azaleas*, *Tulips*, and *Callas*, with *Camellias*, *Hyalcinths*, *Liliums*, and some of the *Narcissus* family may be used as time and circumstances will permit.

Claremont.

E. BURRELL.

***Freesia refracta alba*.**—At a recent meeting of the National Chrysanthemum Society, Mr. E. C. Jukes had a bunch of beautiful blossoms of this fragrant Cape of Good Hope bulbous plant. Mr. Jukes, who appears to be highly successful in cultivating both *F. refracta alba* and *F. Leichtlini*, states the bulbs do best when not disturbed in the pots in which he blooms them, and he contents himself with surfacing them, but watering when growing. A more beautiful subject to have in bloom at the dull season of the year can scarcely be imagined, the flowers being of somewhat stout texture, lasting well in water, and retaining their rich fragrance for a considerable time. By growing on the first batch in heat and having a succession coming on in a cooler temperature, the bulbs can be had in flower for several weeks.—R. D.

Temperatures.—At page 177 "T. B." takes exception to my note. It is fortunate if he has always been able to give plant houses the maximum amount of heat, but I fear there are many, myself among the number, who at some time or other have had plant stoves under their charge that have been insufficiently heated, and have had to make the best of it. My critic is rather severe when he states the temperature was too low to induce growth, either in the plants or the insects. For plants for exhibition, such as *Ixoras*, *Dipladenias*, &c., the low temperature would not be suitable, but for a mixed collection of plants, I still affirm a low temperature when the plants should be at rest will do no harm. Indeed I prefer a low to a high temperature, as when new growth commences the increased temperature is then beneficial, and no loss of bloom will follow if this treatment is followed out in mixed plant stoves. If economy in fuel can be practised during the resting period of plants it is an advantage, and though there may not be much to clean, the plants being at rest, it is much better than where excessive heat is employed, and continual sponging is required to keep down red spider, thrips, and green fly. I contend that it is folly to waste fuel on plants at rest

in severe weather. I may not have the convenience "T. B." states necessary to grow good stove plants, but I have seen equally good plants grown with the temperatures given at page 107 in THE GARDEN as with higher ones. If the thermometer in the open registers 20° of frost, I fail to see why the inside temperature should be maintained at 65° or 70°. At the time I wrote my note we were getting severe frosts, and I did not mention such plants as "T. B." names, as these in many places are often grown in small pits, where more heat can be given them than in mixed houses. Ixoras and similar plants, I well know, will always do on the move, but I should not attempt to grow such plants in large houses, but devote a small pit to them.—G. WYTHES, *Syon House*.

Carnation Souvenir de la Malmaison.—I should be glad if some reader of THE GARDEN would give me advice as regards the winter treatment of these plants. I had a good lot of layers potted and placed in a cold frame where they remained through the winter. I examined them after the frost was gone and found that the majority were dead.—CONSTANT READER.

* * Souvenir de la Malmaison is perhaps the most popular of all Carnations. It is grown everywhere both for market and in private gardens, and yet it is an inveterate pod-burster and not hardy. It degenerates in our garden even when protected by glass frames. The leaves become spotted and the plants soon get into such feeble health that the flowers are not good enough. The plants alluded to above have been killed by the frost. I have not lost a single plant and they are now in fine growing condition, but they were wintered in a greenhouse. In mild winters they may pass through the winter in cold frames, but not uninjured, for the leaves suffer from damp.—J. DOUGLAS.

FLOWER GARDEN.

LILIUM NEILGHERRENSE.

IN the article on this Lily on page 524 of THE GARDEN, December 6, "J. L." says much that is quite true and worthy of note, but on some particulars my experience is very different from his, and I think it may be to the advantage of those who admire and wish to grow this beautiful flower to hear the other side on some of the questions he has raised.

The first point on which I am at issue with him is regarding the size of the bulbs of this Lily, and I am not surprised at his never obtaining more than one bloom from a bulb if he planted small ones only. I frequently have bulbs of 16 ozs. and 18 ozs. in weight, and I now send you by parcel post one that turns the scale at 1 lb., though it has been dug up for two months, during which time it must have lost several ounces. Such a bulb, properly cultivated, will generally produce from five to seven blossoms, and if judiciously treated after flowering should do nearly as well the season following. Insignificant bulbs can only be expected to produce insignificant flowers.

In the latter part of his third and in the whole of his fourth paragraph, "J. L." is quite at sea. Below the rocks and fissures, whence with great difficulty the best bulbs are dug, the soil is never dust-dry. On the eastern as well as on the western side of the Neilgherry range the south-west monsoon opens early in May with (taking an average of five years) 6.55 inches of rain, and is followed, with perhaps a fortnight's intermission in October, by the north-east rains, which continue usually till the end of December. Then we generally have a few good showers in the first four months of the year, averaging (for five years) January .40, February 1.40, March 2.72, and April 2.95 inches on the eastern side of the plateau. Thus the soil where

L. neilgherrense grows being, moreover, as "J. L." observes, "where leaf soil has collected and water oozes, and flows in abundance during the rainy season," has no time to get "dust dry," protected as it is from the sun by the rocks and bushes. I think, therefore, that Mrs. Richmond is perfectly right in the advice she gives on this head. As to the time of blooming, let the season be a wet or dry one, this Lily, I find, shows above the ground about the middle of June, and the latest blooms are over by mid-October. Nor have I ever seen one in flower in November, unless the bulb had been kept out of the ground purposely to produce late flowers, and for this purpose it must of course be kept quite dry. I always lift my bulbs, both cultivated and wild, in December.

"J. L." observes that some of the imported bulbs of *Lilium neilgherrense* are white and others purple, but this is chiefly, if not entirely, the result of more or less exposure to light, and he will find that sunshine will turn the whitest to a deep purple. I may here observe that a more important variation than in the colour of the bulb occurs in the shade and shape of the flower, which varies in colour from pure white to "honey yellow," and sometimes white with a purple tinge, which in the points of the petals deepens into a decided lake. So also the shape of the blooms differs, some having long narrow tubes with slightly reflexed petals, measuring only 4 inches or 5 inches across, while others have tubes a third less in length with larger and more reflexed petals, measuring from point to point 8 inches or 9 inches. "J. L." has never seen a cultivated plant of this Lily bearing more than a solitary bloom. I have for ten years grown it largely, and have many plants every season in my garden showing three, four, and five blooms, and not infrequently several with six, seven, or even eight expanded flowers on one stem. I enclose a photograph, taken by an amateur friend, of one of my little boys, in which such a Lily with seven blossoms appears, and though it is a very bad photograph, it is clear enough to bear out what I have said in this particular.

Others besides "J. L." make mistakes about this Lily, and also about *Lilium Wallichianum*. On p. 394 of THE GARDEN of Oct. 25 last, "H. P." describes *Lilium neilgherrense* as a "beautiful Himalayan Lily;" whereas it is never found north of the Neilgherries and adjacent ranges of hills. Again, "R. P." in THE GARDEN, p. 221, Sept. 6 last, does not believe *L. Wallichianum* will grow in the open border in Devonshire, because in its native habitat it is more sub-tropical than temperate. But at 3600 feet above the sea on the Himalayan slopes (the elevation of "R. P.'s" bungalow) sharp frosts constantly occur, and, moreover, my brother, the late Director of Public Instruction for the North-west Provinces, tells me that *Lilium Wallichianum* grew and flowered annually with him at his summer residence at Naini Tal, at an elevation of over 5000 feet, where the snow lies on the ground for several months of the year. FRANK GRIFFITH.

Kotagiri, Neilgherries, India.

Hepaticas.—I should be glad to learn the name of the variety, if it be a specially named variety, other than single blue, which I have one plant of growing here amidst a bed of others of the ordinary single blue type. The particular one is in full bloom; flowers of a deep purplish blue, petals rather broad and short, the stamens white and dense; a remarkably early and pretty form. All the others have not a bud open and will not have for several days. Practically, this particular plant is

fully ten to fourteen days earlier than the rest; therefore it seems to be a distinct one. We have heard very little of late about Hepaticas, chiefly, I fear, because the plants do not thrive well in hot, dry weather. Loss of leafage is followed by decay of crowns and their speedy death. Practically the plants thrive best in made soil, such as rockwork gives, and where there is some shade in very hot weather. Where the soil suits, and sometimes that suitability is found, the roots will strike deep, but in other soils the roots become tufty and shallow, and in very dry weather suffer severely. Plants come rather slowly from seed, and few care to take the trouble to raise seedlings. At one time no hardy spring flowers were more common in cottage gardens than double red and single blue Hepaticas. Now few so scarce. The plants remain until they become rootless, because of the exhaustion of the soil, or, being lifted and divided, do not again readily secure that root-hold they before possessed, and then gradually die. Those who have a deep, cool, black peaty soil in which Hepaticas, with many other hardy spring flowers, thrive luxuriantly, do not realise the great difficulties others have to encounter whose soil is gravelly and shallow or of a clayey nature. Such soils render gardening, so far as many of our best plants are concerned, very difficult. Hepaticas are so beautiful, that we can ill spare them from our gardens. None the less they are far too uncommon in gardens just now.—A. D.

DOUBLE VIOLETS.

THERE are few hardy flowers better worthy of good culture than the various fine forms of double Violets. A bunch of the double Neapolitan or Marie Louise in the depth of winter is very acceptable. Blue flowers are always scarce at that time of year, and there is nothing that can equal the Violet in its refreshing perfume. Success in Violet culture, and more especially as regards the production of winter blooms, depends mainly on the culture that the plants get through the summer months. Allowing them to grow in thick beds or in shady positions will not do, for it is not enough that a free growth be made; the crowns must be exposed sufficiently to sun and air to allow of their becoming plump and well matured by the autumn.

Although a little shade from the hot summer sun is undoubtedly beneficial to Violets, I would much rather grow them in full exposure to it than in such secluded positions as I have often seen chosen for this flower. With abundance of moisture at the roots and frequent overhead sprinklings in parching weather, the hot sunshine will not injure, but, on the contrary, will endow the crowns and foliage with a substance that is not obtainable in any other way. The best of all positions is undoubtedly that from which the sun passes away shortly after midday, and if such a place can be had I would advise the various forms of double Violet to be grown there. Thus situated they get as much sun as they really need, and they escape its burning influence during several of the most trying hours of the day. For many hardy flowers that acutely feel the effects of a parching atmosphere an east aspect is decidedly the most favourable, for the reason above mentioned. The ground for Violets should be well stirred, and if of a heavy nature it should be roughly dug in February, so as to allow of the action of wind and frost on it for several weeks previous to planting. A liberal allowance of manure is necessary, but this should not be of a rank nature, but if possible be a year old, the clearings out of old hotbeds, especially when made of manure and leaves, being very suitable. The middle of March is in ordinary seasons the best time for planting, and in light soils the beginning of the month will not be too early, as Violets acutely feel the influence of parching weather, and it is, therefore, the more necessary that the plants get good root-hold by the time they are liable to be subjected to a hot sun and parching atmosphere. In dividing the old stools, about three crowns should be left to each plant, and these if put out about 6 inches apart will with good attention make nice little specimens by

the autumn. For blooming in winter in frames, I do not care to have very large plants, as they are more liable to suffer from damp by reason of the crowded condition of the foliage. By growing a greater number and not putting them in the frame too thickly air can better circulate among the crowns, and naturally they get more light. It is not the number, but the quality of the crowns that has to be considered in the individual plants. If, however, the plants are to remain to bloom in the open, it does not matter how large they are; indeed, I think the bigger the better, as the opening buds get more shelter from the foliage in the early days of spring, when biting winds and frosty nights are sure to have to be endured. It does not matter if the plants at blooming time become a solid mass of foliage in spring so long as each one has ample space when making its growth and ripening its crowns. Red spider is the worst enemy that Violets have, and sprinklings of soot round the plants are recommended to keep it off. I would, however, much rather rely on plenty of good food and moisture to keep it at bay. This insect always fights shy of well-nourished foliage, and I doubt if ever Violets are much troubled with it when under the influence of liberal culture. But the attention in watering must be continuous during the hot, dry weather that we generally get in the summer season. A few days' dryness at the roots with a burning sun acting on the foliage will suffice to bring on an attack of spider, and then it cannot be got rid of for that season at least. The great thing is to prevent its appearance, and this I am sure can be done in a general way. It must be remembered that growing Violets in enclosed gardens is attended with rather more difficulty than in open fields where they are cultivated for market. It is not often that the plants are attacked by spider under field culture, owing to the greater amount of air they get as compared with what they can enjoy in the confined precincts of a garden. The atmosphere in a walled-in garden becomes much more rarified than where there is nothing to obstruct the summer breeze, and this parched air must be counteracted by means of copious waterings and daily overhead sprinklings in a dry, hot time. In very hot weather, such as is often experienced in July and August, it is much better to water towards the close of the day, as thus the soil gets well moistened before a burning sun can again act upon it. Watering in the evenings is one way of economising labour, as a much less quantity is required than if used at a period of the day when evaporation is rapid. For the same reason the plants should be well sprinkled when the heat of the sun has passed away from them, as thus the surface of the ground remains through the night in a moist condition. A cool, grateful atmosphere, which wonderfully refreshes and strengthens, and fills the leaves with sap, and better enables them to withstand the desiccating influence of a parching summer's day, is created. Wherever double Violets are grown it is of the highest importance that they get a good share of sun in early autumn. It is in September and the beginning of October that the plants finish their growth and that the ripening of the crown takes place. The influence of the autumn sun in a very direct manner is absolutely necessary for plants that are to bloom early in the winter, for it may be taken for granted that all who shelter the plants in frames wish to begin gathering at as early a date as possible. The autumn warmth not only plumps up the crowns, but induces the formation of bloom buds much earlier than when the plants are in a great measure secluded from its influence, and it is these early buds that furnish the blooms that expand at a time when they are so valuable. This is especially the case with the double kinds, which must have the crowns well matured, or the blooms will be lacking in size and the symmetry and doubleness that render them so beautiful. The fine white *Comte de Brazza*, for instance, unmistakably shows the effects of good or indifferent culture. The blooms that are produced by insufficiently fed and matured plants come semi-double and by no means pure in colour; in fact, this double Violet is not worth frame room

unless it is thoroughly well cultivated. When at its highest point of development it is certainly one of the fairest hardy flowers we have.

In ordinary seasons double Violets will give a supply of flowers through the winter if merely sheltered in frames and covered in frosty weather, but in a period of hard frost, such as we have lately experienced, the amount of blooms produced under such conditions will be small. What they require is a gentle stimulus to keep them moving when the outdoor temperature remains for some time at a low point. A very gentle bottom-heat, such as is afforded by leaves with a little manure with them, will give this. The best lot of double *Marie Louise* Violets I ever saw were grown in this way, the blooms being remarkably large and excellent in colour. If a bed of this description is made up in the latter end of October, it will retain enough warmth through the winter to gently stimulate root action, and this is all that is needful. Anything approaching a forcing temperature must be avoided, for Violets are impatient of artificial warmth (unless it is of the mildest description), which causes the leaves to become drawn and the flowers to be poor in colour and deficient in fragrance. If the beds are made up in the beginning of November, they will retain a slight amount of warmth through the dead of the winter, just enough to keep up root action and promote the expansion of the flower-buds. In this way, and aided by a good covering, steady progress will be made even in a lengthened period of cold sunless weather; whereas in quite cold frames the plants will remain almost at a standstill. The great enemy of Violets in frames is damp, and it is difficult in some winters to preserve the plants from its injurious effects. A free circulation of air during the daytime when the weather is mild is the only way to keep the foliage and blooms in good condition. The most difficult thing to contend with is fog, which makes its presence felt even in well heated structures, which are kept at an even temperature through the winter months. When fog cannot be expelled it must be kept out as far as possible; therefore, no air should be admitted on misty days, and plenty of covering should be put on the glass at night, which will keep fog from entering through the laps. With attention to cleanliness, keeping the plants free from decayed leaves, and judicious ventilation, the evil effects of damp will not be felt to any serious extent. A very good and simple method of getting Violets in winter is to grow them where they are to remain, just putting the frames over them on the approach of winter. It stands to reason that the blooms will come more freely and plentifully in this way than if the roots are disturbed late in the autumn, and I have often wondered that this easy method should not more often be resorted to. Probably the best of all ways to get good double Violet blooms in the depth of winter is to pot up the plants in October and at the beginning of November; put them in a light airy glasshouse, where they get the treatment that is accorded to the general run of cool-house plants at that season of the year, near the glass and secure from damp. The blooms of the double *Neapolitan*, *Marie Louise*, and *Comte de Brazza* come very fine indeed. But the best of all the doubles in my opinion is the *Parma*, which is compact of growth and very free-flowering. I have always got more flowers from it than from any other double variety. One advantage of growing Violets in pots is that they can be employed in the house, and everyone appreciates a nice plant with fresh healthy foliage and a dozen handsome fragrant flowers. I have invariably found that Violets grown in this way are more highly valued for indoor decoration in the winter season than many other things that demand a lot of trouble and considerable expense to bring into bloom at that time of year.—J. C. B.

— Violets being universal favourites, perhaps a few notes on their cultivation as practised here—differing as it does somewhat from the orthodox mode, on account of what may be called adverse conditions to their free growth, our soil being hot and stony—may be acceptable. I will briefly treat on the doubles first, these being grown here in greater numbers than singles and more admired,

notably *Marie Louise*. In the kitchen garden, an open quarter which has been occupied during the summer with crops that had received good cultivation and liberal treatment is selected in the autumn when vacant. This is bastard-dug and left as rough as possible until the middle of March or beginning of April, according to the state of the weather. When in a condition to work freely, it is lightly forked over, at the same time adding a liberal dressing of manure, afterwards making the soil firm and level. I then look over the stock of plants in the pits in which they were wintered, and select well-rooted, strong runners, which by this time have formed solid crowns, quite sturdy plants in miniature. Should an insufficient number of the kind of runners recommended be not forthcoming, recourse might with advantage be had to the division of the old plants, selecting the freshest and strongest crowns, generally found on the outside of the clumps. I am not much in favour of cuttings only as a means to the more rapid increase of the stock. These are planted carefully with a trowel, 9 inches apart each way over the whole ground, making all firm as we go along. In a short time, say a month or so, the plants commence rooting freely in their fresh quarters, but make little top-growth. The ground is mulched, completely burying the crowns, leaves, and all with leaf-mould or any light material at hand, through which as growth progresses the leaves easily grow. I consider mulching at this stage very important, keeping, as it does, all clean and moist until a strong root-hold, able to meet and respond to the call for the abundant feeding necessary to develop to the full extent the leaves and blooms during later growth, is established. To this at least I chiefly attribute the splendid growth of leaf and bloom we generally get here. As growth appears through this mulching, when time and means permit, a thorough soaking of diluted house sewage is occasionally given, with during showery weather a sprinkling of some artificial manure, as I contend that upon the ability of the plant to take up and utilise summer feeding mainly depend the quality and quantity of autumn and winter bloom. During the growing season the long straggling runners are cut out, leaving the close-at-home ones for winter bloom and stock. Careful hoeing and weeding complete the summer routine of their cultivation.

In October it becomes necessary to lift and remove to the winter quarters—structures to which abundance of light and air has access. Ours are sunk pits, with a foot in height of concrete above the ground level, on which the lights are placed—rather primitive structures perhaps; nevertheless well suited for the purpose here, for being so low, the lights are not so liable to be blown away by the winter storms, and the plants are easily protected during severe weather. In these the plants—now fine clumps bristling with blooms and buds—are placed, in rather light soil and about 6 inches from the glass, and as close together as the bulky roots admit. The whole is then given a soaking of clear water to wash flowers and leaves and settle the soil among the roots. For a week or two after removal, a diligent picking of any leaves that damp has attacked is done, keeping off the lights, except in very wet or severe weather. Beyond this, an occasional watering when dry and a syringing overhead at times to assist the blooms to open more kindly during unfavourable weather, and so keep red spider at bay, are about all the winter treatment given. I would here like to give a word of warning as to watering during the winter season, and would strongly advise this being done with clear water, or if liquid is given, it should be very weak, or the newly expanded blooms will smell of whatever manure water is used. The foregoing notes apply chiefly to the cultivation of *Marie Louise* and the more delicate and weaker growing doubles. Singles and strong growers require more space between the plants and not quite such a rich larder, but runners of these ought also to be planted annually. With us, singles under glass are a comparative failure, but do well out of doors, producing a few blooms during the winter and abundance in the spring, with plenty of leaves

at all times—most useful for bunching the doubles. I only grow four varieties—three doubles and one single. Marie Louise, unequalled in all points, and invaluable for supplying our heavy and constant demand. Comte de Brazza is the best white, being free in growth and flowering, but, strictly speaking, only a spring bloomer. Victoria produces magnificent blooms of good colour—dark blue—in spring only; a very weak grower here, but grown in limited quantity for the sake of variety and the few extraordinary blooms. Odoratissima is our only single.

To those who may be similarly situated in the matter of unsuitable soil, &c., I would strongly recommend them to plant early and annually on well-cultivated ground in an open sunny position, thus ensuring well-ripened crowns. Treat liberally, mulch early and thoroughly; cut close long straggling runners, but allow reasonable latitude to the short ones, as they will be useful hereafter for bloom and stock. By so doing success can reasonably be expected.—J. R., *Marioneth*.

ANNUAL ASTERS.

THE time is at hand for sowing the seed of Asters. Those who have grown varieties previously know pretty well what to sow. A novice who took up any ordinary seed list and found a dozen or more of assumed sections and from ten to twelve assumed colours or varieties in each would find selection one of exceeding difficulty. To purchase, sow, and grow the entire lot would be too great a burden; to select a few at random would perhaps be the wisest course, testing others every year; whilst in despair to purchase none would be folly, because depriving gardens of one of the most pleasing of late summer or autumn flowers. Those who grow Asters for seed production can hardly get their plants out too early consistent with ordinary safety. Those who want bloom only will do well to have the plants blooming rather after the heat of summer is past, as the flowers are then finer and the colours brighter than is the case earlier in the season. A true autumn flower is the annual Aster, and as such it should be so treated. It blooms too late for any successional plants to follow; indeed Asters are admirably suited to follow upon some late blooming spring flowers which keep gay perhaps until midsummer and then require removal. When so employed, seed should be sown in a cold frame about the end of April. Plants so raised come stout and hardy. Dribbled out into good soil in the open and somewhat thickly, they will transplant with balls of earth and roots at the desired time, suffering no harm, and furnishing a bed or border speedily. When the earliest blooms open about the middle of August, the plants may be relied upon to carry that flowering through to the middle of October or later. When Asters bloom in July, the period of flowering is shorter, although best for seed-production. We found introduced from the Continent, almost for the first time in quantity last year, a beautiful variety known as the white Mignon. Like all other good things, it soon had other synonyms, but this here given is the German appellation. The Mignon strain is about 14 inches in height, very branching, producing remarkable heads of bloom; the flowers of medium size, flat-petalled, and reflexed. To furnish white flowers for cutting, the white Mignon is the very best of Asters. From out of it last year I obtained both pink or carmine and mauve selections, and if these colours could be extended to include red, crimson, and purple, we should have in the section the very best of all Asters for garden decoration or furnishing cut flowers. Very large-flowered Asters, whether those of the *Pæony*, *Victoria*, or *Chrysanthemum* sections, have a tendency to become coarse, or show open centres. If we want eyes or centres, far better grow single forms; but when we do purchase for double flowers, then the better the form, the fuller the petals, and the more rotund the flowers, the better we are pleased. Generally, large-flowered Asters are too big for the making of good cut flowers. Very often in such cases the later side flowers are by far the most pleasing. With the medium-sized flowered

section, such as the Mignon or the Hedgehog, not only are the ordinary blooms so useful for cutting, but the later side flowers are exceptionally pretty, especially for small nosegays. Dwarf Asters look very well for the short time they are in bloom, but their dumpy habit of growth fits them chiefly for pot work. I might have used the term pot culture, but no one would trouble to cultivate Asters in pots if they had a few square yards of soil to spare in which to plant them out and bloom, then lift them into pots and allow them to flower, as they will admirably for some two or three weeks. Few plants in flower lift so well and suffer so little in the blooming as do dwarf Asters. Many hundreds of thousands are grown in the market gardens, and lifted into pots in this way are sent into London and other towns, selling very cheaply. For this purpose the favoured section is the dwarf *Chrysanthemum*, and wonderfully good is the strain, especially that the seed is purchased in bulk and very cheaply. A good strain has always the national colours of red, white and blue in plenty, these indeed being the favourite colours with growers and purchasers. The plants are blocked at the rate of about three into a 4½-inch pot, and where not too far from the market the profit on a batch of some 20,000 plants is considerable. A few frames are needful to raise the seed under, as in cold soils and late springs outdoor sown seed may be too late to carry good blooms. For all general purposes seed of Asters should be sown under glass and without heat from the end of March till the end of April, as then an admirable succession of bloom results. A. D.

CARNATIONS IN THE OPEN AIR.

IN the moist climate of the west of England the Carnations that were planted in the open last October have come through the past severe weather in a satisfactory condition. In every case where the layers were strong and well rooted, they have endured 22° of frost unharmed. I am alluding chiefly to the self-coloured varieties, as I found the so-called choicer kinds too tender to stand the winter in the open air. My collection at the present time consists of such sorts as Mrs. Reynolds Hole, Lady Primrose, Pride of Penshurst, King of Cloves, The Governor, Gloire de Nancy, Comte de Chambord, H. P. Milner, Royal Standard, Germania, The Bride, Rose Self, G. H. Engleheart, Will Threlfall, and several others, all of which I have now unprotected in the open, and looking none the worse for having passed through such a protracted season of cold. Last winter I tried to keep the same sorts planted out in the autumn close together near to a warm wall, giving protection in frosty weather, but I lost a considerable number of plants of most of the varieties. This season I adopted quite a different plan, and put them out where they were intended to flower. The position is quite exposed, especially to the north and east winds; but at present I do not see any indication of injury either from frost or snow. I have some losses where the plants were not well rooted, as might be expected. On the whole, however, I am quite convinced that it is a waste of time to coddle the plants. The great point appears to be to get them well rooted and planted out where they are to flower by the middle of October, and then they will endure as much frost as we are likely to get in this country.

In the case of plants that are not well rooted in the autumn, I find it best to leave them on the plants until the spring. At the present time I have Pride of Penshurst, The Governor, and a few others treated in this way, and I find them unharmed, although the plants are quite in an exposed position. My losses were so great last year when the stock was protected, that I was obliged to make a departure in my practice, with the results I have just given. I need hardly say that I shall not go back either to the coddling process or to the cultivation of such sorts as require protection during the winter.

I should like to mention here that although I grew considerably over 500 plants last year, and most of the sorts flowered early and well, I did not get a single pod of ripe seed; yet my garden is an

early one, the soil for the most part resting on gravel, and getting the sun the whole of the day. If the Carnation has seeded no better in other parts, it is very clear there is not much new seed in the country. Anyone having old seed may make good use of it this year, as I have found it grow freely after it had been kept for two years.

J. C. C.

WINTERING DELICATE ALPINES.

IN reply to the second letter of Mr. Williamson (p. 163), the proposed wall garden after the plan described occurs to my mind as if it would be likely to prove more costly and less satisfactory than an alpine house or rockery so arranged as to be well aired, afford access of essential frost, and leave the plants generally close to the glass. What about the buttresses of a 6-foot wall required to carry so much almost direct pressure of dead weight to near its apex? And what about keeping all so moistened that either, on the one hand, the top vegetation would be burned up, or the lower plants much overwatered, and the general structure so charged with damp, and so much surface exposed to frost, that it would be likely to have its balance upset by not many degrees of frost? My idea of a walled garden has always been that of an adaptation of existing conditions where one side would be so backed by earth that for the most part moisture would naturally find its way into the stones, and in the natural direction relatively to the ground and the sun. Of course, the needful conditions might be created, and by a strict selection of plants a plainer wall could be made to decorate itself, as, indeed, we often see in a wild state. But then we must not forget that natural selection is not only the truest, essentially, but we rarely see in a wild state so much plant variety in a given space as we seek to introduce in cultivation, excepting, perhaps, in mountain habitats, and, besides, who can say that Nature does not provide or depend on certain things that we are always trying to eradicate? For instance, can we not recall old fence and boundary walls beautiful with Ferns, Harebells, Pinks, Heaths, &c., that could hardly be expected to flourish unless sustained by Grass, Briers, and other weeds. I know from long experience that on the top of a dry rubble wall I get *Dianthus cæsius*, *D. deltoideus*, *D. petraeus*, various *Thymes*, and even *Sempervivums* to do better, and with less watering in summer, when I allow Grasses and Clovers to mix moderately with them. I can join heartily with Mr. Williamson in his ideas of trying experiments, and when I first replied to his original letter I did not think anyone could take what I said to imply the "do-as-your-neighbour-does" policy? I tried only to speak on a specified question. For myself I may say that gardening experiments have long been my chief pleasure; all my life with old garden flowers, and for twenty-five years with alpine plants more especially. When I had no suitable means, I used to pay a consideration for the privilege of doing as I liked in an appointed space, either in market or allotment gardens. Indeed, it was because I thought I traced a kindred love of the original in gardening that I tried to reply to Mr. Williamson's letter. With regard to the culture of alpine plants near smoky towns or large works, I always think that the effects of the former are more deadly than those of the latter.

I am somewhat similarly situated to Mr. Williamson's friend in being quite close to the large steel forge of Kirkstall; it is close by on my west side, but the swift west winds quickly scatter and carry off the smoke-clouds. The much higher ground at Farnley affords a similar mitigation, and otherwise it has the benefit of atmosphere from a good quarter. The smoke from a single place, however large, I need hardly point out is but a trifle compared with the dense canopy of black and contaminated atmosphere of big places, like Manchester and Leeds. I quite agree that a deal can be done with many alpine even where there is smoke. I always say a plant has two ends, and often something can be done for the roots to fortify the trials of the tops, and *vice-versa*. The "sloppy wash down" state of a rockery can be easily remedied, unless the structure is wrong, as when too sharply inclined, or

where the prominent parts are too lightly formed with earth instead of stone. Annual mulchings with a mixture of half in bulk burnt loam and half leaf-mould of previous year takes in wet like a sponge, and, besides, prevents evaporation. I base my objections to putting a glass structure over alpine on the following facts: There are hundreds that do not need any protection at all if suitable selections are made for specified districts, the natural conditions of which are fairly well known. There are many alpine plants that suffer as much perhaps from a want of more cold than we usually have in this climate than from aught else. I am aware that protection from cold is not being so much sought in this case as from wet, but you cannot well get the one without the other if you use large top-covers, even if the sides are well pigeon-holed. Another very strong objection to wholesale covering in winter is, that it is unsafe to move the covers until late frosts are gone. The plants would be sure to be drawn or stimulated more or less, and they would (on removal of the glass) be more susceptible to injury than ever. The last, and to my mind very important fact is only of a sentimental character. If there is a class of flowers that we have come to consider so hardy as to really require no coddling, and that one may feel certain of being wholly open-air flowers, to be left alone out-of-doors the year round, it is the rockery or alpine class, but for this belief I feel sure many who now grow them would never have taken them in hand. It is true that we often aspire to exceptional species that are difficult to do, but that is no reason why we should "level up" the special treatment to hundreds that do not require it. Special protection or a cold frame is well enough, and perhaps indispensable for rearing. It can, of course, do no harm certainly for anyone to experiment in the direction outlined by Mr. Williamson. I am speaking now more against a general system. Speaking of modified winter light, do we really need it in this climate? Doubtless a blanket of snow is favourable to open-air alpine; but that is not exactly the point raised, but one of subdued light. Can anyone show to us how the darkness of snow acts as any part of the advantage of a covering of snow? Is it not rather beneficial in other ways? Again, even if we could have a covering of snow—or I should say aught else as a substitute—could it be expected to answer when other conditions such as those which produced and preserved the snow did not exist? I fail to see the necessity for subdued light at all. Snow acts beneficially otherwise. It is a safe and even sustaining medium to be in actual contact with herbage, green or dead, and it approximately equalises the temperature of the ground, necessarily keeping it at or below freezing point, which ensures the complete rest of the plants. Pulp rot and fungoid decay do not take place under snow, but would these results obtain under any other treatment during an English winter were a free circulation of air obstructed? I have not tried the glass and fibre protection—indeed, never heard of it before, but I can imagine that such a non-conductor as cocoa fibre would tend to equalise the temperature of the space covered. But why not employ the fibre directly over the plants—that is, such as have died down? I have proved it to be effective in this way, and I still use it for short-rooted things planted after September. The manner in which it prevents the lifting action of frost implies its usefulness in other respects. It is well, however, to remove it after the late frosts.

Were I in Mr. Williamson's place, I should take my chance with a perfectly open piece of rockwork, giving special care and shelter to pet individuals. This is certainly the old or plain idea, and so it may not afford enough pleasure to a mind that loves experimental gardening.

J. WOOD.

Woodville, Kirkstall.

Anemone blanda.—I consider the various forms of this earliest and largest flowered of the spring-blooming Anemones to be some of the most desirable and beautiful of all the ornaments of the hardy spring garden. A collection of 150 roots of it kindly sent me by a correspondent at Smyrna are now most of them in full bloom, and

when fully open on a bright sunny forenoon are exceedingly beautiful. No two of them are exactly similar, but comprise almost all possible shades, from pure white to deep cerulean blue, and some of the blue flowers have a large and clearly defined pure white centre resembling a gigantic flower of some of the forms of the lovely *Chionodoxa*, as some of the flowers are as large as a crown-piece. One of my plants has flowers of a deep olive-green, with a lighter centre, and though not by any means as beautiful as its brighter-coloured brethren, it is still, I think, most interesting as a botanical curiosity, and I shall be glad to hear if any other reader of THE GARDEN has noticed a similar green-flowered form among these beautiful spring flowers. Another of my flowers shows a decided tendency to doubling, having a bunch of greenish petaloid segments in its centre, and this I notice for the first time this year. The white forms seem by far the rarest, as there were none of them in the 150 first sent me, those I have, which all vary somewhat in the purity,



Group of Delphiniums.

size, and substance of their flowers, having been afterwards bought from a nurseryman. The important fact of these lovely plants coming into bloom quite a month or six weeks before the different forms of *A. nemorosa*, the common wood Anemone, adds, I think, greatly to their value; the much larger size of their blooms makes them also additionally desirable, and no spring garden should be without them.—W. E. GUMBLETON.

Plants from the Riviera.—On p. 193 "Norman" asks for simple directions for the benefit of the many travellers who are now seeking the Riviera as to how to treat the floral treasures they may come across. By far the best treatment I can advise is to leave the plants alone where they find them growing, but if any of them are in seed, to collect the seed and bring it or send it home. Ninety per cent. or more of these beautiful plants

are certain to die if dug up and sent a long journey when in flower, but the flora of the Riviera is so well known, that not a plant can be found there which, if suitable for cultivation in English gardens, may not be bought already established in a pot at a small price either in English nurseries or some of the Continental nurseries. I have always found this the most successful and the cheapest way of obtaining these plants.—C. W. DOP.

In answer to "Norman," I have found the following plan best for sending home collected plants. The traveller should take with him a square yard or two of gutta-percha sheeting and a number of labels with home address clearly written, or, better still, printed, and on the top the words "samples without value" in the language of the country where the parcels are to be posted. The roots of plants must be cleared of most of the soil, covered with moist Moss, and carefully tied in the water-proof sheeting. All top-growth must be fairly dry and not covered in water-proof, or the plants will "heat." The day's collection can be packed as described and then sent off in one or more parcels according to bulk and weight. Each parcel should be numbered and a post-card with corresponding number sent to gardener, telling him what to do with the contents.—A. K., Stanmore.

HYBRID DELPHINIUMS.

THE general decorative value of the single and double varieties of Delphiniums is so universally admitted, that little remains to be said in their favour, and few of our choice hardy plants are more prized than these. But while their merits are so widely known, how is it that so very few of our good gardens contain such a scant supply of these handsome flowers? The best kinds in commerce to-day, it should be remembered, have been selected from many thousands of seedlings, and annually the task is a far more difficult one, as it is by no means easy to select varieties which all round can be regarded as superior to those already in commerce. Even when good or improved forms appear, a period of three years must elapse before anything like a stock can be raised from any single plant; therefore, for the best borders I do not recommend obtaining the plants from seeds. This may answer well where large open spaces in the shrubbery have to be filled, as it may be accomplished with mixed seedlings that are not good enough for better positions. My object, however, in drawing attention to these plants at this time refers to transplanting them, for no season in the year is better suited than the month of March. I am not referring, of course, to established

examples in pots, for these may safely be planted at almost any season, but to those in the open ground that need dividing and replanting. Invariably in the month named these Delphiniums commence to push forth new growth and fresh roots.

The kinds vary considerably in starting into growth, so that if the earliest are taken no necessity will arise for having many plants out of the ground at one time. A very suitable period is when the new shoots are about 3 inches or 4 inches long, as at this time the operator may be guided in dividing the plants to advantage and without loss. The soil having been well shaken away from the clumps or stools, a glance at these and the fibrous roots will indicate the best means

of dividing, while the point of a large-sized pruning knife is the best thing I know for the purpose. Delphiniums are very brittle, and must, therefore, be cut right through the main portion of the stool; any attempt to wrench them often leads to the destruction of some useful breaks, as well as roots, and is best avoided. For producing fine spikes of these plants both deep digging and heavy manuring are essential; indeed we have few plants which seem to delight in rich soil more than these. In replanting them I always endeavour to bury the crown 2 inches deep, as many new roots are produced immediately below the current growth as well as abundance of fibrous roots from the larger roots. In case of dry, parching winds, a good watering may be needed, though, if planted firmly, the plants rarely receive any injury from this cause. Plants thus treated will flower well in June and July ensuing, and with such a long season before them will make grand plants for the following year, and produce massive spikes of their showy flowers. Where it is intended to leave the plants for two or three years undisturbed, they must have plenty of room—quite 2 feet or 3 feet apart—to allow of free development. Some of the taller growing varieties will need the support of a stake to prevent the weight of their towering spikes bringing them to the ground. Established clumps of these Delphiniums are much benefited by an occasional soaking of liquid manure, particularly before and at their period of flowering. If the weather be dry, first soak with clear water to thoroughly saturate the soil. The accompanying illustration conveys an excellent idea of the noble proportions which these attain when fully established far better than words can describe, and those who have not hitherto grown them should lose no time in obtaining a selection of these very desirable and ornamental perennials, and plant at once.

E. J.

Galanthus Fosteri.—I am altogether at a loss to understand the high praise bestowed upon this new Snowdrop by that well-known florist the Rev. H. Ewbank in the last issue but one of THE GARDEN. This seems to me to be totally and entirely undeserved. Misled by the published opinion of a well-known and usually reliable florist (once a regular and constant contributor to the columns of the horticultural press, but who for some time past seems to have retired into private life and to have discontinued writing in yours or any other columns) that this was the finest and handsomest of all Snowdrops, I was induced to invest in fifteen bulbs of it at the end of last autumn, which cost me 1s. apiece and were good, full-sized bulbs. Twelve of these I got from an Irish nurseryman and three from a leading firm at Haarlem, but I strongly suspect that both lots came from the same source. They have all flowered in my garden this spring, and out of the lot only two had decent sized blooms, all the others being miserably small and poor thin flowers. Even the two good-sized ones had no special beauty or merit to recommend them to notice, and were distinctly inferior to either the well-known *Galanthus Imperati* or the beautiful and cup-shaped *G. Melvillei* major, for both of which I am indebted to my kind and generous correspondent Mr. James Allen, of Shepton Mallet. My experience of the much overrated merits of this new Snowdrop is by no means unique or singular, as I hear from the nurseryman who supplied me with most of my bulbs that out of a large number grown and bloomed by him this spring, he had only one really fine flower. The head of the Haarlem firm also writes me that in his opinion this Snowdrop does not deserve the eulogies bestowed upon it, and that except for its fragrance, which is only perceptible when cut and brought

into a warm room, it has no special merits whatever.—W. E. GUMBLETON.

—When Mr. Ewbank has planted this new beauty by the hundred and discovered its extreme variability, quite another charm will have been added to the list he gives. In a group of any extent will be found little things with flowers not more than half an inch across, and all intervening sizes up to the giants of 2 inches, the latter not predominant. They will vary in more than size; some will have fairly broad outer segments, others narrow strap-shaped ones; some elongate ovaries, others quite spherical ones; not two will be exactly alike. *G. Fosteri* in the Isle of Wight may be a fixed quantity; here it most certainly is not. I know more about it now than I did when I wrote the note. We were told when it was put on the market that it would turn out to be the "finest of all." I took that description to mean the largest, hardiest, and most shapely. Still, I like the plant, and when the weeds are picked out and the stocks rectified, we shall have something quite worth planting. The leafage is so distinct, that ordinary observers pick it out at once. It has been suggested that it is not a species at all, but a natural cross between *G. Elwesi* and *G. latifolius*. The leafage is certainly of the latter; the rather elongate perianth segments also point that way, but the shape and markings of the inner segments are those of *Elwesi*. I cannot agree with "K.," for it certainly has nothing at all in common with *ivalis*. In order to get the full value of its sweetness you must wear a flower, opened under glass, in your button-hole.—T. SMITH, *Nenry*.

ALPINES FOR MASSES.

WHAT I wish to be understood by the above alpine is such as will lend themselves freely to a variety of purposes, arranged in masses either on level ground or sloping banks or mounds, and for which a rockery, large or small, costly or otherwise, is not at all essential. Such plants as these would, I feel sure, meet with a very large body of admirers were the latter only convinced that success might attend their efforts to cultivate them. To those who regard alpine and rockeries as inseparable, I can only say that almost any alpine however rare or choice will be found upon trial to be far happier upon a level piece of ground than it can ever hope to be on a badly constructed rockery, and beyond this I can state that from time to time I have grown a very large proportion of the cream of alpine on the surface of an ordinary nursery bed, and doubt not others may do so, and have done equally well. The majority of the plants I shall name will need no other provision than that of properly digging, and, if need be, enriching the soil, a light loamy soil of fair depth generally suiting the greatest number of varieties, of which I regard the following as the most desirable and effective. I think we might fittingly accord the first place to alpine Phloxes. Take *P. Nelsoni*, for example, producing sheets of snowy white blossoms which crowd the prickly prostrate tufts of this charming plant, and where have we its equal, much less its superior, among the whole tribe of alpine? Take, again, that wonderfully free-flowering species *P. amoena*, with its rosy pink blooms, that are borne with such profusion for so lengthened a period. To these two may also be added such varieties as *atro-purpurea*, *Vivid*, *Model*, and *compacta*, all extremely beautiful and varied, and forming handsome masses if properly treated. With such as these a most charming effect may be made on slightly raised banks or mounds or even on level ground, the variety *Nelsoni* seeming to enjoy a position slightly protected from the midday sun. The battle, however, is not complete in the mere possessing of suitable kinds, for to produce the results that I have in view, viz., of forming large handsome patches several feet across, the plants must be propagated and increased to the extent named and receive a little annual attention also. I am well aware of the custom that prevails of purchasing a single plant of this or that and planting it out in due course, but never thinking of doing anything to improve its after condition or increasing its general usefulness; such a state of

things savours of indifference, if not of neglect. Suppose, for instance, anyone were to start with half a dozen good plants of *Phlox Nelsoni*, the first thing should be to plant them out in good soil in the reserve garden. In the month of May when flowering is complete, preparations for propagation should be begun, selecting as cuttings the short Juniper-like shoots which crowd the prostrate branches, stripping them from the stem with a heel attached, and inserting under a hand-light in sandy soil. Under these conditions a good many will form roots, and by the autumn will have made nice plants ready for transferring to their permanent quarters, where they may be planted out 6 inches apart or more, according to their size. For the present the best effect will be more readily produced by planting rather thickly, and a year or two later it will be a very simple matter to thin them out and make another plantation elsewhere. Thus treated, a couple of dozen young plants would cover a good deal of surface, and when established would constitute a most delightful picture in any garden—a picture which may be rendered doubly interesting by introducing between the plants some autumn-flowering subject, such as *Crocus speciosus*, and thus embracing in one piece of ground two of the most showy hardy plants which would not interfere with each other, but rather be improved by the association herein suggested. Nothing could possibly be more simple, and certainly nothing more beautiful than either of these plants flowering *en masse*.

For another instance, what have we among the host of good hardy plants more charming or more beautiful than broad, healthy patches of the common *Gentian*, *G. acaulis*? The usual way is to allow it to form cushions 8 inches or 10 inches across, which may be very well in their way, but it is a poor method of getting the best returns from so valuable a plant. Let those in doubt take a large clump 10 inches across, lift it, and carefully observe the innumerable stoloniferous shoots of which it is composed, and still further observe that 90 per cent. of these growths are so densely packed together in one cushion or tuft, that they are virtually choked, and can never produce a flower. Supposing such a tuft produced a score of blossoms, what is it compared with the endless number of growths that remain prisoners? This is one of the many errors arising out of the "let-alone" system, and the plants which do well under this will invariably do far better when accorded the proper attention. In *G. acaulis* the best flowering pieces are those about 4 inches or 5 inches across, by which I mean that a much larger proportion of flowers will always be found on such pieces, simply because there hardly exists an opportunity for undeveloped growth. To make the most of the plant in question it should never be allowed to remain longer than three years without dividing and replanting, and if this fact was fully realised, its flowers could be counted by hundreds in gardens where now it is difficult to count a dozen. Often have I seen favourable sized pieces planted that have been allowed unmolested to spread into large tufts, and from four or six flowers at planting time in a few years none have been produced; yet, notwithstanding, the tuft increases so far as circumstances permit, and those who possess large almost flowerless tufts of this plant, I strongly recommend to break them up and replant in good deep rich loamy soil. Plant very firmly, and if this *Gentian* will grow at all, you will not fail to observe the difference in the time to come. The two most favourable seasons I have found for planting this are early autumn, *i.e.*, the latter part of September and during October, or again in February or March; and curious though it appears, I have invariably found that plants forming an edging to beds or walks, and in consequence subject to much treading, do well, and for this reason I urge very firm planting. Another plant producing very telling masses of colour and easily grown and increased is *Cheiranthus alpinus*; it is dwarf, free-flowering, and compact, not easily rooted from cuttings by everyone who may chance to have it, but if anyone will half fill up the tufts with sandy soil when flowering is complete, say, early in the month of June, keeping the soil fairly

moist during dry weather, the result will be a grand lot of young plants by the end of August, at which time they be planted in nursery beds to furnish themselves before putting them into their permanent quarters. This plant requires annual or at most biennial attention in this respect; the flowers are of a pleasing sulphur shade, very attractive in masses during April and May. I only wish I could recommend the lovely *C. Marshalli* for the same use. It is a charming thing, but its constitution generally will not permit of comparison with the first-named.

In *Campanula pumila alba* we have another pleasing plant for spreading into large patches, easily and quickly established in quite ordinary soil, and better suited for remaining several years in one spot than most things; it flowers in July, when its white pendent bells are very charming. I have a nice patch of this put out some three years since. When I planted it I inserted a dozen or two bulbs of *Chionodoxa Lucilæ*, the effect being most charming, and as the one never interferes with the other, either in time of flowering or colour, others may like to adopt the same plan. This is not the only member of this group that may thus be turned to account, and those interested should remember such kinds as *pulla*, *turbinata*, and *carpatia* varieties, excellent as permanent subjects, particularly in moist soils; while *garganica*, *isophylla*, and others similar in habit produce very pleasing results on the rockery. Take again such things as *Aster alpinus*, blue; *Erigeron aurantiacus*, rich orange, very effective; *Iberis* in variety, *Sedum spectabile*, *Saxifraga Camposi* (Wallacei), all easily obtained either by seed, division, or cuttings, and endeavour to realise the effect of patches 6 feet or more across, or if only half this size, what a change, what a relief from the single plant system! Or look again at the lovely, though singularly modest *Hepaticas* already in flower here and there, notwithstanding the very severe weather. The Christmas Roses, too; what more handsome than these? If broken up every second year they will soon cover a considerable area. It is a mistake to leave this plant for years in one spot when much more may be made both in plants and finely developed flowers by dividing the plants every second year—at least till a good stock be raised of such things. I do not for a moment infer that these *Hellebores* will not flower well when in large clumps, but this I say, that the flowers are smaller and have shorter stems in the centre of such large plants than at the sides, proof in itself of overcrowding and undeveloped energy. Nor must we overlook the immense value of the *Forget-me-not*, a plant unrivalled for exquisite beauty, freedom of growth, and profuse flowering, or the pleasing patches that may be formed with the several forms of *Anemone nemorosa*, not forgetting the lovely sky-blue form *A. n. cœrulea*. Grow *A. nemorosa* in moist sandy peat in a half-shady spot away from the roots of trees or shrubs and sheltered from blustering winds, and you have one of the most delightful gems a garden could possibly contain. In such places I have had glorious patches with a couple of hundred flowers expanded at one time; when thus seen it is never forgotten. *Anemone blanda* and *A. apennina* are also excellent for massing in this way. On the other hand, *Saponaria ocymoides* is one of those things whose real worth is frequently overlooked; indeed I know nothing better for clothing a rockery bank so quickly and so well with such a mass of flowers as this.

The *Aubrietias*, again, lend themselves to cultivation in almost any garden, are easily and readily increased by cuttings or division to almost any extent, and produce pleasing carpets of varying shades of blue, lilac, &c. The new and lovely crimson-red variety *A. Leichtlini* must not be forgotten. Some of the prostrate varieties of *Oenotheras* also furnish us with useful material in this way; there are *O. acaulis*, *O. taraxacifolia*, and *O. macrocarpa*, all charming, easily grown, and readily increased. Nor could we in a selection of this kind afford to overlook the great value and sterling beauty of the *Megaseas*. In early autumn the broad leathery foliage, more especially that of *M. crassifolia* and *M. cordifolia purpurea*, assumes a reddish-bronzy

hue, which it retains throughout the severest winters. In like manner *Polygonum Brunonis* should also find a place, forming as it does dense masses of its narrow leaves, which in summer and autumn are brightened by the singular spikes of reddish flowers, that remain attractive a long way into the late autumn months. Perhaps it may be thought that I have already said enough to prove the value of these and similar plants when effectively grouped together, yet there are others, as *Saxifraga pyramidalis* and *longifolia*, with some of the mossy section, particularly *S. muscoides atro-purpurea*, *Arabis albidia variegata*, the golden *Stellaria*, the purple-leaved *Ajuga*, and many others, that may suggest themselves. It may be well to note that a very large proportion of those named are evergreen in character, though widely varied in general aspect; hence the greater enjoyment in this interesting department of gardening, which almost anyone may embrace in a greater or less degree and according as individual taste directs.

E. J.

A FEW SEASONABLE NOTES ON HARDY GARDEN FLOWERS.

THE ANEMONE.—As I write, we may say the winter is over, but sharp stinging frosts are not yet gone. The thermometer at 20°, or 12° of frost, in the last days of February is sufficient to recommend caution in planting out and care in protecting our plants under glass. This applies more particularly to such things as *Auriculas* throwing up their trusses. *Anemones* have all been planted out in a bed of rich deep soil in the very early days of the month. I find that spring planting for the finer varieties of *Anemones* is better than doing it in the late autumn or winter months. The tubers lying in a dormant state during winter sometimes die altogether, or become so crippled from wet and other causes that serious gaps are found in the beds when flowering time comes round. Our soil is naturally heavy, and retains much water even when well drained. In planting, we draw drills about 3 inches deep, place a little sandy soil in the bottom of each drill, and cover the tubers over with the same material. The spent soil from *Hyacinth* and *Tulip* pots answers admirably. Level the beds on the surface, and no other attention will be necessary except to stir the surface and keep the ground clear of weeds. The hardier garden *Anemones*, such as *A. fulgens*, *A. apennina*, *A. blanda*, &c., establish themselves in the borders, and require no other attention except to divide the clumps when they become overcrowded.

THE AURICULA.—No plant seems more ready to start into active growth with the first mild weather in the last days of the month of January. The plants had been in frames exposed to all the severe weather, and no sooner have the frosts gone than active growth commences when the night temperature is above 35°. Those who admire plants with beautiful foliage cannot but experience great delight in inspecting a collection of *Auriculas*. The fancier needs no labels to point out the names of his favourite flowers. Two serious faults apparent at the *Auricula* exhibitions are the length of the flower-stems and the flabby appearance of the leaves; these are caused by the plants being placed in houses not sufficiently ventilated, or the plants standing too far from the glass; another fertile cause of weakness is overshadowing. I mention these that cultivators may know how to avoid some of the most serious faults in the culture of the *Auricula*. I am giving the plants now all the light possible, and whenever the weather is favourable the lights are removed altogether. I do not mind the wind amongst the plants if it is not a keen frost wind. Let none of the plants get very dry at the roots, and, on the other hand, avoid overwatering them. Fumigate the house or frames twice during March on the well-known principle, that "prevention is better than cure." The seedling *Auriculas* are coming up freely, and are being pricked out into small pans or pots to be grown on into flowering plants for next year. Alpine *Auriculas* in the borders were well protected during the severe frosts by the covering of snow, and now

look strong and healthy. As the borders were being cleaned a little rich compost was placed amongst the plants, and they already look beautiful in their fresh green leaves.

CARNATIONS AND PICOTEEES are being repotted. The young plants are just starting into growth; many of the weaker or late potted plants have been injured by the severe frost. Our losses are not so great as other amateurs have to lament in colder districts. In one collection I noticed the other day that quite a third of the plants had been killed. The leaves of those injured feel soft to the touch, and the stems bend without breaking. It has been suggested to me that the past winter may be counted as one of severe trial to the plants out in the open; certainly it has if they were exposed to the full effects of the frost, but in some cases they were completely covered to a considerable depth with snow; and this natural covering is a more effectual protector from frost than a glass frame would be. Our own plants were well covered, and they look quite as well now as they did before the frost set in. A point of much importance is to see that they are planted out early in the autumn. I know some growers in the far north plant out their *Carnations* in November, and find it necessary to protect some of their plants with bell-glasses or small hand-lights, and nearly all of them require sticks to hold them firmly in the ground. If the plants are put out carefully in September as soon as it is seen the layers are well rooted on the parent plants, they get firm hold of the ground before severe frosts set in, and require no supports or protection with bell-glasses, &c. Before commencing repotting our plants we see that they are free from green-fly. It seems that intense frosts do not hurt insect pests much; they seem to pass through them in some form or other. The plants have all to be fairly moist at the roots before repotting them, and the potting material in fair condition. The pots used are 7 inches, 8 inches, and 9 inches in diameter. Drain them well and place over the drainage some turf fibre from which most of the clay particles have been shaken out. Plant a pair of *Carnations* or *Picotees* moderately firm in each. The smaller pots are quite large enough for the weakly constitutioned plants. The potting soil I use consists of four parts good loam, one part decayed manure, one part leaf-mould, and some coarse white sand. After repotting, the plants are protected with glass lights for a few weeks.

TREE OR PERPETUAL-FLOWERING CARNATIONS are very useful for producing choice flowers now. They open well in a temperature of 50° at night. Indeed, we have a very fine new white variety named *Mrs. Moore*, which is opening its flowers in a house from which frost is just excluded. A dryish atmosphere is necessary for the production of clean, well-formed flowers. The young plants propagated from cuttings a month or six weeks ago must be taken out of the cutting pots or pans and be planted singly in small pots, using fine sandy soil for them, leaving them in a warm house until they are fairly well established, gradually inuring them to the temperature of a cooler house, afterwards placing in frames, and subsequently in May out of doors for the season. Some of last year's plants that are in a healthy condition may also be grown on to flower before the young ones come in. The earliest of them will flower freely in September and October. They may be placed in frames now with only a glass light protection.

CARNATIONS FROM SEEDS.—The seeds of these may be sown any time this month on a gentle hot-bed. Sow the seeds thinly in pots or pans of fine soil, and if these are plunged to the rims in the hotbed, the seeds will vegetate sometimes within a week from the time of sowing. As soon as the seed leaves are grown to their full size the young plants may be pricked out into boxes 2 inches or 3 inches apart; they must be kept in frames for a few weeks, and as soon as the weather is settled they may be placed out of doors. We only rear them under glass to make sure of as many as possible of the seeds vegetating, and find that all *Carnation* plants make better growth when fully exposed out of doors. I like to sow the seeds of the yellow ground varieties quite a month before those of the

ordinary flaked Carnations and edged Picotees. I have sown all together on the 1st of April, and almost every plant of the ordinary Carnations and Picotees flowered well the following season, but not more than 50 per cent. of the yellow ground Picotees flowered; therefore, I take care to get the seeds of the latter sown in the first days of the month of March; although the seedlings do not grow quite so freely at first they make stronger plants in the end. All these seedlings are quite hardy, and pass through the severest winters in Britain quite uninjured.

J. DOUGLAS.

FERNS.

NOTES ON FERNS.

THE potting of these should be proceeded with as soon as all other stove plants are finished. Early potting of Ferns is not desirable unless an extra early growth is needed. For my own part I like to see Ferns on the move before potting is thought of; some kinds are scarcely ever at rest, but from now onwards more active growth will be made, the fresh soil being laid hold of by the new roots at once. At all times it is a good plan to look closely after the condition of Ferns at the roots, the more delicate growing kinds needing in this respect rather careful attention, but for a general overhaul this is the best time of the year. The soils for Ferns will have to be somewhat varied to suit different varieties. The *Adiantums*, for instance, will thrive well in a mixture of peat and loam, and if intended for cutting nearly all loam may be used. The loam will be found to be conducive to a harder and more enduring growth, the fronds usually being less robust, the pinnae smaller, and the colour a paler green. The mixture, however, is preferable in a general way for the majority. If I could always ensure first-rate loam, not too heavy, but with plenty of fibre in it, I would use it more freely than peat. If, however, this is not the case, a larger proportion of peat should be employed; this will prevent the soil from getting too close, and always being used freely. As instances in which all peat is desirable (or with but little loam), the *Gymnogrammas*, *Cheilanthes*, and *Notholænas* are examples. For my own part I have always succeeded best with these Ferns when growing them in peat alone, potting firmly, as with *Heaths* and *Azaleas*. I consider it an essential point to observe in the culture of this class of Ferns always to have the soil quite firm; a more enduring growth is thus made, but it may not be quite so rapid.

One point in Fern culture should always be borne in mind; it is that of guarding against overpotting. Fern roots are not the most robust and lasting (unless those of the Tree Ferns); when, therefore, the soil gets into a sour state before the roots have occupied it, they will not afterwards do so in a proper manner. A deal may be done with many Ferns in the way of reducing the balls; this will be found better than relying too much upon potting on into larger pots, especially when the plants are likely to be removed for decoration elsewhere.

When the potting is being seen to a sharp look out should be kept for scale; this, as most of us are aware, is more persistent in its attacks upon Ferns than upon many plants. At the time of potting this may be done by reducing the fronds considerably, the roots at the same time being reduced and without any apparent check to the plants. I would rather do this than spend time in cleaning, unless in the case of choice examples. Moderately firm potting for other Ferns besides those specially mentioned should be followed, and sufficient room should be allowed for a good surface dressing of fresh soil. See that none of the plants are too dry when potted, or else it will afterwards be difficult to get the entire ball into an equable state in this respect. Any excess of moisture after potting should be carefully avoided, both at the roots and overhead. Light syringing will be beneficial about twice daily, but shading should for the present be avoided. *Gymnogrammas*, *Cheilanthes*, and *Notholænas* prefer a

rather dry atmosphere, and should never be damped overhead, otherwise the fronds will soon show symptoms of decay.

GLEICHENIAS do not need to be disturbed at the root very frequently; with these in many instances a top-dressing will suffice, choosing peat for all but *G. dichotoma* and *G. flabellata*; these do better in loamy soil, particularly the latter kind. *Davallias* also do not require so much potting as some Ferns; these, too, should have top-dressings given them chiefly of peat. The rhizomes of both of these genera should be pegged down into the new soil, being turned inwards when further increase in size is not required. *Davallias* may, in the case of those sorts which are disposed to make long rhizomes, be considerably extended, even without potting, by fixing a trellis-work around the outer margin of the pot. Peat should be fixed upon this and the rhizomes be pegged outwards; in this way large plants may be had in comparatively small pots. This should be done just as growth is seen to be commencing. Some of the Ferns which I have alluded to do not require a stove temperature; in fact, many of them can be easily grown in a temperate house. Others may be cultivated in cool green-houses; these latter should not be potted for a few weeks yet unless they can be kept somewhat warmer until re-established.

TREE FERNS in cool houses will not yet make much advance, but they must not be allowed to get dry at the root. Nothing injures these noble-growing Ferns so much as letting them suffer for want of moisture at the roots, and when once the extremities of the fronds commence to curl up, nothing will restore them again. As soon as growth is observed to be on the move, any needful potting should be seen to. Those which are in rather large pots and not over healthy at the root should be reduced by cutting away the ball with a sharp tool; this is better than tearing the roots. They can then be easily replaced into the same sized pot. Others which do not absolutely require this treatment will bear a shift into larger pots should have that attention. Those which do not stand in need of either of these modes of treatment should be fed with weak liquid manure when growing freely. In either case it is a decided benefit to bind the stem up with *Sphagnum Moss*; into this the roots will soon find their way. This is a capital plan to follow with young specimens, adding fresh Moss at the top each spring. In doing this, my practice has been to leave the ends of the old fronds when cut off at a little distance away from the stem, and then pack in between these with *Sphagnum*. Plenty of moisture by the use of the syringe is needed to encourage the roots until they have well laid hold of the Moss.

SEEDLING FERNS.—These should at all times be looked after and preserved, so that a good stock of young plants may always be coming on. They come in useful for many purposes if not wanted in larger pots. Many small-growing kinds can be advantageously employed in the smallest of pots for decorative arrangements. Young growing plants will oftentimes be found better than adhering to much larger ones which have become stunted. The *Adiantums*, the *Pteris* family, and others which are of so much service should be looked after in this way. If at the present any are too small for pots, it is an easy matter to prick them off into pans for a time. Some sorts are easily increased by division whilst the potting is being done. When this mode of increase is adopted for the Maiden-hair (*A. cuneatum*) and its allies, it is better to cut the plant in pieces than to pull it asunder. Others, such as some of the *Aspleniums*, are easily propagated from the small bulbs which form upon the fronds; it is an easy matter to keep up a stock of some of the most useful kinds in this way by first pricking them off and potting when large enough.

J. HUDSON.

Davallia pallida (D. Mooreana).—The name of *pallida* was given to this Fern by that eminent writer on Ferns, Dr. G. Mettenius, Professor of Botany at Leipsic. A great many writers have laid a charge of a poisonous nature against

this plant, but growers of Ferns need not, I think, be under any dread of the ill effects to be taken from it. I have myself worked with it, divided it, and handled it with naked arms, and never felt any ill effects from contact with its fronds. It is, however, as a decorative plant I want to draw the attention of my readers to it, because either as a little plant grown in a small pot or as a large specimen it is very beautiful. One of the largest specimens I have ever seen was in the garden of Mr. Tait at Park Hill, Streatham, the plant measuring 12 feet through. It is very evident that a plant of this size could not be accommodated by everyone, but I question if a small example with only two or three fronds upon it is not even more handsome. It has very much the habit of *Leucostegia immersa*, as Mr. Baker observes. It, however, differs from that plant in its stouter rhizomes, and its larger and more robust fronds of a pale green, and in its ever-green habit. Now is a good time for repotting, splitting up, and dividing the old plants. The pots must be well drained, and this *Davallia* should be potted in turfy loam and peat in about equal parts, the whole being made fairly sandy.—W. G.

SHORT NOTES.—FERNS.

Humata Tyermani.—I am informed by Mr. J. G. Baker, of the Royal Herbarium, Kew, that during the past few years dried specimens of this plant have been received from four different collectors, all from China, so this dispels the supposition that it is a native of the West Coast of Africa.—W. H. G.

Aspidium Pica (M. B. R.).—This appears to be your Fern, which you say comes from Madagascar. I should be more inclined to say it was from the Mauritius. It is a very fine plant, with much the habit of an American Fern, *A. trifoliatum*, from which it differs by its jet black stems. I should think you might obtain plants from the spores. The spores appear to be in good condition.—W.

Nipholobolus Heteractis (B. J.).—This species comes from Northern India, and was introduced to cultivation by myself some years ago when in the service of the late Mr. B. S. Williams. It is said by some authorities to be a form of *N. lingua*, but as a cultivated plant it is very distinct. It has broader and more massive fronds, the upper side deep green, the under side pale brown, but when young pure white. It is a bold-growing and handsome species, well deserving attention.—G.

The arrangement of cut flowers.—A few remarks upon this subject may not be out of place; it may possibly set some thinking when they have this kind of work in hand. I am induced to take up this subject so that others may take notes as well as myself of what they see during the coming summer when visiting flower shows up and down the country. It is in bouquets I have noticed more errors, I think, than in any other kind of artistic decorations. Take, for instance, that well-known and justly appreciated flower the *Lapageria*, of which, as a rule, the white variety is more used in bouquets than the red kind. In nearly every instance the blooms used are arranged upright, or nearly so, totally out of all character with the natural beauty and elegance of the flower, the best part of which is hidden by other things. If anyone saw it thus and had never seen it in a growing condition he would not be able to form any conception of its real beauty. Why now, may I ask, should not this flower be allowed to droop down in a natural way upon the outer margin? It would there be in much better keeping. *Fuchsias* used to be arranged in a similar fashion, but I have not seen them so much of late years. If these elegant flowers cannot be employed in a natural manner, better not use them at all. Of late years some people, the florists in particular, have taken to spoiling the Rose by reflexing the petals, transposing what should be a bud in the beauty of its unfolding into what might be taken without any stretch of imagination for a *Camellia*. I and others no doubt have seen this practice carried too far, especially when cut Roses shown in competition are thus operated upon to a serious extent. The *Eucharis* when growing is rarely seen erect, yet it is used often as the centre flower for a bouquet; whereas it would look far better if placed upon the side in

a semi-erect manner. That well-known *Gladiolus* The Bride when used in a cut state is sometimes seen the wrong way upwards, the beauty of the interior of the flowers being in a manner lost. I have seen *Dendrobium* blooms used in bouquets the wrong way about, the flowers thus, to say the least, looking rather singular. Another flower which I have seen totally misrepresented is *Kalosanthes coccinea*, great pains being taken first to pull the truss to pieces and then mount each single pip upon a wire. If anyone first saw it thus and afterwards purchased a plant, he might possibly imagine he had an improved kind. Other instances might be quoted, but the above are sufficient to show the absurdity of the methods which some adopt, thinking thereby to add to the beauty of their arrangements; whereas quite the opposite is the case. In all kinds of decorations with cut flowers, I maintain that the natural growth should as far as possible be adhered to.—H. G.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

MARCH 3.

THE horticultural exhibition of appliances, &c., appertaining to gardening at the Crystal Palace, which was opened on March 3, may be considered an excellent one. It is not so extensive as one might at first be led to expect, but, taking into consideration that this is the first thing of the kind which has been held at the Crystal Palace, there is not much even in this respect to be complained of. Some well-known firms and makers are not represented upon this occasion, but they may be induced to contribute at a future display. Having now inaugurated this exhibition, it is to be hoped that the Crystal Palace Company, with their well-known enterprise, will not rest without making even greater efforts upon a future occasion to render such an exhibition a great success. With the great and increased interest pertaining to matters horticultural, they may with every prospect of greater support render such a display most instructive. They are to be congratulated upon this, their first attempt, and the executive who have charge of this exhibition should consider themselves amply rewarded for their labours. The prominent features of the exhibition are superior workmanship in the erection of glass houses, the greatly improved systems of heating by hot water, and the same in the construction of mowing machines. Horticultural sundries of various kinds are amongst the most extensive of all the displays, although not occupying so much space as some other things. Pottery is well represented, so also are garden seats and marquees. Another prominent feature is the varied forms of instruments for the better distribution of insecticides. On these some future remarks may be necessary, as a trial of their respective merits is anticipated. Soils of various kinds are present; so also are various forms of artificial manures. Tools and cutlery are not shown in such numbers as one might expect. At the time of taking the following notes some of the exhibitors had not completed their arrangements; some slight omissions may therefore have been made.

LAWN MOWERS, ROLLERS, &c.—Messrs. Ransomes and Co., Orwell Works, Ipswich, exhibit a large number of their well-known lawn mowing machines, both with chain gear and wheel action. These consist of machines from the smallest size with 8-inch cylinders up to those of 30 inches. Those which work with chain gear are a great improvement upon the wheel action up to 24 inches; thence onwards the other system is the best. The adjustment of the blades in each case is upon an improved plan, no bottom nuts being used, but a spring supplying its place, with one nut only upon the top. This is a decided improvement upon the older system and more easily effected. The same firm also show some of their new Paris mowers; these are well suited to villa gardens and for slopes. Messrs. Pontifex and Wood show their water engines fitted with the Farringdon semi-rotary action pump, which is an improvement upon the older system of

working, and less tiring to the operator to all appearance. Messrs. Barford and Perkins show some excellent types of garden rollers, the larger ones being arranged for greater weight by water ballast, also some of the smaller patterns. These rollers gave us the impression of being among the best we have seen. Their lawn mowers are of two patterns; those worked by one handle are of lighter make than the others. These latter are upon the chain gear principle, the chain giving evidence of improvement in its construction with little liability to expansion. The horse machine has an easy method for delivery of grass without any necessity for stopping, being readily manipulated by the person guiding the machine.

POTTERY.—This department is well represented by Mr. Conway G. Warne's exhibit from the well-known potteries at Weston-super-Mare (late Mr. Matthews). This chiefly consists of ornamental designs, among which the vases upon pedestals are good examples. These are shown in various patterns and are of durable make; the colours, natural shades of clay, are also good. Rustic pottery is also well represented here. Small vases in various forms are shown which are well suited for painting upon. Messrs. Wm. Iles and Co., Berkshire Pottery Stores, Warner Road, Camberwell, show several examples of pottery, both rustic patterns and plain pots. These are of strong make, and bear evidence of possessing the needful requirements for plant cultivation. Those patterns of rustic make which most took our notice were some rustic pots and pans made to represent sections of tree stems, of which they were good imitations. The same exhibitors also had drain-pipes of stout make and patterns of ornamental paving.

HORTICULTURAL BUILDINGS.—Mr. W. Cooper, of Old Kent Road, has erected several forms of glass structures. These chiefly consist of small houses well suited for amateurs and small growers. These are heated by an improved form adopted by Mr. Cooper with oil lamps adapted to hot-water pipes. Another plan upon a simple system of boiler heating with provision for burning ordinary fuel is shown. Messrs. Winch and Sons, Ipswich and London, have erected several of their designs for conservatories and greenhouses, &c. That of a conservatory is a good arrangement, ornamental, yet serviceable as a good plant house. These erections bear evidence of good workmanship and strength. In one of their houses are shown some substantial-looking sets of tennis and croquet and improved forms of steps of light make. This is a conspicuous exhibit. Mr. Newton, Hitchin, Herts, has examples of his patent "reform" system of glazing for roofs of all descriptions with two erections, a span-roof and a lean-to. The chief characteristic of these erections is the extreme lightness of the roofs, the sash bars being made of rolled steel, galvanised; this affords elasticity as compared with iron bars. The glazing is effected by means of clips made of delta metal; these afford expansion and save breakage, each pane being held in position by lead clips. These roofs save a considerable amount of outside painting, which is an item of no little importance. Mr. Pratt, of Sydenham, has erected a specimen of a greenhouse which he designates the "Crystal Palace" greenhouse. It has a curvilinear roof, very light, with large panes of glass. He also exhibits a frame with an arrangement for shading with a blind similar to those used for windows. Mr. W. Clark, Reading, Berks, has patterns of his system of patent glazing without any putty or outside glazing, wooden sash-bars being used. This is a strong and lasting method, zinc being the metal employed. By this plan large panes of glass can be fixed which admit a large amount of light with proportionate strength in the erection. He also exhibits some well made frames.

HOT-WATER HEATING.—In this department the Thames Bank Iron Co. have a large collection of boilers of various shapes and sizes, prominent amongst which are two of their patent Champion horizontal tubular boilers with water bars. These are undoubtedly amongst the most effective hot-water circulators now adopted. Examples of the cast-iron saddle with water-way end are also shown;

these are powerful boilers of moderate cost; also of wrought-iron welded boilers in several patterns. These latter are to be recommended where stoke-hole accommodation is limited in size. Improvements in coils are shown by the same firm, with their effective system of jointing with india-rubber rings. Boilers for small houses are best represented by the independent upright coil arrangement. This firm have also several specimens of their improved valves and other hot-water fittings with greenhouse ventilating gear of strong make. Messrs. Rosser and Russell, Charing Cross, W.C., show several designs of hot-water radiators, both plain and ornamental, and some useful looking boilers. The radiators are particularly noticeable by the little room which they occupy in width, length being regulated to the requirements of the case. These are an improvement upon the ordinary coil system for heating, one essential point being the ease with which they can be kept clean. This system of heating is an excellent one for adoption where no special boiler is used, but reliance is placed upon the resources of the kitchen boiler, to which it can be conveniently connected for heating small glass structures. The same firm also show a system of heating in operation for which no sunk stoke-hole is required, and which they term a descending circulation hot-water apparatus.

HORTICULTURAL SUNDRIES.—This department is well represented by different firms. Messrs. Osman and Co. have a large stand filled with various garden requirements in the way of soils, implements, and garden sundries. Amongst other things are samples of well-made boxes for parcel post dispatch. These are strong, yet not heavy, and are remarkably well calculated for sending flowers by this means. Some wreaths shown by the same firm, although of artificial make, are very good imitations of natural flowers. They also show some square punnets with improved handles; these are very useful for either fruit or flowers, and a great improvement upon the ordinary round punnets for carrying purposes. These, being cheaper than the old shape, should be sought after. Mr. George, horticultural sundriesman, Putney, has a stand of garden every-day requisites, amongst which are samples of *Nicotina* fumigator, of which favourable notices have of late appeared. It is a fumigating compound of approved merit, easier of combustion than tobacco-paper and safer in its application also. This is a good and reliable substitute for tobacco-paper. Mr. George has also some excellent samples of peat for Orchids and other plants; a light brown sample recommended for Orchids struck us as being first rate, possessing a large amount of durable fibre. Thomson's Vine and Chrysanthemum manures are also represented upon this stand. Good samples of Mushroom spawn are also shown by Mr. George. Messrs. Corry, Soper, Fowler & Co., Finsbury Street, E.C., have a conspicuous stand upon which they display various horticultural requisites, prominent amongst which are Standen's manure, still one of the best highly concentrated fertilisers, the Lethorion vapour cones, tobacco in varied forms, as powder by several makers, as juice and mixed with soap (nicotine soap), also in sheets for fumigation (nicotine sheets). They also have samples of Ewing's mildew compound, lawn sand and summer cloud shading. Messrs. Sutton and Sons exhibit a large collection of models of their approved types of vegetable seeds and roots, forming a conspicuous feature. Samples of Potatoes of their own raising are also present. A stand of vegetables and other seeds, with roots, &c., is furnished by Mr. C. W. Cousins, seedsman, Wood Green, N., consisting of the best selections.

MISCELLANEOUS.—Messrs. Hornsby and Sons, Grantham, show a small example of "the Strawsonizer," an excellent machine for distributing insecticides, whether in the form of solids or liquids. The size shown should be a capital means to the end in view—for the destruction of insect pests in general. The same size is being used abroad upon Tea and Coffee plantations for similar purposes. Messrs. Edgington, Duke Street, London Bridge, show one of their garden tents of a useful and substantial make; also hammocks, netting, &c.,

for which they are well known. Messrs. Wrinch and Sons have several patterns of garden seats of light and elegant make, and examples of barrows of different kinds. They also show various forms of garden marquees, and a good example of an architectural summer house. In Vermorel's spraying pump is seen another improvement for distributing liquid insecticides, the smaller sizes being intended to be carried upon the back whilst in use, fitting in the same manner as a knapsack. This leaves both hands at liberty, one for regulating the spray, the other for working the pump. These, being made of copper, should be very durable. Another pattern is adapted to such compounds as sulphur. For reaching to a distance, tubes are provided; this affords greater facility for effectual use. The London agents are Messrs. Clark and Co., 20, Great St. Helens, E.C. The same firm also exhibit a larger size, suited for drawing by a pony; this is well adapted for extensive application. A stand of samples of Norfolk cider is put up by Messrs. Gaymer and Son, Banham, Attleborough, Norfolk, with what appeared to be specimens of the kinds of Apples used in its manufacture. Another pattern of spraying machine is shown in Hemingway and Co's American spraying machine, recommended for London Purple and other insecticides. This works in the way of an ordinary high pressure pump, being also of strong make. Coal of the anthracite smokeless type is shown by the Gwaun-Cae-Gurwen Colliery Co., Llanelly, Carmarthenshire. Probably if more of this and other smokeless coals were burned, we should hear of less complaints about London fogs. The Silk-o-Zone Co., of Leadenhall Street, E.C., put up several examples of fertilising compounds; these are chiefly recommended for top-dressings upon lawns for their improvement. Messrs. Neighbour and Sons, High Holborn, W.C., have a large stand of their bee-keeping appliances in great variety and description. The hives are of sound, durable make, many being of quite an ornamental character. Several samples of honey are also shown by the same firm with illustrations of their processes. In Snow's universal garden pump is shown an excellent pattern for syringing, &c., for amateurs and others who have not a large amount of ground to go over. Garden labels are exemplified by Mr. Pinches, Oxenden Street, London, who shows his Acme patterns with both raised surface lettering and another description in which the letters are stamped into the metal. Both are good durable kinds, the latter being the most suited to those who require a large quantity. The Standard Manufacturing Co., Derby, show their improved tree pruners with examples of the work performed by them. These are strong, useful cutting appliances for pruning, &c., without the use of a ladder, being undoubtedly a considerable saving in time as well as labour. An example of a galvanised corrugated iron plant stage is exhibited by Messrs. Braby and Co. This is made in a substantial manner, but our impression is that an improvement would be effected if holes were provided for the passing off of any superfluous amount of water. Wirework is illustrated by examples from Mr. Joseph Groom, Kensington Square, London, who has some very good patterns of hanging baskets and other kinds, with a large ornamental wirework erection of light and elegant make. He also shows a good pattern for an aviary. The Stott Fertiliser, &c., Co., Lim., show several examples of their insecticide distributor, which has previously been favourably commented upon. With plenty of pressure of water, it is without doubt an efficacious means of killing insect pests. They also show the same kind of thing adapted to the top of an ordinary syringe. This is in many ways a most serviceable invention, and one that would frequently be found available where the other system was not so convenient. The exhibition will remain open until the 21st.

Royal Horticultural Society.—We are asked to state that the next meeting of the society will take place in the Drill Hall on Tuesday, March 10. Besides the usual novelties in the way of flowers, fruits, vegetables, Orchids, &c., an open competition will be held

for the silver medal offered by Messrs. Barr for the best collection of forced Daffodils. All varieties of Daffodils, with the exception of Polyanthus, may be entered for competition. There will also be a good collection of Snowdrops, and at 3 o'clock Mr. James Allen, of Park House, Shepton Mallet, and Mr. W. Boyd, of Melrose, N.B., will read papers on their culture, &c.

THE ROYAL HORTICULTURAL SOCIETY. TO THE EDITOR OF THE GARDEN.

SIR,—One of your contemporaries has lately suggested that the guinea fellowship did not quite realise my sanguine expectations. I should be sorry that my gardening friends should think this, as while I worked for it the contrary was the fact, and as most of them read your paper, I ask the favour of space for a few words on the subject. From the support I received in 1873-4 I felt sure that with the assistance of good friends I could bring in at least 500 Fellows in a year, so set to work. My first move brought in about 250, some £4 4s., some £2 2s., but the bulk £1 1s. Fellows, in about three months. I was just preparing move No. 2, an easier one, and calculated to bring in at least as many more, when the disturbance of the committees, especially of the floral committee, by the council, at the instance of a sub-committee consisting almost entirely of professionals, cut away the ground on which I had mainly based my arguments from under me, and I had no alternative but to retire from the council and committee and to stop the canvassing work. To justify the course I had taken I published the reasons for it (see GARDEN, Feb. 23, 1889, p. 163) enough, and only enough, for my purpose, as I did not wish more than necessary to interfere with the work of others who were trying by other methods, and with different arguments from those I used, to increase the number of Fellows. It is unfair to the guinea fellowships, to my good friends, and to myself to suggest that the "guineas," at the time I worked for them, were otherwise than a complete success. **GEORGE F. WILSON.**

THE GARDENERS' ORPHAN FUND.

The usual monthly meeting of the committee took place at the Horticultural Club, Hotel Windsor, on the 27th ult., Mr. William Marshall in the chair. The minutes of the last meeting having been read, the secretary reported a balance at the bank of £545 5s. 6d. A letter was read from Mr. H. J. Veitch, enclosing a cheque for £250, in memory of the late Mr. B. S. Williams, and as a part of the memorial fund; also one from Mr. Harry Williams, stating he had not yet been able to nominate the two children upon the fund which the committee had requested him to do. He was awaiting particulars of one or two of the applicants. A letter was read from Mr. A. Henderson, Thoresby Gardens, on behalf of a child that had lost both parents, stating that he was getting together a fund in the interest of the orphan, and that he had secured the sum of £13, and asking if by sending this sum the child could be placed upon the fund at once, he undertaking to collect more. The secretary was instructed to inform Mr. Henderson that the committee have no power under their rules to do this, and that the child must be elected upon the fund in the prescribed manner. The following special receipts were announced: Brighton and Hove Chrysanthemum Society, per Mr. Mark Longhurst, donation £5, and collected by Mr. W. G. Head at the Crystal Palace, £2 7s. 6d. The usual votes of thanks were passed. Mr. Fred Collyer, Rosemount Nursery, Ilkley, Yorkshire, was elected local secretary for Ilkley and district.

The Covent Garden fête was mentioned, and the secretary announced he had seen Mr. Stretfield, the Duke of Bedford's agent, and Mr. Asbee, and that an application for the use of the wholesale flower market for the purposes of the fête had been addressed to His Grace, who was unfortunately very unwell. Mr. Barron was instructed to make the necessary preliminary arrangements as usual, and convene a meeting of the committee if requisite. The following resolution was unanimously passed:—

The committee of the Gardeners' Orphan Fund desire to express the great regret with which they have

learned the deaths of Mr. E. R. Cutler, the secretary of the Gardeners' Royal Benevolent Institution, Mr. J. Dominy, of Chelsea, and Mr. Frank Casey, of Clapton, all well known in horticultural circles, and request their secretary to convey to the relatives of the deceased their condolence and sympathy.

As the usual meeting day in March falls on Good Friday, it was resolved that the next meeting of the committee be on Friday, the 20th inst. A vote of thanks to the chairman brought the proceedings to a close.

RAINFALL DURING 1890.

Month.	Total dep. h.	Greatest fall in 24 hours.		Number of days on which '01 or more fell.
		Inches.	Depth.	
January ...	4 52	52	18	30
February ...	1 05	20	20	15
March ...	3 14	95	15	23
April ...	1 34	24	25	17
May ...	2 06	45	3	22
June ...	3 24	41	25	24
July ...	2 95	50	29	25
August ...	3 04	60	22	25
September ...	3 34	76	21	21
October ...	2 19	50	15	21
November ...	6 54	1 11	6	28
December ...	1 82	56	8	15
	35 23			266

—J. M. WILSON, *Currygrane, Longford.*

Plants under trees.—Can any reader tell me the best thing to grow under a Cedar of Lebanon? I want ornamental shrubs if they would thrive, and British Ferns if they would do, with a few suitable stones placed among the Ferns. As it is near a summer-house I want it to look green, especially in summer. The position is quite shady, and Grass will not grow well; the drip in winter kills it. Has anyone had experience in growing British Ferns in a similar position, and would ornamental Ivies do well? The ground is full of roots and very dry in summer. —O. ORPET.

Fluted or corrugated glass.—I have been told that this glass prevents the sun from scorching or burning plants. I shall be glad to hear if this be the case.—R. C.

Dicksonia antarctica (Anon).—If the crown has rotted, you cannot expect any more fronds to appear.

BOOKS RECEIVED.

"Bulletin of Miscellaneous Information," No. 50, February, 1891. Royal Gardens, Kew.

"List of Seeds of Hardy Herbaceous Plants and of Trees and Shrubs." Royal Gardens, Kew.

"Consumption and other Chest Diseases," with Appendix by G. T. Congreve, Coombe Lodge, Rye Lane, Peckham. Of the author, and Elliot Stock, 62, Paternoster Row.

"The Visit of the Tenant Farmer Delegates to Canada in 1890." In three parts.

"The Agricultural Gazette of New South Wales." Vol. I., part 3.

"Familiar Trees." By G. S. Boulger, F.L.S., F.G.S., with coloured plates by H. J. Boot. Part I. Cassell and Co., London.

Names of plants.—(G. G.—1, Calanthe Regneri; 2, Odontoglossum Rossi majus; 3, Lycaste cruenta; 4, Oncidium incurvum.—W. B. M.—1, Cattleya Harrisoniana; 2, Cypripedium Boxalli, ordinary form; 3, Cologyna cristata Lemoniana.—D. M.—1, Lalia anceps Williamsi; 2, Cattleya Trianae, very fine form; 3, Odontoglossum triumphans, poor.—J. W. K.—It appears to be Rodriguezia laxiflora.—Marian Craig.—1, Asplenium formosum; 2, Cheilanthes viscosa; 3, Lycopodium cernuum; 4, Odontosoria tenuifolia; 5, Doryopteris palmata; 6, Lastrea hispida.—F. M.—1, Acacia dealbata; 2, A. armata.—C. J.—Dendrobium crassinode Barberianum.—B. B.—1, Attacia cristata; 2, Aphelandra Roezli.—G. Bailey.—An ordinary form of Cypripedium Spicerianum.—Sender.—1, Justicia lilacina; 2, Alonsoa incisistolia; 3, Chimonanthus fragrans; 4, Polyanthus Narcissus; 5, Hepatica triloba.

WOODS AND FORESTS.

SEASONABLE WORK.

ADVANTAGE should be taken of fine open weather to finish the planting of forest and ornamental trees, care being taken not to expose the roots for any length of time. In very dry weather it is a good plan to puddle the roots in a mixture of clay and water. Peat bog and stiff tenacious soil that retain excess of moisture seldom require this precaution unless in exceptional cases when the weather is very dry, and when the plants are kept in a dry state for several days in the course of transit. In the nursery the seeds of Birch and Scotch Elm may now be sown. The former should be sown on fresh peaty soil formed into beds about 4 feet wide. Sow broadcast and mix the seed and surface soil with a rake, afterwards beating the surface down with the back of a spade. The Elm should be sown on rich soil of a sandy nature. As the seeds of both kinds are sometimes deficient in vitality, they had better be sown rather thickly. The Elm should be covered with about half an inch of fine pulverised soil. Raising the Birch from seed in the nursery is, however, rather a precarious business at best, and I have been generally most successful when I sowed the seed broadcast on a piece of newly reclaimed peat bog. The seed requires no covering nor protection of any kind, as hares and rabbits never molest the plants, which when they attain a proper size can be lifted and planted into nursery rows. Rhododendrons may be raised in a similar way, with this difference, that I have found it an advantage to spread a top-dressing of well decomposed leaf-mould upon the surface of the bog before sowing the seed. I generally gather the seed-pods of the finer named sorts during the month of March, and sow them pods and all on the surface of the newly-prepared bog in the month of April. The heat of the sun and the April showers gradually open the pods and allow the seeds to be scattered over the surface. When the plants begin to make their appearance above ground they should be shaded with evergreen branches to prevent the heat of the sun and late spring frosts from injuring them. In this way I have raised vast numbers of fine plants, and as they exhibited almost an endless variety of shape, flower, and foliage, they were not only very interesting, but likewise very valuable. When the plants attain a few inches in height the largest ones should be weeded out in the month of April and planted in nursery lines to prepare them for their final removal to the forest or elsewhere. When all danger of spring frosts is past, the branches had better be removed to allow the seedlings the full benefit of the air. In fine open weather the removal and transplanting of nursery stock should be attended to. Trench, dig, and otherwise prepare vacant ground for seed beds next month, and such plots as have become exhausted by tree culture should be renewed by taking a crop of Turnips or Potatoes. Well-rotted farmyard manure is the best to use for this purpose, and poor, exhausted ground should be allowed from 35 tons to 40 tons per acre. Examine young trees, and such as are infested with fungus or insect pests had better be dug up by the roots and burned. The grafting of forest and ornamental trees usually increased by this mode should be attended to about the end of the month, according to the weather and species of tree.

In the forest department insect pests are now on the move, so that every means should be taken to keep them within bounds and prevent

them from breeding. Pine forests should therefore be examined at this season, and all sickly trees cut and removed to prevent the Pine beetle and Pine weevil from using them for breeding. Should it not be convenient to remove the trees at once, they should at any rate be dragged to the roads and have their bark peeled off, so as to prevent the beetle from excavating its burrows between the wood and the bark to deposit its eggs. The weevil is more apt to deposit its eggs in the roots and stumps of recently felled trees, so that under such circumstances I have occasionally found it necessary to scarify the surface roots and stumps to prevent it from using them. Unlike the beetle, the weevil generally lays its eggs in a group at the pockets or angles formed at the junction of the surface roots and stem. I have likewise found the nests of the weevils as well as those of the beetles in recently felled Pine trees lying upon the ground, which explains the necessity of removing the bark. Elm trees that have matured their growth and are showing marks of decline are apt to suffer from the attacks of the Elm beetle (*Scolytus destructor*), and in order to keep down their numbers as far as possible the infested trees had better be felled and the bark removed at once and burned. As the young progeny reach the perfect state in spring and early summer, no time should be lost in carrying out this work. In the deer forest collect all useless rubbish and dead branches to open spaces here and there and burn them. The ashes should then be spread out and the spots sown with a mixture of hardy Grass seeds.

J. B. WEBSTER.

TREES FOR SHELTER AND BLINDS.

DURING the last decade a considerable impetus has been given to tree planting in and near large towns. For the most part the Lime is the tree selected for planting by the sides of new roads and to form blinds and shelters to the villa gardens. This is doubtless owing in a great measure to its rapid growth and its uniform appearance during growth, while it may be cut or pruned back when it gets too large without sustaining any injury. One of the principal requirements for a suburban tree is rapid growth. People who build and plant, only now seem to be realising the fact that life is short, and desire to crowd in as much of the pleasures of life into that brief space as possible; therefore in planting trees to shelter from the wind and dust or to prevent being overlooked, the first thing considered is rapid growth with ample foliage. One of the trees that will meet this requirement, but which is not much used at present, is the purple Sycamore. It grows quickly, even more so than the Lime or Elm, has noble purple-tinted foliage, and, if necessary, it may be pruned if it gets too large, while its roots will not impoverish the surrounding land in the same way as those of the Huntingdon Elm. This otherwise handsome tree is a dreadful robber to have standing at one's front gate or in the garden. Nothing but ruin can come to plants and flowers where the Huntingdon or any fast-growing Elm is planted near the garden. The London Plane is a splendid avenue or garden tree, but it is not so much planted as its merits deserve, and its injuries to gardens are comparatively light. The silver-barked Birch is, to my mind, far the handsomest tree to plant in a row or in a group in front of one's residence in the suburbs. I should plant rather thickly, and employ strong trees specially prepared for the work, say from 10 feet to 14 feet high. They are cheaper than Planes or Limes or even Elms, and if planted rather closely together at starting, they break the view sufficiently when the foliage is on, and even when leafless the thicket of dark twigs forms an agreeable screen to any dwelling near a public road. The planter of Birches has this advantage, that the trees will not require the man with the ladder and saw to hack off the branches. The Fern-leaved Birch is

a graceful tree for planting in conspicuous situations, and the silver-leaved Poplar is desirable for variety.

E. H.

TREES AND MOISTURE.

SPEAKING in general terms, trees require their roots to be kept dry and at an equable temperature, their boles moist and secluded, and their tops and branches well exposed to light and air. In the natural forest these ends are accomplished in a wonderful and perfect degree; and we have only to observe what Nature does for herself, to know how and in what way we can assist her. In the first place, and as a primary step in planting, the plants should be put into dry and warm soil, and never into that which is cold, wet, or air-tight; for while it is true we have forest trees, as Alder and Willow, that grow in wet or swampy grounds, yet even they thrive better under other conditions; and at best all trees grown in wet ground are short-lived, and usually unsound in constitution.

Drainage, it will at once be seen, is often found an essential preliminary to planting, both because it allows the ground to consolidate, and draws off the water that air may enter, without which no tree will flourish. Draining for trees, however, is a very different operation from that for agriculture. In the forests drains should seldom or never be more than 20 inches deep, while for farming purposes they require to be 3 feet or 4 feet deep. The objects to be attained are quite different in almost every respect. It may seem strange that drainage should be strongly recommended for trees, when at the same time it is urged that moisture is so necessary for their growth and perfect development. Trees in their early growth require a dry soil and abundance of light and air, but these, in the advanced and mature state of the wood and forest, give place to other conditions. This is not so strange, after all, as may at first sight appear; for in the case of young animals it is well known that what to them is food and nourishment in their infantile state is unsuitable and sometimes even hurtful in their maturer and riper years. Trees, therefore, as much require shade and moisture in their advanced and older stages of growth as they do sun and heat in their early existence. It is the branches, spray, and foliage of a tree that require air and sunshine, whether young, middle-aged, or old. The boles, limbs, and roots, on the other hand, require shade and moisture, and any operation of forestry, however well intended, that alters or reverses this order of things inflicts an injury upon, instead of benefits, the tree or forest.

The common or Silver Birch.—I quite agree with all Mr. Webster says (p. 156) in favour of the common Birch as an ornamental tree for planting in conspicuous positions, as it is one of the most striking objects anyone can have after it attains size and age, a condition we have many of them here in. At all seasons the Birch commands admiration, but none more so perhaps than when it is leafless, as then it shows off the white bark and graceful habit to the greatest advantage. The finest we have is standing on high ground, quite at the top of a hill in the park, well away from any other trees, and it is a grand object, branching out as it does from a big rugged trunk, while from its long boughs the spray-like twiglets depend in the most graceful manner, waving to and fro in the wind. The soil in which this Birch is growing is a deep loose sand, very likely containing water at a fair depth, as at the foot of the hill there is a small course running, and therefore the tree is well placed as to moisture. We have others standing in different parts of the grounds, and most of these have large bunched growths on several of the branches which at a little distance off look like huge nests. I think these knotty excrescences are characteristic of the Birch, as I have often seen such before.—J. SHEPPARD, Woolverstone Park.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE." —*Shakespeare*.

ORCHARD AND FRUIT GARDEN.

NOTES ON RASPBERRIES.

It is usually advised that fresh plantations of these be made in the autumn, but if this is the best time to carry out such operations it does not follow success will be denied to similar work completed in the spring. As a matter of fact, Raspberries may be transplanted at any time during March and the early part of April, and if the work is properly done there ought to be few or no failures. Much depends upon the state of the ground and the condition of the young canes. Some judgment must also be used in the selection of the site for the plantation. Raspberries will not always succeed where Gooseberries and Currants do well, and I have been obliged to devote a much better quarter to them than the two latter are successfully grown in. Neither a very hot and dry position nor the exactly opposite suits Raspberries, but given the choice of either extreme I should feel disposed to select the former, relying upon good culture to grow them fairly well; whereas it is a very difficult matter to succeed with them on very cold clayey ground. For a time they will grow and fruit satisfactorily on the latter, but soon become sickly and unprofitable. During the winter they suffer from too much moisture, while during the summer the same site is liable to crack badly and the plants actually suffer for want of moisture. It is the "happy medium" that Raspberries delight in, very light land being rendered more retentive of moisture and fertility by the addition of a dressing of marl or clayey loam, and heavy soils made light and more free working by good cultivation, commenced if possible some years prior to planting, and also by freely mixing with it burnt garden refuse, burnt clay, old mortar rubbish, ashes, stable manure, road trimmings, and such like. Bastard trenching would doubtless improve many sites, but is by no means absolutely necessary. Raspberries are more surface-rooting than otherwise, and this good habit should be fostered by keeping the best of the soil and other substances used near the surface. A breadth of ground now in excellent condition for Potatoes or seed sowing would most probably suit Raspberries well, and might be planted at once, but late planting is not to be commended in all cases where the ground is in a rough, lumpy state.

Nor do I advise planting canes only just detached from the old stools, but any that are in nursery rows, or have for a few weeks or months been carefully bedded in, would move well, even after they have commenced top-growth. These would most probably be furnished at the roots with one or two newly-formed suckers, which ought to be taken good care of, everything, in fact, depending on this. Crowding the rows and the plants in the rows is a very common error, the plants simply robbing and smothering each other. If it is decided to eventually train the canes in continuous rows and to either wires or rails secured to tall and strong uprights, then ought the rows to be not less than 5 feet apart, a distance of not less than 15 inches dividing them in the rows. Quite recently I was consulted as to what ought to be done in the case of a very crowded plantation of Raspberries. The rows are only

42 inches apart, the canes were strong and thick, and secured to fences 4 feet high. I could not prevail upon the owner to destroy every other row, but the difficulty is obviated somewhat by cutting down every second row of canes to a height of 30 inches, and by greatly reducing the number of all. They will yet be much too crowded when in full leaf, but they will not smother each other half so badly as before. The good old plan of arranging groups of three young canes 4 feet or rather more apart each way, eventually placing one tall strong stake to each, answers well, especially in small private gardens, but those who adopt it too often bundle too many canes together. From six to eight canes are ample for each stake, and even these ought to be shortened to different heights, some being left 5 feet, some 42 inches, and the rest 2 feet in length. In this manner there will be strong fruiting shoots from the top to the bottom of the stakes, instead of a thicket near the top only. Where the fence plan of supporting the fruiting canes is adopted, the canes ought also to be freely thinned out where at all crowded and shortened to different lengths, capital fruit being frequently produced by well-shortened canes almost close to the ground—ours last season actually drooping till they touched the mulching material.

Market growers rarely go to the expense and trouble of staking their fruiting canes, nor is it necessary in their case, as their breadths of Raspberries rarely grow so rankly as do those in private gardens. There is no reason, however, why their system should not be adopted for the first three years or as long as the Raspberries refrain from growing very vigorously. Were we, however, to persevere with the cutting-down, stake-dispensing process, an excessive and rank growth of young suckers would quickly smother the fruiting canes, and the plan fail accordingly. In very many instances gardeners, both professional and amateur, err in being too chary of using the knife on young plantations, being in too great a hurry to obtain a full crop of fruit. Young canes, whether planted last autumn or only recently, must not be left to fruit next summer, or the consequences will be a failure to produce suckers, no suckers meaning no fruit in the following summer, and probably a complete failure of the plantation. All ought at once to be cut down to within 6 inches of the ground, and this will be followed by a moderately strong growth of suckers. The latter during the following winter or early in March should be shortened to a length of about 30 inches, this causing a strong sucker growth without detriment to the crop of fruit. Unless extra strong or 5 feet or thereabouts in length, the canes may be thinned out and freely shortened to a length of 3 feet, no stakes or other supports being needed, and yet grand crops be obtained.

Raspberries, as before stated, being naturally given to surface rooting, the root-fibres being very strong and plentiful, it is a most unwise proceeding to dig among or near them, especially after they are well established. Nothing could well be more injurious to them. There is no good reason why two rows of early Potatoes should not be grown in the 5-foot spaces between the rows during the first summer following upon planting, and a single row of Potatoes or some other quick, yet not rank-growing vegetable during the second season, but after that no cropping between is desirable or indeed possible. After the thinning out and pruning have been completed, it is advisable to stir the surface of the ground with a flat hoe and then mulch freely with good manure, that obtained from a cowyard or mixed farmyard answering well for

light soils, as being much the coolest, but good horse stable manure is by far the best for medium and heavy soils. A surfacing of either guano or superphosphate of lime and bone-meal, or all in mixture, might well be given to established plantations just in advance of mulching, while those who have a good supply of liquid manure from a mixed farmyard might freely apply this with advantage during the winter, and more diluted with water in showery weather in April and May.

All things considered, the preference ought to be given by those about to plant to Carter's Prolific, this sturdy growing variety being very productive, while the fruits are extra fine and of the best quality. This succeeds well with me, and is one of the best for growing, either with or without supports. A local sort called the Beehive grows to a great height, but is very profitable, the fruit being large and good. Prince of Wales I can also recommend. For autumn fruiting October Red will be found serviceable, but in order to have good crops the ripened canes must be cut down to within 6 inches of the ground, this causing a strong early growth of suckers. If the latter are freely thinned out, those reserved will crop nearly throughout their entire length, the fruit ripening in autumn and being of fairly good quality. Baumforth's Seedling is said to be addicted to bearing fruit in a similar manner, that is to say, on the current year's growths, and I have prepared and cut down a long row of canes specially to test the truth of this statement. If it can be induced to fruit freely in the autumn, it will supersede October Red, Baumforth's Seedling producing much the finer fruit of the two. W. IGGULDEN.

Wired! Peach walls.—The destruction of the shoots of Peaches through their contact with the wires to which they are trained, as instanced by "A. D." (p. 159), has frequently been discussed by fruit growers. The theory advanced by "A. D." as to the destruction being brought about through the cold-conducting properties of the wire is evidently incorrect, as though in some places where walls are wired those shoots that touch the wires are more or less liable to destruction, in other places where all the conditions are apparently similar no injury is done. Of this I have had ample proof. In one garden I had on a south wall some fourteen or fifteen Peach and Nectarine trees which were in no way affected by the wires. In another garden with a similar aspect, where the wall was wired to all appearance similarly to the first named, the shoots suffered much. To still further disprove the cold theory, there is the evidence afforded by similar injury done to the shoots of other kinds of plants when trained to wires in greenhouses where frost is altogether excluded. I have had the hard, mature shoots of such things as *Lapagerias* killed by the wires of which the trellis they were trained to was composed, whilst in other cases with trellises to all appearance made of wire similar, but obtained from a different source, no injury has been done. The same thing has occurred with *Dipladenias* and other plants of a like character in warm stoves. This, I think, is sufficient to upset the doctrine of the cold-conducting powers of the wire causing the mischief. My own convictions are that the injury is traceable either to the character of the iron of which the wire is composed or to the metal with which it is coated, as for the purposes in question it is galvanised wire that is almost exclusively used. In the cases where injury has been done, a coat of paint on the wire has with me always been sufficient to prevent the mischief, either as regards Peaches or stove and greenhouse plants.—T. B.

Birds and fruit buds.—Where sparrows and bullfinches destroy the buds on the fruit trees, now is a good time to put on a dressing that will protect them from the birds and also benefit the trees by clearing off

all Moss and Lichen. I have tried several mixtures, but the one I find the best is some fresh slaked lime passed through a very fine sieve, adding as much hot water to it as that it will pass through the syringe or garden engine. To every sixty gallons of limewash add half a pound of melted tallow candles. If this mixture is put on the trees hot it will pass through the engine without clogging, and when dry neither rain nor frost will remove it.—T. T.

GRAFTING EFFECTS OF STOCK UPON SCION.

My remarks on page 111 being greatly at variance with what has long passed as "acknowledged facts among fruit growers," it was not to be expected they would pass unchallenged by those who profess to be experts upon matters pertaining to fruit culture. Mere generalities, however, do not amount to arguments, and certainly will not disprove my assertions to the effect that the stock does not affect either the earliness, lateness, flavour, or keeping qualities of the fruit produced by the scion. I have read and re-read the remarks by "W. L. C." on page 195, but fail to discover more than one fact in support of his line of argument. Possibilities and probabilities there are plentiful enough, but these are anything but convincing. Will he positively assert that grafting Pears Glou Morceau, Beurré Rance, and Doyenné du Comice on the Jargonelle would improve their flavour and impair their keeping qualities? Merely supposing such would be the case will not do, and it rests with him to demonstrate the correctness of his theory, and not with me. Supposing he is right and I am wrong, to what does he attribute the improvement? Moreover, does it not follow that if a superior stock is capable of improving the quality of the fruit borne by the scion, the converse should also hold good? Then, as to the selection of suitable stocks for certain kinds and varieties of fruit, and the superior judgment exercised presumably by our nurserymen, I fail to see where this comes in. If grafting on the wild Pear and Quince stocks (supposing the theory propounded by "W. L. C." is correct) is not haphazard practice, I should like to know what is. What the effect of the Jargonelle or other varieties as a stock would be I am unable to state, but what results from grafting the Jargonelle upon other varieties I have had abundant opportunities of noting. It is a favourite variety here, and I have five wall trees and one standard of it. If the stock affects the flavour, then ought those grafted respectively on the Autumn Bergamot and on an old-fashioned, second-rate stewing Pear to be of poor quality; yet the very opposite is the case, some of our best fruits being taken from the latter, while no fault could possibly be found with the fruit gathered from the trees grafted on the Bergamot. In our case, the difference in the period of ripening and in a less degree the quality of the fruit is determined by the locality of the tree and its state of health, the stock having nothing at all to do with it. Once more let me ask, if the stock can affect the flavour, how comes it that the greater part of our Apple trees are worked on the uneatable Crab or the poor flavourless Paradise Apple, and what could possibly be worse than wild Pears? The latter rank among the most unwholesome fruit grown in this country, and the Quince in an uncooked state is but little better. Then as regards Grapes, how can a stock affect the quality of the fruit produced by the scion and yet not alter its period of ripening? Why ought I to have reasonably expected the Muscat of Alexandria grafted on the Black Hamburg stock to behave so strangely? This experiment of mine has been taken note of by a considerable number of practical gardeners, but not one out of the number could satisfactorily explain to me why the stock failed to start the Muscat at the same time as the Hamburg portion of the Vine did. Doubtless a very vigorous stock would affect the character of the graft to an injurious extent, over-luxuriance being the natural outcome. Check grossness and matters would soon have righted themselves. The Strawberry Grape, from what little I have seen of it, is a very strong grower, this characteristic being observable in Ferdinand de Lesseps and Golden Queen, both of which have its blood in their veins. It would be interest-

ing to learn if the Strawberry stock communicated its peculiar aroma and flavour to the Black Hamburg berries. I should be very much surprised to hear that it did. I have never attempted grafting at random, or in the way "W. L. C." appears to have done, but have stuck principally to his favourite stocks—the Black Hamburg and Muscat of Alexandria. At one time I had no less than sixteen rods in full bearing in different houses, all worked on the two stocks named, and this I consider was a fairly extensive and conclusive experiment. I found that Mrs. Pince's Muscat on the Hamburg did not set or colour any better than on its own roots, the flavour not varying in the least. Madresfield Court proves just as liable to crack on either the Muscat or Hamburg stocks, and Lady Downe's to scald, no improvement being perceptible in any way. There is just as much difficulty experienced in setting Alnwick Seedling, and no improvement in either its quality or keeping properties by grafting it on the Hamburg, while Gros Colman cannot be improved by similar treatment. Gros Guillaume and to a certain extent Gros Maroc are better on the Hamburg stock than on their own roots, the former checking their tendency to grossness, and thereby rendering them more productive. Even in these cases it is necessary to either leave long spurs at pruning time or else to adopt the long rod system of pruning and training, or otherwise the bunches are apt to be small. If the stocks were really capable of influencing the quality of the fruit produced by the scion, then ought "W. L. C." and private gardeners generally to put this discovery to practical use. According to this theory, no second-rate yet showy Grape, and popular accordingly, ought to be on its own roots, but should have Muscat or Hamburg flavour communicated to it by means of grafting. I maintain, however, that the leaves of a tree and Vine and the state of the border are the principal factors in the matter, the roots merely collecting crude sap and transmitting this to the foliage to elaborate and redistribute. If grafting changed the character of the foliage, I should then expect an alteration in the other characteristics of the scion. But it does nothing of the sort, and I fail to realise how the roots and a very short length of stem can communicate either very good or very bad effects to the scion beyond what accompanies a more vigorous growth or the contrary.

I. M. H.

Peaches under ribbed glass.—Recently I saw several Peach and Nectarine trees flowering remarkably well on the roof of a house glazed with rolled glass. It is not the kind of glass any experienced fruit grower would recommend for either a Peach house or viney, but once it is used the best has to be made of the circumstance. The trees just alluded to were comparatively young and vigorous, or of an age when most given to bud-shedding, but hitherto no difficulty has been experienced in setting good crops, the fruit usually being large, fairly well coloured and of good quality when ripe. Being close to the roof, the trees get a good share of light and heat, and this probably has much to do with the success attending their culture. Since writing the preceding I have noticed the inquiry concerning fluted or corrugated glass (page 229), this being another designation for the rough rolled of ribbed glass just alluded to. Three of the plant houses under my charge are glazed with this material, but I cannot say I am at all enamoured of it. It is not sufficiently clear during the winter months, when most plants want all the light and sunshine possible, while during the hottest part of the year it is scarcely dense enough to afford the shade requisite for the well-being of a variety of pot plants. Burning may not actually take place under ribbed glass, especially if the ventilation is good, but I find it necessary to use either blinds or else to put on some kind of permanent shading during the hottest weather—Ferns, Palms, Eucharises and other shade-loving plants being the most benefited by this. Roses trained very near to this glass are nearly as much liable to red spider as they are under ordinary clear glass, and a number of other climbers are equally liable to suffer from

the effects of too much heat and sunshine unless shade is afforded them. On the whole, therefore, I should advise "R. C." to give the preference to 21-oz. English sheet glass, and to make provision for blinds on rollers. For high conservatories, however, the ribbed glass is the best, and it also answers well for corridors and other places that cannot well be shaded.—I. M. H.

PROTECTING THE BLOOM OF PEACHES AND NECTARINES.

THE long spell of frosty weather combined with comparatively little sun has this season kept the bloom of Peaches and Nectarines on open walls later than usual. This condition, needless to say, adds to the prospect of the bloom being less likely to suffer from frost. There is often a marked difference in the amount of protection which is sufficient to secure a crop in places not more than a few miles apart, a difference so remarkable as to be accountable for the different ideas which gardeners entertain as to the use of protection. In some places in the south of England where the position is high and dry, so as to be little subject to frost combined with a damp atmosphere, that makes such havoc with the bloom, where these conditions are reversed the bloom seldom suffers to an extent that prevents its setting sufficiently for a crop. Not a mile from where I write—in the northern suburb of London—there is a large old-fashioned garden where a more than usual number of Peaches and Nectarines is grown. The walls are not more than 10 feet or 11 feet high, and they are devoid of the usual coping that projects a little. No shading or protection of any kind is ever used. Yet for the twenty-one years that I have resided in this locality the trees have not failed to produce a sufficient crop in any season; even in 1879, after the wet sunless summer, there was plenty of fruit, though the late kinds were deficient in quality. But, except in the comparatively few favoured spots of this description, there is sufficient evidence that if the trees are not protected, the chances of satisfactory crops in many seasons are small.

The question of the means employed to preserve the bloom is one that requires to be looked at from several points of view. In this, as in other matters connected with gardening, the expense of the method adopted needs to be kept in view. The fixed copings of glass and wood, about 2 feet wide, are advocated by some, but they cost too much in proportion to any gain that I have ever seen from their use. So far as my own experience goes, the bloom is just as safe with a coping of boards 12 inches wide, with nets or blinds hung from it. In places in the southern parts of England, not more than ordinarily subject to spring frost, double herring nets are usually sufficient. In less favoured localities it is better to use canvas blinds, and the lower they come down the more effectual they are. I know places that are somewhat low and damp where outside Peaches seldom fail, yet it is only by the use of blinds that come right down to the ground and are fixed to the beads at the top quite tight, so as to allow as little movement of the air enclosed as possible. The coping boards should always be movable, and fixed in a way that they can be readily taken down as soon as the danger from frost is over. The greatest objection to fixed glass copings next to their cost is that they do harm all through the summer by keeping the rain from reaching the trees; and, in addition, they tend to bring the bloom on at the tops of the trees sooner than is desirable, even where nailing or tying is deferred as long as it can be.

But, after all, copings, blinds, and nets are only part of the means that go to secure satisfactory crops of Peaches on open walls with anything like the regularity that they can be had when all matters connected with their cultivation receive due attention. Thin crops, or total failures, are often charged to the effects of frost when other causes are at the bottom of the failures. Since glass erections have become so much cheaper, and consequently so much more numerous than they were within my recollection, outdoor Peaches and

Nectarines in many gardens do not receive anything like the attention they used to. The retention of too much wood through the summer, frequently to the extent of double the quantity that should be allowed, and non-attention to the timely destruction of insect pests, aphides, and red spider cause the loss of many a crop, though the trees may carry enough bloom to satisfy those who look at matters from a superficial point of view. It often happens that trees that are mismanaged in one or both of the ways indicated set abundance of fruit, but it fails to go on. So far as overcrowding the shoots is concerned, there is not an atom of reason in retaining more through the summer on trees on open walls than there is on trees that are grown in houses. Where the summer treatment is what it should be there is little use for the knife in the spring. My own practice has always been to use the garden engine or syringe as much and as freely on outside trees as is necessary for those in houses. Where this course is followed with a thorough washing with soapy water with a little tobacco juice in it just before the buds show colour, insects seldom give very much trouble, though it rarely happens that aphides do not make their appearance at some time or other during the season. When they do come no quarter should be given; a few days' respite adds much to the work of destruction.

T. B.

NOTES OF THE WEEK.

Violets Marie Louise and Comte de Brazza.—Mr. Harris, The Gardens, Cross Oak, Berkhamsted, sends us some remarkably fine flowers of the above. The Marie Louise were as large as any we have seen, Comte de Brazza being also large and very clear, showing that in order to have these favourites they must be grown away from the effects of London fog and smoke.

Carnation Souvenir de la Malmaison.—This, in THE GARDEN, March 7 (p. 221), is said not to be hardy. I enclose you a plant taken from the open border. This was layered in the autumn from a plant turned out of a pot, and allowed to remain without the slightest protection. Out of 150 plants I have not lost one. When this old favourite can, without apparent injury, pass through such a severe winter in a satisfactory condition, it can, I think, with safety be classed as a hardy Carnation.—C. H. H., *Birmingham*.

Acanthuses.—Although the foliage of these generally suffers and is killed in winter, I do not think it is usual for the roots to suffer; but recently I went to take up two batches of plants, one of *A. latifolius* and the other of *A. spinosus*, which had been raised from seed, and found that every one had perished. The seed was sown upon a sunny border in light, well-drained soil, and the plants were strong, those of one batch being one year old and the others two years old. I examined two established plants, which were planted at the foot of a sheltered terrace wall three years ago, and I found these had perished also.—A. H.

Flowers from Belgrove, Queenstown.—Mr. Gumbleton brings us from the south of Ireland some very beautiful harbingers of spring. Among them we note the following: Tulip Queen of the Netherlands, a variety not yet in commerce. Bulbs of this have been lent him by Van Waveren Bros. The colour of the flower is a delicate blush. Iris Rosenbachiana, two varieties, one pale and the other dark; the pale variety is specially beautiful. Iris orchoides splendens, bearing bright yellow flowers with small black spot, is very effective. Mr. Gumbleton also brings us Daffodils Crom-a-Boo, the Croom-frilled Daffodil, very distinct and beautiful, and Primrose Dame, the flowers of which are exquisitely sweet-scented. Tecophylaea cyanococcus, with the richest blue flowers we have seen, was also included in this beautiful gathering.

Notes from Fota.—The month of February was remarkable here for its dryness and for the little frost we had. The total rainfall for the month was .86. The mean temperature was 44.6°. The most frost we had was 3°, and total of frost for month was 6°. The result of the mildness of the weather was that many tender trees and shrubs were in full flower. Rhododendron argenteum, with its lovely large heads of waxy-white flowers, formed a pleasing feature at such an early season. The

Acacia dealbata was also in full beauty, a pyramid of gold about 30 feet high. Parrotia persica, a very ornamental deciduous tree with dark red small flowers, was in bloom near the Acacia, the two colours making a very pretty picture. Numerous other tender shrubs, as Hakeas, Azara microphylla, &c., were also in bloom, thus showing how very mild the season has been here. Peach and Apricot trees on open walls have been in full flower for weeks. Gooseberry bushes are showing fruit. Other fruit trees are just ready to burst their flower-buds, which are very numerous this season. I fear many of these will be destroyed by the harsh east winds and frost, which we too often get in the month of March.—W. O., *Fota*.

Davallia pallida (Mooreana).—"W. G." in his note says that cultivators need not be afraid of the poisonous effect from handling this Fern, as he when working among plants has never suffered. It may be quite true that he has not. We all know that some are much less susceptible to the sting of various plants, including the common Stinging Nettle. I think we have had plenty of evidence that the Fern in question does cause considerable irritation to some. Only a few days ago one of our men who had been working among plants of this Fern spoke of the irritating sensation caused through rubbing his face with his hand.—F. H.

Galanthus nivalis poculiformis.—"K." in THE GARDEN of last week falls into the usual error in stating that this curious Snowdrop was raised at Dunrobin. It is simply an erratic form that has been found more than once. Judging, too, from the number of these in a clump that I could point out, and where they are growing wild amongst thousands of the typical plant, I would say that poculiformis was in existence in Cambria long before it was known at Dunrobin. The Welsh form is a very superior one, being pure white and of stout growth, while the Dunrobin plant is of very weakly growth and blotched with yellow, or, in other words, the green markings are of sickly yellow.—A. D. WEBSTER.

The frost and the Roses.—The frost seems to have dealt more hardly with our good friend Mr. D. T. Fish in the matter of Roses than with most of us, as here and in the gardens of a well-known grower near by I have not seen any injured, except some of the climbing kinds planted just before the hard weather set in. These are all placed against iron standards, to which they are tied, and I am inclined to think that their contact with the cold metal has had something to do in causing their death, as some really appear to be killed. I certainly did not make a close examination of the Roses referred to, but in going round with his gardener and looking at the Teas, we both considered the whole of them safe. Many are on standards, and the wood on the heads of them looked hard and ripe and without any discolouration, but all had a little covering or protection of hay among their branches, where it is made secure by a piece of matting run round. Dwarfs do not appear to have suffered at all, and their immunity I attribute to the snow and the exceeding stillness of the air, for until this month set in we have not had wind for over three months. Owing to the stillness, dense fogs have prevailed. As to Roses, we shall all soon be able to reckon upon our losses, for the living will be quickly on the move now, and I hope Mr. Fish may find more among his than he seems to expect.—J. SHEPARD.

Rhododendron scabrifolium.—Of the portions of the globe which as yet remain untraversed by the professional plant collector, Western China is the one, probably, which promises most to the horticulturist in the way of new and useful material. At present its flora is practically unknown to the European gardener, although, through the labours of Dr. Henry and the French missionary Delavay, a great many additions have been made to herbaria, and a few promising species have also been raised from seed. Rhododendrons appear to be represented in large numbers in this region, giving the genus a scope which far surpasses what botanists had previously estimated. The Abbé Delavay has sent specimens or seeds of thirty-six

species to Paris, no less than thirty-four of which are new. Most of these have been discovered on the mountains of Yunnan. The first to flower in Europe has been *R. scabrifolium*, which bloomed at Kew last year, and of which a figure appears in the February number of the *Botanical Magazine*. It is a plant of slender growth, remarkable for the hairiness of its stem and leaves; the flowers, produced from a cluster of buds in the axils of the terminal leaves, each measure from 1 inch to 1½ inches across. The petals, which are five in number and oblong, are spread out so much as to make the flower nearly flat; they are white, flushed with pink. Regarded from the horticultural standpoint, it cannot be said to promise much, although it is possible when the plants get larger and stronger it will show an improvement. It is a native of the mountains above Lankong, where it grows at an altitude of 8000 feet. A small plant is in flower at Kew.

Galanthus Fosteri.—Till now the general opinion here is not in favour of this plant. It was exhibited in flower on February 14 last at the meeting of the Dutch Horticultural and Botanical Society at Amsterdam by the firm of E. H. Krelage and Son. The floral committee made no award, but requested to see it again. At the same meeting several other Snowdrops were shown by the same firm. *Galanthus nivalis* var. *poculiformis* received a second-class certificate, and votes of thanks were given to *Galanthus nivalis* var. *lutescens* and *Galanthus nivalis* var. *umbricus*. The last variety was shown mixed with *Chionodoxa Lucilae*.—J. H. K., *Haarlem*.

The Snowdrops which were dealt with at the Drill Hall last Tuesday included all or nearly all of the forms now in cultivation. The forms of Snowdrop have increased considerably within the last few years, and besides the many additions in wild forms we have a whole host of fine varieties raised in the garden, and, as a rule, a considerable advance on the type. The tall robust forms of the old *G. plicatus* are a great advance on the type; they are not only stronger and bear larger flowers, but they have a better constitution, and are far more amenable to ordinary cultivation. The form belonging to the secretary of the R. H. S. and described and figured in these pages as *globosus* is a beauty, and although one must call it a variety of *Elwesi*, it is very distinct, with a much stronger constitution and often producing two globose flowers on a stem instead of the usual one of *G. Elwesi*.

Anemone blanda.—The various shades of colour from deep blue to white just added to *A. blanda* will probably in the near future give us no little trouble to separate from the also variable *A. apennina*. Before this late introduction we were always sure of *A. blanda* by its deeper colour and fewer petals, which were broad and blunt. The other day we picked a flower at random; the petals were as numerous as in a dried flower we had beside us of *A. apennina*; they were also narrower and somewhat pointed instead of being blunt, as is usual. If, however, *A. blanda* continues to flower a month or six weeks earlier, this will be a sufficient distinction not only to retain it in the collection, but also to distinguish it by a separate specific name. The imported tubers, which appeared quite dried up, are growing vigorously and flowering freely.

Coreopsis grandiflora.—Those in search of something fresh, but good for the ensuing year in the hardy plant way should make a note of the above of which both plants and seed are obtainable. It is not exactly a new plant, although it will be new to our gardens, as it was introduced many years ago, but afterwards lost. Both the annual and perennial kinds of *Coreopsis* have long been considered as valuable garden plants for effect or for cutting, and of the hardy herbaceous section *C. lanceolata* has been by far the best and a most beautiful flower in its finer forms. *C. grandiflora* is even better, and a mass of it in Mr. Thompson's garden at Ipswich was very conspicuous for many weeks last year and growing as it was in conjunction with several other kinds, its superiority was the more plainly apparent. The flowers are of a

bright yellow colour, and those which first open are as much as 3 inches across. They diminish in size as the season advances, but chiefly owing to the formation of seed-pods and seed. These, therefore, might with advantage be kept picked off. The flowers are borne upon stalks from 12 inches to 15 inches in length, so that they are most useful and effective for cutting, whilst as a hardy perennial for massing in beds and borders it must soon take a high place. Although in form and colour the blooms resemble those of the older *C. lanceolata* they have much greater size, whilst the habit of growth and size and shape of leaf are quite distinct. It might be well to warn intending purchasers that seed, if not plants, of an inferior *Coreopsis* is being distributed under the name of *C. grandiflora*, but which is really a kind named *C. auriculata*, of a leafy, bushy, variable habit of growth, and producing numerous small flowers. I believe the mistake originated in America. In any case the true *Coreopsis grandiflora* is that of Nuttall.—A. H.

The yellow Snowdrops, of which, fortunately, there are only two, seem to be very difficult to manage. I have tried to grow the better known *G. lutescens*, but with poor success. We are told, however, that it is quite different with the new *flavescens*, raised or found by Mr. Boyd, of Melrose. It has a far more robust constitution, the flowers are also larger, and the yellow is much better. To Snowdrop fanciers this will be a great acquisition, as a yellow form that will grow and flower as freely as *G. nivalis* will indeed be valuable. *G. virescens* is a curiosity, and the same may be said of *G. Sharlocki*. They are of no use as garden plants.—K.

Narcissus variformis, or nobilis, under which name it was distributed by Mr. Maw, who collected many forms on the Pyrenees, is becoming highly interesting. From one batch of imported bulbs we have seen some of the most distinct forms of garden Daffodils, one notably the very picture of the Vicar of Lulworth, and another a very close ally of what we grow as *N. princeps*. Nature has evidently, and in her own way, been doing exactly what we have been doing in gardens, with the difference that we have more or less destroyed our links and only kept the well marked forms, while Nature gives us all the links between these forms apparently just as they have occurred. It will be very interesting to watch this and further developments as the imported forms come into flower.

Hepatica triloba var. Barlowi.—In reply to the question of "A. D." on page 221, I may say that the *Hepatica* he mentions with rich purple flowers is probably the variety known as *H. Barlowi*. I do not know the authority for the name or whether the colour and variety are constant in any native habitat, but I remember that some years ago a friend sent me a number of collected *Hepaticas* which he said came from Courland, and they all proved to be this kind. In this garden, where *Hepaticas* are not well behaved, it is the most robust and most amenable to cultivation of any I have. "A. D." truly remarks that those who have gardens in which *Hepaticas* do well can hardly understand the efforts wasted in trying to make them succeed under unfavourable conditions. Perfect drainage and perfect soil I can give them here, but I cannot remedy atmospheric faults resulting from the prevailing soil, which retains moisture near the surface and encourages it to rise again into the air to the great detriment of some plants, which ought to keep their leaves all through the year. It is not damp air that they dislike, for the air of the mountains where they thrive best is generally saturated with damp, but they hate damp rising from the ground near them. It is this which makes *Gentianella* and Christmas Roses fail in so many gardens. And so I find with *Hepaticas* that they either lose their leaves in summer and flower leafless, or the leaves at best are brown and look unhappy in spring. So the plants are not vigorous; and though seedlings, which are easily raised and show great variety in colour, do well for two or three years, they will not do well when divided. I can cut a crown of *Primula denticulata* into half a dozen pieces, and be sure that they will all thrive. I can pull a two-year-old plant

of *P. rosea* into fifty divisions, and all will make flowering plants by the next spring; but I cannot cut up an *Hepatica* with any confidence that the pieces will ever grow. But the variety *Barlowi*, as I said, behaves best and the double blue worst. I may add that I have tried dividing at every season and planting in every aspect, sunny or shady, and in every possible combination of soil. Raised beds, however, I find better than the ground level. Still I defy anyone to make *Hepaticas* quite satisfactory, unless atmospheric conditions, as well as underground conditions, are suitable.—C. WOLLEY DOD, *Edge Hall, Malpas*.

Tremandra Hugeli.—This is a dwarf, bushy plant, usually not more than 1 foot in height, with numerous narrow and pointed leaves not more than half an inch long, and covered with short hairs. The flowers are produced from the axils of the leaves near the point of each shoot. They are nodding, upwards of 1 inch across if fully spread out, and of a pale, but bright purple colour. The petals are four in number, obovate, and, on account of their opening to only about half the full extent, render the flower somewhat campanulate. At present this plant does not appear to be very well known, although considerable quantities have during the last few years been grown in one at least of the large London nurseries. It is just now coming into bloom, and its bright flowers and neat compact habit make it one of the prettiest of small greenhouse plants. Unlike the majority of its fellows in the *Tremandra* family, it is very easily grown and propagated. Its requirements are the same as for soft-wooded Heaths, to many of which it bears a close resemblance in habit and foliage.

Platytheca galioides.—The natural order *Tremandrea*, of which this plant is a member, consists of three genera and some twenty-two or twenty-three species. The *Platytheca* has by different botanists been placed under each of the three genera, and is even now more generally known as a *Tetratheca* or as a *Tremandra*, the specific name in both cases being *verticillata*. It is a plant well deserving of cultivation if for no more than the brilliant deep blue of its flowers, which are now commencing to open, and will continue for several months to be produced in considerable numbers. They are borne near the growing tips of the shoots on slender thread-like stalks. This plant is always readily distinguished by the verticillate arrangement of its narrow linear leaves, which are an inch long and occur in whorls of about eight or ten. It should be grown in peat and silver sand, and otherwise given ordinary greenhouse treatment. It is an easily-grown plant, the only difficulty experienced with it being in a young state when it requires careful treatment in watering and shading. At this period it should be kept near the glass, but guarded from the direct rays of the sun. In order to obtain shapely plants it is necessary when the plants are young to persistently pinch out the points of the shoots. It was originally discovered by Dr. L. Priess in 1829 near Perth, in South-west Australia, where it grows in shady positions and in sandy soil.

Bamboos and the frost.—The past winter has enabled us to observe the hardness of these. Although the dwarf variegated forms of *B. Fortunei* are pretty and useful in their way, they are the ones that could be most easily dispensed with, and it is these that have suffered the most, together with *B. falcata*, which, graceful and charming though it is, is certainly not a kind that can be generally recommended. *B. Metake*, the best known kind, looks well in sheltered positions, but plants that are more exposed have last year's leaves browned. Injury of this sort, however, is only slight and soon effaced, for so long as the canes are safe when the time for new growth comes, the seared leaves fall, new ones are put forth, and the plants assume their wonted verdant freshness. *B. viridis glaucescens* after the ordeal proves itself to be one of the most useful, beautiful, and hardy kinds. The foliage upon the young canes is slightly touched; less could not have been expected, but it is in the second and following seasons that the canes produce their rich clusters of foliage which make this

kind so striking, and these leaves, which appear early, have, by winter, strength and substance to brave the sharpest frost. That lovely Japanese kind *B. Henonis* almost exceeds expectations. It increases in gracefulness as it gains in strength and stature, and in hardness it is second to none. Other kinds that have wintered well are *B. mitis*, *aurea*, *violescens*, *nigra*, and *Quilloi*. They are injured only to the extent of last year's growth being browned more or less according to the amount of shelter the plants had from trees and shrubs surrounding and partly overhanging them. It would hardly be thought that an overhanging, but leafless bough of a Hawthorn or Oak tree would afford any protection to a Bamboo beneath it, but such is the case, as proved by several plants that have come through the winter comparatively untouched, whilst other plants of the same kinds in more open parts of the border look somewhat seared. Among the tall-growing kinds *B. Simoni* looks about the worst. It is a distinct and striking kind, with an erect habit of growth and ample leafage, but nearly all the leaves upon several plants are seared. For an exceptional winter, however, the injuries are comparatively slight.—A. H.

The pink Snowdrop.—Is there, or was there, ever such a thing? The result of the lecture last Tuesday does not help us much. It is said, so the story goes, that the late Mr. Threlfall knew where such a plant existed, and if ever he had reached England would have had it in his garden, so sure was he of possessing it. Where is it now, we may well ask? All the Snowdrop authorities referred to it, but no definite information was forthcoming. We strongly suspect it to be a myth, about as far from realisation as the black Tulip or the blue Snowflake. We had the pleasure once of seeing a fine golden-yellow Snowflake flower dried. It belonged to *L. vernum*, but on pressing for a bulb, or even a sight of a living flower, we were put off on some pretext, and have never seen or heard of it again. Probably some chemical manipulation.

Galanthus Alleni, which was shown at the Drill Hall last Tuesday, was recently described by Mr. Baker, who is apparently in much doubt whether it be a true species or a hybrid. Its nearest ally is clearly *G. latifolius*, from which it differs in its more robust constitution and in its broader, glaucous, not green, leaves. It was received by Mr. Allen from Herr Gusmus, of Austria, amongst a lot of *G. latifolius*, and its habitat may therefore be fixed as the Caucasus, the home of *G. latifolius* as well as of *G. caucasicus*, between which we strongly suspect it to be a hybrid. If, as we suppose, the anthers are both blunt and apiculate in the same flower, our views are strengthened, because we have only to account for the glaucous hue on the leaves, and this will be comparatively easy when we remember that *G. caucasicus* has such leaves, only a trifle narrower. It is said to be a robust grower, and promises to be one of the best garden Snowdrops.—D. K.

Flowers in the open at Broxbourne.—I noted at Broxbourne to-day in flower in the open the following Irises: *Bakeri*, just fading; *sophonensis*, ditto; *Histrio*, well in flower; *reticulata*; *Korolkowi*; *Rosenbachiana*, just opening; *reticulata major*; and *r. cœrulea major*—all good additions to our hardy early flowers. Soil sandy loam and burnt earth; position warm, southern aspect. *Hyacinthus (Muscari) azureus*, sky blue to deep blue; a small *Corydalis*, I think *Semenowi*; and last, the great improvement on *Bulbocodium vernum*, *B. ruthenicum*, with larger petals and neatly-formed flowers, were also in bloom. *Anemone blanda* is just bursting, and all the Snowdrops, from the common to *Sharlocki* and *Fosteri*, are in full flower. I quite agree with Mr. Ewbank that it is quite impossible to judge Snowdrops until the clump has been *in situ* two, or better, three years. Except the length of the petals, one-year planted *G. Fosteri* is not remarkable, but the left-behind bulbs in a supposed to be cleared bed of *Elwesi* are simply wonderful.—GEORGE PAUL.

Helleborus colchicus (T. L. Davison).—The flowers of this and its allies always drop when placed in water. The only way to keep them in a cut state is to shorten the stalks and prick them into wet sand.

TOWN GARDENS.

THE accompanying engraving is from a photograph of the garden in Mornington Crescent, Hampstead Road, which lies within two miles of Charing Cross, and so may serve as a good illustration of what is possible even amid the fog and smoke of the metropolis. After all, the parks and gardens of London are fully equal to those of most Continental cities if we make due allowance for our insular climate, less brilliant sunlight, and the greater consumption of coal. The gardens of the Embankment, those of the Temple, St. James's Park and Kensington are all most satisfactory in their way, and every year enables us to recognise decided improve-

beauty focussed, as it were, into a good single specimen, may give us pleasure and a feeling of retirement and grateful shade even in the smallest of town gardens. It also shows us that in such gardens flower-bed "designs" of the character such as Bacon tells us he had seen on tarts, are better excluded altogether in favour of the untortured lawn. Flower colour in small gardens is better as grouped in borders backed, and to some degree sheltered by shrubs, rather than as dotted about the Grass plot in paltry little beds as so often seen. The view illustrated brings to mind many pleasant memories of London gardens, some yet existing, as at Lincoln's Inn, others nearly gone, as in the case of the delightful old garden of the Drapers' Company,

Samuel Broome, and carried on by the Dales and Newtons of to-day.

The London tree now-a-days is the Plane, but in former times the Elm seems to have been held in more esteem, although it is one of the most gloomy, and, from its liability to sudden breakage, one of the most dangerous trees for a town. Several Maples do well, Sir Charles Wager's especially. The Montpellier Maple is especially pleasing in spring or early summer. Two of the most depressing of town shrubs in winter are the Privet and the Lilac, although the latter, when well grown and not too crowded, is one of the best of our flowering shrubs in spring. The American Elm is a far lighter and more graceful tree for town gardens than is the English variety, and near



View in the garden at Mornington Crescent, Hampstead Road, within two miles of Charing Cross. Engraved for THE GARDEN from a photograph sent by Mr. Lewis J. Thomas.

ments in the better management of turf and in the more copious and intelligent planting of hardy shrubs and flowers. Even the best of the Municipal Gardens in Paris are extremely bare of spring flowers. Truly, you have stiff beds of Hyacinths in April, but how rarely can you see a patch of Snowdrops or of Primroses or of Aconites on the turf of a French park or public garden? Even in our London gardens much yet remains to be done in this way, although much has been done that was neglected a few years ago.

The main charms of a town garden should be its turf and its trees. In the picture before us we learn how a clear breadth of lawn, the gentle curve of a walk, and the tree

or totally swept away, as is the fine old space once filled with fine Hawthorn and other trees at the back of Northumberland House only twenty years or less ago. I once saw a children's flower show in the Drapers' Garden when in its prime. A little pond was filled with white Water Lilies in full bloom, and the fine old Mulberry trees were dense masses of living green, while, until the last few years, a rook's nest and its owners might be seen every spring in the Plane tree at the corner of Wood Street, Cheapside. Again, what a page in human history and progress is that of the Temple Garden, from the Wars of the Roses to the epoch of Queen Chrysanthemum, as inaugurated therein by

water the red and yellow Osiers and the common Dogwood may be used with good effect.

As a rule, both shrubs and trees are planted far too thickly in town gardens, and this, moreover, without due preparation of the soil. If deep digging or trenching and manuring are necessary in country districts, they are tenfold more essential in towns, where dust, smoke, fog, and worn-out soils are so often inimical to vegetation of a robust and healthy character. Then, instead of the annual laceration of roots by spade digging, the forking in of well-rotted manure, or even of stable manure fortified by the addition of guano, superphosphates, or nitrate of soda

might be the altered practice with advantage. It is singular to observe how rarely it is thought to be desirable to feed trees and shrubs. Ephemeral kitchen garden crops are fed well and carefully, but the trees and shrubs of a town garden are expected to grow on year after year without any assistance. Another great drawback in town gardens generally is drought and dust during summer-time, and the best results would follow the introduction of hose-pipes and hydrants, wherever such are not already installed. This constant sprinkling of turf, shrubs, trees, and walks is one of the most potent factors in the freshness, coolness, and greenness of the public gardens and squares of Paris and other Continental towns, and I have often thought that men might be employed in our public gardens with advantage to lay the dust, and to syringe and freshen the trees and shrubs and the turf. Be this as it may, the fact remains that the hose-pipe and a good and full water supply are really the backbone of all really luxuriant freshness and growth in a town garden, as may be readily seen by comparing the comparative results as gained by their use or not.

In conclusion, I should like to point the moral so well shown in the engraving, viz., that it is possible by careful and thoughtful arrangement to have a cool, fresh, and retired place of refuge even near to our largest towns by the simple and free use of the main factors of a garden, viz., green turf and good trees, and this without too many walks or complex floral designs. F. W. B.

THE WEEK'S WORK.

FRUIT HOUSES.

VINES, BOTTLE-GRAFTING.—Those who desire to change the character of their Vines can easily and quickly do so by means of the practice known as bottle-grafting, and no time should be lost in making the attempt. For instance, growers for sale are fast learning that the showy or large berried varieties, notably Gros Colman, are the most profitable, the Black Hamburgh being amongst the least remunerative sorts that can now be grown. Supposing a house or houses of the latter are in good health, it would be folly to destroy them and replant more, the better plan being to graft with Gros Colman or any other selected varieties. In this manner the character of the Vines will be quickly changed without the loss of part of a crop even. The same plan can also be carried out in the case of single Vines in order to introduce a fresh variety into the house or to increase any that have already been found to give the greatest satisfaction to employers. The Black Hamburgh and Muscat of Alexandria are favourite stocks with many gardeners, but most other varieties answer nearly or quite as well, and there is nothing to prevent black varieties being worked on to those the opposite in colour and *vice versa*. Bottle-grafting is the simplest and also the surest method of attaching a scion to a stock, and the proper time to do this is when the latter is growing strongly or just after the first rush of sap has taken place. The grafts ought till within a week of the time they are wanted be kept plunged in a cool place out-of-doors, being introduced into heat and plunged in moist soil about a week before grafting takes place or long enough to stir the sap and excite the buds. They may be attached to either the old rods or well placed ripened lateral growths—the latter for choice. First fit them together, then take a slice off the scion near the middle from 4 inches to 5

inches in length, a corresponding slice being taken off the stock. "Tongue" them, that is to say, cut a little way into the stock in a downward direction, and make a similar incision into the graft, only in an upward direction, and then place them together, the tongue of the scion being fitted into that of the stock. Bind them neatly and somewhat tightly together with matting or tape and cover the point of union with grafting wax, or moss if the latter cannot be had. There ought to be about two buds on the graft above where connected with the old Vine and a length of 4 inches or thereabouts below, the latter being inserted in a bottle of water slung up to it. This bottle must be kept filled with water and will support the graft till a perfect union takes place. All going on well, the bottles should not be detached, but will soon become full of roots, these absorbing a surprising quantity of water. Strong fruiting rods usually form in one season.

INARCHING is perhaps a better-known means of attaining the same end as that foreshadowed in the preceding paragraph, and this again is a comparatively simple operation. It can be done with either ripened wood or sappy young growths of the current season. In the former case it is desirable that rather strong pot Vines on the point of breaking be used, these being fitted and fastened to the stock much as advised in the case of bottle-grafting. Instead, however, of shortening back the Vines to near the point of union with the stock, disbudding ought to be resorted to, or otherwise they will be much weakened by bleeding. Inarching or uniting growing shoots together is most in vogue, and strong pot Vines are needed for the purpose, the leading or only shoot on these being united to a lateral growth of nearly the same thickness. It cannot be properly done while the shoots are quite soft, but must not be delayed after they are somewhat set, or very little subsequent progress will be made. Carefully slice out a thin piece of bark on both stock and scion, the inner bark being well reached; then fit the two wounds neatly together so as to make the edges meet properly, bind up tightly with matting, and moss over. It will not be long before the stock and scion become united, the latter quickly giving signs of increased vigour. Keep the stock stopped at the third joint beyond the point of union, and allow the scion to extend a considerable distance before stopping. Very frequently stout rods from 8 feet to 12 feet in length are obtained the first season from either grafted or inarched shoots, and in any case it ought to be possible to grow canes large enough for giving two or three bunches in the following season.

STRAWBERRIES.—There is now a lot of work connected with these, several batches in various stages of growth requiring almost daily attendance. Those swelling off their crops may well be subjected to a rather strong heat, this, coupled with a free use of liquid manure, swelling the fruit to their full size. Vicomtesse Héricart de Thury is of good quality, however grown, but Noble, Princess of Prussia, Keen's Seedling, La Grosse Sucrée, Auguste Nicaise, James Veitch, and any other early or second early varieties are apt to be sour when gathered from plants kept in a strong heat. Any of these ought when nearly ripe to be transferred for a time to somewhat cooler shelves, no more liquid manure and rather less water being given. This will greatly improve them in point of quality, and the plan ought to be adopted even if it does affect the size of the later fruits. The flowers on successional batches should still be fertilised with a camel's-hair brush, the most attention being paid to the first flowers on the trusses, as it is these which are followed by much the finest fruit. Strawberries cannot well be grown too large to meet the tastes of most employers; therefore, freely thin out the fruit as soon as set, from six to nine fruits, according to the size of the pots, being ample in most cases. Prevent runners from forming, and never allow the plants to become dry at the roots. A few hours' neglect may lead to a shrinkage of the soil in the pots, a misfortune not easily rectified. Forced Strawberries are liable to be infested by both red spider and green-fly. Frequent overhead syringings and good attention in the way of watering

are the best preventives of the former, and occasional fumigations with tobacco will keep down the latter. Those plants with their crops nearly or quite ripe must not, however, be subjected to tobacco fumes, or the fruit will be flavoured and spoilt by the same beyond all hope of recovery. There is much to be said in favour of supporting the fruit with small forked twigs or Birch and Hazel spray. Being raised to an oblique position, there is less likelihood of the stalks becoming cracked or broken, while the fruit is more attractive in appearance, and is more easily kept clean than is the case when it hangs over the sides of the pots.

STRAWBERRY POTS IN SAUCERS.—Saucers are often recommended for setting the Strawberry plants in. Undoubtedly they do save the watering pot considerably, and there is also less objectionable drip to contend with, but neither these nor troughs that will hold water ought to be used by those anxious to grow fruit of the best quality. Plants standing in pans or troughs of water or liquid manure are almost certain to become badly saturated, sour poor fruit being the inevitable result. The best substitutes for saucers are squares of thin turf, Grass side downwards, and the pots being early set on these will quickly root out into them, an additional food supply being thus available. These turves are particularly necessary where the shelves are very hot and dry, and will save the watering pot considerably. The plants can be moved without detaching them from the turves, and the plan is well worthy of being more generally adopted than is the case at present. Unfortunately, good turf, or any that will not quickly fall to pieces, is not to be got everywhere, but common Moss is more plentiful, and is a good substitute for turves. The pots ought to be well bedded, not plunged, as this is out of the question, in Moss, and the roots will also spread rapidly through it, the plants deriving much benefit from the moisture and liquid manure absorbed by the Moss.

PRACTICAL.

THE KITCHEN GARDEN.

CELERY.—It is now time the seed for the main crop of Celery was sown, as being such an important crop good culture must be adopted from start to finish. Sooner than Celery should become stunted before being planted out, I would defer sowing until it can be clearly seen that the plants may be grown freely throughout the season of growth. At this early date I make it a practice to have the manure in readiness for placing in the trenches. For Celery the manure must be what is termed of a solid description, and also well rotted. As the seed takes some to germinate, it must be raised on a gentle hotbed or in slight heat. A vinery just started is a favourite position with many people for the raising of Celery. It will not succeed when sown at all too thickly, and there is no advantage in raising more plants than are really required. The seed should be sown very thinly on the surface of a mild hotbed and covered with fairly rich soil. This plan is much to be preferred to sowing in boxes, as in these the seedlings are apt to receive a check unless carefully managed. If a light can be given up for the purpose it is much to be preferred, as the after treatment, especially as regards ventilation, may be managed accordingly. Where only a few plants are required, or if there are not the conveniences for raising the plants on a hotbed, the seeds may be sown very thinly in boxes of light and rich soil, and also kept fairly moist. Keep the seedlings near the light, and take care not to allow the soil to become at all dry. As soon as fairly started remove to a cold frame. When ready for pricking off, it is not a good plan to prick out into shallow boxes or pans, as is sometimes done, as in these the roots become cramped and are liable to suffer from drought. Bolting, although not showing itself until after being a considerable time in the trenches, is often caused at this early date. Besides saving a deal of labour, pricking out into beds in low frames or rough shelter has many advantages. The material must be placed on a hard and level surface to keep the roots nearer together.

When the beds are formed on a loose surface the roots ramble away; consequently the plants receive a considerable check when being taken up. A layer of rotten manure should be first placed over the bottom to the depth of 3 inches, and over this a layer of soil, making about 5 inches in all. The soil used should be of a holding nature. Old potting soil I have not much faith in, as being too sandy as well as not forming a good ball about the plants when being taken up.

COUVE TRONCHUDA.—The Couve Tronchuda, or Portugal Cabbage, must be classed amongst the little known vegetables, but it is none the less valuable on that account. The tops may be cut and used as Cabbages, but are far superior in flavour. The midribs of the larger leaves are removed and cooked as Seakale. If the plants are to be of any use the seed must be sown early and under glass. It is best sown on a gentle hotbed, eventually pricking and planting out in the open on a deeply worked and well manured site. Being strong growing, the plants should be placed quite 3 feet apart, both in the rows and between the plants. Water must also be freely applied during dry weather.

CHINESE ARTICHOKE.—No doubt eventually this will be the name under which the *Stachys tuberifera* will become generally known. There is not the least difficulty in its culture; all that is really necessary is a fairly fertile and pulverised soil. The tubers are not very large, but they increase rapidly, and the tops grow to a fair size. The tubers should be planted in rows 2 feet apart and 1 foot in the rows. One word of caution is necessary, and that is to keep the plantation to itself, merely adding annually a dressing of decayed manure to keep up fertility in the soil. If the tubers should be planted indiscriminately about the garden this vegetable may prove a veritable pest in cropping up like a weed. The tubers are very hardy, as they may be left in the ground during the winter without fear of injury, and, like the Jerusalem Artichoke, the flavour and colour are considerably improved by so leaving them. One pound of tubers will plant a considerable space of ground.

CAPSICUMS AND CHILIES.—These, besides being useful, are also very ornamental. The seed should now be sown thinly in a 5-inch pot, using light soil. Place on a hotbed, and as soon as the seedlings are large enough pot off singly into small pots, eventually placing them in 6-inch or 7-inch pots. Grow on in the hotbed, as in such a position the plants thrive much better than in houses. The Long Red, or any varieties which may be grown for preserving, may eventually be planted out against a south wall when all danger of late frosts is past.

TOMATOES.—The Tomatoes for the main crop may now be sown, as it is quite time the young plants were on the move. The conveniences at command for growing should decide the time for seed sowing, as there is not the least gain in allowing the plants to stand about in small pots before being eventually planted out. Unless there are special houses or a house set apart for Tomatoes, it is very seldom that they can be planted before the structures are cleared of bedding plants. To succeed with Tomatoes, and also to successfully control the Tomato disease, the plants must have a firm woody growth. Tomatoes are a precarious crop when grown in the open air, but in favourable seasons I have seen capital crops produced as far north as Lincolnshire. Last season was not at all favourable for the growth of Tomatoes in the open air, and except in a few favoured districts very few were gathered, so probably more than ever will be cultivated under glass. More often than not far more seed is sown than there is any need for, but as far as injury to the plants is concerned, the mistake is in sowing too many seeds in a pot; consequently the young plants are huddled together. The seed should be scattered thinly, so that when the young seedlings appear through the soil they should stand quite half an inch apart. As soon as the seedlings have grown to about the same height, remove the pot to the full light and within a foot or so of the glass. A temperature of 60° or 65°, with a corresponding rise by day, is quite high

enough for the raising of the plants. When the seedlings are large enough pot off singly into small pots. By growing the young plants on fully exposed to the light and in the above temperature, with careful ventilation when needed, the growth made should be firm and sturdy. Instead of allowing the young plants to become pot-bound repot again into 6-inch pots. Where possible the cordon system of training is the best to adopt. It is astonishing the quantity of fruits which may be cut from plants having a 12-foot run, but the distance need not be confined to this where there is head room for the plants to extend. The cordon system of culture merely consists in rubbing out all sidegrowths as soon as perceived. Allowing these to extend to an undue amount before removing them has a considerable weakening effect upon the plants. Some people adopt the practice of stopping the leading growth at every two or three bunches of fruit, but this is quite unnecessary; given a light position with free, yet judicious ventilation and a night temperature of about 60°, four or five fruits should form at every bunch, and oftentimes this number is much increased. Where planting out is resorted to, a too liberal root run must be guarded against. Plant in shallow and confined borders in a sound compost of loam and well pulverised horse droppings, or even rich garden soil, as in such as this the plants will, with feeding, produce heavy crops of fruit.

Y.

ORCHIDS.

For the last three or four days we have been enjoying soft west winds. The first day of the change brought us a very dense fog, which lasted nearly twenty-four hours, when it cleared off and left us with a pleasant atmosphere, but considerably less sunshine. The night temperature has been 15° higher since the frost. The observant cultivator will see a marked improvement in his plants when the wind is in the west and the nights not so cold, root action being much more active. The temperature in the houses at night may be a little higher, with less fire-heat. One of the most important of the many details of the work is the management of the furnace. The most serious error made is to cram the furnace as full as it will hold with fuel, taking little or no account of the weather outside. The gardener must have an eye to this, and also insist that the pipes must not be heated more than is necessary. The greatest mistake is made in filling the furnace choke full on a frosty morning to get up the heat. If the temperature should be 2° or 3° too low the first thing in the morning, after a rather sharp and, perhaps, unexpected frost, there is nothing to be alarmed about; at any rate, the worst thing that can be done is to rush to the stoke-hole and fill up the furnace with fuel, for by the time it is well burned up and the hot-water pipes excessively hot, the sun will be high in the heavens, and the two together will do harm. The right thing to do is to make a small fire to burn up quickly, and as soon as it is seen that the sun will be sufficient to maintain the temperature, throw on some more fuel and bank up with ashes for the day. A stoker can manage with a small fire always, but is non-plussed with a large one. When the temperature is lower than it ought to be in the morning, it is as well not to damp the paths or stages until it is on the rise again. In all well-ordered Orchid houses precautions are taken to keep the various insect pests from the plants altogether, though not always with success; but how many gardeners are there who have to grow their plants in houses that were never intended for Orchid culture at all? The only way to keep woodlice, slugs, &c., from the plants is to trap them. It amuses our visitors sometimes to see a row of fresh cut slices of Carrots or Potatoes placed upon the front of the stage to attract these pests. Green-fly wakes up into active life in the cool house with a higher temperature, and tobacco smoke strong enough to kill the fly will most likely injure the Orchids. I have had the most success by brushing them off with a camel's hair or other soft brush, and as the work proceeds the brush is dipped in tobacco powder. This troublesome pest only attacks the flower-spikes, but they seem to fix on them almost as soon as they

push out from the axils of the bulbs. *Masdevallias* are as persistently attacked as the *Odontoglossums*. The anxious cultivator is frequently looking over his plants, and destroys many of the aphid tribe with the finger and thumb; in fact, constant watchfulness is necessary now to give the plants a good start for the season. If the plants are clean and healthy there ought to be a wealth of beautiful flowers in the cool house. The pretty *Ada aurantiaca* is throwing up freely its spikes of orange-red flowers which look bright amongst the more delicate white and rose-tinted *Odontoglossums*. Except that in a large collection there may be certain plants requiring special treatment, the general collection will merely require careful attention as to watering, presuming that all the plants have either been surface-dressed or repotted. If this has not been done, see to it as speedily as possible. The very handsome *Oncidium Marshallianum* succeeds best in the cool house suspended from the roof glass in baskets. Some of the small-growing *Odontoglossums* succeed better with the same treatment. The young breaks of *Odontoglossum nebulosum* are apt to rot in the early stages of their growth when the plants are placed on the stage amongst other things. If, however, the pots containing the plants are hung up in the house they suffer no injury from this cause. I would urge the necessity of looking to the young growths starting from the base of the flowering stems at the time they are in flower. I have seen such plants arranged on the stage in a plant house where the young growths have been hid amongst the dense fronds of Ferns or the leaves of other plants. This treatment should be avoided if possible, for the growths are thereby weakened, and they may also be injured, or perhaps destroyed by slugs or woodlice. All the *Dendrobiums* must either be surface-dressed or repotted. I have already alluded to the treatment required for these *Dendrobiums*. Most of them make considerable growth before the roots push out, but the successful cultivator will have an eye to this, and repot his plants before the roots move. I need not say how necessary it is to protect them from injury. All the evergreen section of *Dendrobiums* producing their spikes in drooping racemes during the months of April, May, and June should now be watered freely, and in a higher temperature they produce stronger spikes. The best of them are *D. thyrsiflorum*, *D. Schrederi*, *D. Dalhousianum*, *D. densiflorum*, *D. Farmeri*, *D. suavissimum*, *D. Paxtoni*, *D. Griffithianum*, &c. The cool house temperature at night may be 50°, but rising to 55° in mild weather, the *Cattleya* house nearer 60° than 55°, and the East India house may range between 65° and 70°. It is needless to say anything about day temperatures except that in the absence of sunshine they may be 5° higher all round. When there is plenty of sunshine the temperature may be from 10° to 15° higher.

J. DOUGLAS.

PLANT HOUSES.

ASPIDISTRAS are well known for their great durability as decorative plants and for any kind of rough-and-ready use, forming oftentimes a capital undergrowth to other things which are more choice. Plants which have not been broken up for a few years to further increase the stock where needed should now be attended to. In doing this, I prefer to divide the old stools sufficiently small for each piece to be potted into a 3-inch pot. It is better to start them in this size than in larger ones; they can also be turned to a good account later on when well rooted without another shift being given them. In dividing the variegated variety, those pieces which show a disposition to remain most in character should be kept to themselves. It does not much matter about retaining any soil as long as several roots are preserved with each division. When potted, a moist, growing atmosphere will suit them best, such, for instance, as an early vinery. A loamy soil with the addition of some leaf-mould in the first potting to encourage fresh root-action suits them well. A dash of bones over the drainage will assist them, and a liberal amount of sand should be used. Plants which do not require a shift will at least be assisted by a top-dressing. The *Aspidistra* will remain for years in good health

without fresh potting, but when a shift is given, it need only be into pots one size larger. Plants of *Ficus elastica* should not remain too long without repotting, otherwise some of the older foliage will turn yellow and drop sooner than it would have done. As in the former instance, a large amount of root-room is not required, but the extreme must not be pushed too far. In potting, use either peat of good quality or leaf-mould with about the same amount of loam, and pot firmly. Now is a good time to see to this work, so also is it for striking cuttings to form a successional batch. A stock of young plants should always be growing on to supply the places of those which are increasing in size. Tops and side shoots strike freely enough, whilst if the stock is short, propagation by eyes may be effected, but this process takes longer. In the latter case the leaf should be preserved intact; there will not then be any difficulty in setting up root-action, but patience is afterwards needed at times for the appearance of the young shoot. Do not lose sight of the variegated variety, propagating it where possible by cuttings or eyes. This kind is gaining in popularity, and will, no doubt, be more sought after; the American growers are already finding out its good qualities.

CORDYLINES AND DRACÆNAS.—Being close allies, these may be treated upon together. Those who possess large specimens of the strong-growing kinds should not allow them to become starved at the roots; otherwise when warmer weather sets in, more leaves will fade than one would like to see. A larger pot may with advantage be given to any which have stood for a considerable time without a shift. In doing this look after the thick fleshy roots as a mode of further increase; this will permit the plant to be kept a little lower in the pot with a better top-dressing of fresh soil to encourage young roots from the stem. Plants which it is not considered desirable to repot might possibly be turned to a good account for planting out in a conservatory border or else have a top-dressing of good soil. For the strong-rooting kinds a loamy soil is the best; it will not force quite so strong a growth as peat; some half-inch bones would be, however, a good addition. *Cordylina indivisa vera* wants careful looking after in every way; it does not root so strongly as some of the other sorts. In watering it should have as much care bestowed upon it as in the case of New Holland plants and Cape Heath. Nearly all peat with but little loam, or not any if not of good quality, will suit this variety the best; some charcoal is a good addition. *Dracæna rubra* is always useful in small-sized pots, being one of the best for a cool house and for rooms. This can easily be propagated by eyes placed in heat, growing the young stock in warmth for the first six months. Old plants which have lost their lower leaves could be used for this purpose. This should be seen to at once; so also should the potting of any younger plants which stand in need of such work. It is not advisable to exceed 8-inch or 9-inch pots for this variety; plants fit for all practical purposes can be grown in these sizes; in fact its chief value is when used in 6-inch pots for vases. *D. congesta* does well under the same conditions, and with its narrow leaves forms a good change to the other. *Phormiums* are highly ornamental, and should have good attention bestowed upon them. With feeding they will remain for years in the same pots. When seed cannot be ripened, increase by division should be resorted to, and this can very well be performed at the present time. It needs to be done carefully, as many roots as possible being taken with each piece. Divided plants should afterwards be kept in the shade, a moist spot being the best until fresh roots have been made. Peat and loam in about equal parts will be congenial to their requirements. For indoor plants I prefer the variegated kinds, but where any great amount of decorative work has to be done, then the green-leaved kind will also be found of much service. Large plants may be advantageously grown in tubs, thus when in robust growth they will flower, and in this way also be both novel and ornamental. Of the greenhouse section of *Yuccas* more use might be made where permanent objects are essential. One often sees tall plants with naked stems and a

cluster only of leaves at the top. Such as these may without any great amount of trouble be struck and nice dwarf plants again be had in a few months. In doing this, a sufficient length of stem should be allowed for insertion into the pot without removing any leaves when it is cut off. For striking in, 8-inch pots will be found of sufficient size for the average of stems. Into the pot each stem should be firmly secured by ramming the soil as one would treat Pine suckers of good size. Bottom-heat will accelerate the formation of fresh roots and preserve the foliage from turning yellow. For a few weeks at such a time they could very well be plunged with the Pines where any are grown; otherwise with stove plants, by guarding against any excess of moisture in the soil. Shading in such instances will be found requisite; this can easily be done with a sheet or two of paper of good size. If there are any white scale upon the *Yuccas* they must not be put with the Pines, or the results will be disastrous to the latter. *Yuccas* should not have any excess of water. If pot-bound, more, of course, is needed. It is safer to grow them thus than to pot frequently; soil as for *Phormiums* will suit them well. White scale is troublesome to *Yuccas* at times. Where any of this pest exists upon them, careful cleaning with a proven insecticide of the recommended maximum strength should be employed. Most of the scale will be found at the base of the leaves, from which they are not easily dislodged. The old stems should be kept for offsets or suckers from the base, treating them in either case to a little warmth at first when severed from the parent plant.

GREENHOUSE ARAUCARIAS, if in need of potting or re-tubbing, where large, should at this season of the year have attention given them. They will thrive for a long time in comparatively small pots, but should they perchance when pot-bound be allowed to get dry, there is a danger of losing the lower branches all too soon. It is safer to repot than to run this risk, avoiding the other extreme as to amount of root-room. In this way they will retain the lower branches and keep in better colour also. When potting, nearly all loam should be used; they grow well in this alone. Young plants of *A. excelsa* may be used for some considerable time when in pots of small size for table decoration and vases. During the colder season they will in this way be of great service and a saving also of more tender plants. *Bambusa gracilis*, when in pots and clothed with healthy foliage, is valuable in a conservatory where tall plants are essential. It is also a good plant for entrance halls and other kinds of house work. Those who have not thus far given their attention to this plant will do well to do so at once, so as to make the most of the growing season in getting well-established examples. J. H.

Seasonable floral arrangements.—The *Clivias* (*Imantophyllums*) are of quite a distinct character for use in a cut state, lasting also extremely well in water. These plants when vigorous will throw up strong spikes with numbers of flowers upon each. The earlier ones when required for floral arrangements should be taken singly as soon as they are fully open, and as soon as the latest flowers are unfolded, the spike may be cut and used in a natural way. For associating with the *Clivias* in a cut state there is nothing more suitable than the *Eucharis*, the *Pancratium*, or the *Hymenocallis*, taking either the single flowers or the spikes as the case may be. When spikes of each are used, very effective arrangements may be made which will be found of more than ordinary service for entrance halls or sideboards. Leaves of the long pendulous varieties of *Crotons* are very good additions to these kinds of flowers, so also is *Eucharis* foliage, or that of *Agapanthus umbellatus*. Failing the *Clivias*, perchance there will be a few spikes soon to spare of the *Amarylids*; these would be excellent substitutes with either of the foregoing white flowers. When such things as the aforementioned are selected for an arrangement, see to it that the vases are not top-heavy, otherwise all will stand a chance of coming to grief. Free use could be made of the larger Ferns, also of climbers with such

flowers. Amongst other stove flowering plants there will soon be the brilliant spathes of *Anthurium Scherzerianum* to be had. These look best with some white flowers as a contrast. Spikes of *Spiræa japonica* or white Lilac would do very well for this purpose; a spike of *Eucharis amazonica* developing its latest blooms could also be employed. The Bermuda Lily where forced early will soon be fit for use; this hardly needs any addition in a cut state, but should any be desired, a few blooms of the large kinds of single Daffodils might be used or a few sprays of the *Acacias* now in season. Of other forced plants now easily had in flower, the hardy *Azaleas* supply us with a good variety of colour. The semi-double kinds of the Ghent varieties last well and produce a good effect in medium-sized vases; these are more durable than the single sorts. *Azalea mollis* yields a great variety in colour of many soft and pleasing shades; although the flowers do not keep so well as those of the first-named, they are extremely useful. The flowers of these *Azaleas*, I find, last better when the plants have been grown for a few years in pots with plenty of roots to support them. For foliage with these I prefer to use that of the *Mahonia* for the lighter kinds and their own shoots with the darker coloured varieties, of which sufficient can generally be spared.—J. H.

DESTROYING INSECT LIFE.

THE old adage, "prevention is better than cure," should be put in force in all gardening operations, and that in so thorough a manner as to leave nothing undone that may suggest itself to the mind of the workman. In the case of vineries and Peach houses, and also pits about to be prepared for the reception of Melons and Cucumbers, a thorough washing down of all glass and woodwork, and the cleansing of walls by the aid of the whitewash brush is absolutely necessary, whilst if there are any places where enemies may lurk undisturbed by the washing, as sometimes in the holes through which wires for training run, they should be cleaned out with paraffin. There are few places where plants can be kept entirely out of fruit houses, and any introduced into such structures and that are subject to any insect pest that is likely to damage the foliage of the fruit trees should have careful examination and cleansing. Thus *Azaleas* on which any thrips may be supposed to exist must have a couple of heavy syringings with an insecticide and clear water if they are to be admitted into vineries either to anticipate the flowering season or to push them into growth for a time when the bloom is over. Again, where red spider is locally troublesome, pot Strawberries stacked out of doors are almost certain to be attacked, and they must be dipped in a mixture prepared for them before being placed on shelves of vineries or Peach houses, taking care that the foliage be thoroughly wetted. These remarks have been prompted by a recent inspection of the wall fruit trees, and the knowledge that the plumping of the buds will soon necessitate the annual washing before the spring protection is put up. If there is a lot of wall to be gone over, anything in the way of a special insecticide comes expensive, and if the contents from washtubs cannot be had in quantity, we have to fall back on the home-made insecticide already recommended, viz., 1 lb. of soft soap, 1 quart of paraffin, and 3 quarts of boiling water well mixed, so that the ingredients are thoroughly incorporated, and used in the proportion of a quarter of a pint to 2½ gallons of water. If a warm sunny day is selected for the work when insect life is on the move, and the mixture is applied with considerable force, thoroughly wetting every portion both of wall and wood, a great clearance will be made of pests that would otherwise give a lot of trouble later in the season. When battling with aphids in its various forms in seasons when it is troublesome, I have often thought that it would in the end (although somewhat expensive at first) be an immense saving of time and labour if all Peach, Plum, and Cherry walls were provided with movable hinged wooden copings that would project some 15 inches or 18 inches from the wall, and from which cloths could be suspended, so that outdoor fruits could be sub-

jected, like the inmates of houses, to the influence of tobacco smoke. There is not the slightest doubt that fumigation is a much more effectual way of settling the fly than any washings or dustings with powder, for however carefully these operations may be performed, there are always some of the enemy left untouched. I should like to note one little item that is suggested by the mention of vineries, that if the late house is started and it contain any varieties with tender foliage, whatever substance is to be employed for shading should be ready to go on at a minute's notice, for after a spell of dull, heavy weather fitful bursts of bright sunshine now that the sun is daily gaining power will often scorch the young leaves. In the kitchen garden remedial measures taken to alter or modify certain characteristics of different soils to suit various requirements are quite as illustrative of the value of the old adage as those adopted in anticipation of attack. As examples of this I may point to the principle of working light

Dorset and the adjoining portion of Somerset have had all our Cabbage plants killed, in some gardens in Norfolk in the Brandon district they have not suffered in the least. The Snowdrops are as early in that neighbourhood as they are here, although we are close on 250 miles further west. This is easily accounted for, as in the east the snow was on the ground double the time it was in the west. This shows what a splendid protection Nature has provided in the snow.—WEST DORSET.

STOVE AND GREENHOUSE.

EUPHORBIA JACQUINIÆFLORA.

(SYN., *E. FULGENS*.)

MANY years ago I visited the gardens at Eaton Hall, near Chester, and I shall never forget the favourable impression left on my mind by a splendid display of the above old-fashioned and familiar winter-flowering plant which I saw in

ful and striking effect produced by 100 or more plants when successfully grown, and that at a period of the year from December to March, when bright flowers are most appreciated. Perhaps I can scarcely do so in a more forcible manner than by saying that it is quite as effective, if not more so, than its popular relative *Euphorbia pulcherrima* (Poinsettia) and quite as easily grown.

When the convenience of a border for planting out is not obtainable, and it will not be in eighteen gardens out of twenty, excellent results may be obtained from its culture in pots, as you will, I think, admit from the sample sprays sent herewith. These flowers have been fully expanded since the middle of December, and have been grown in a house the temperature of which frequently falls as low as 45°. The cuttings were struck in March and April last.

In describing the culture adopted here, and which scarcely ever fails, I cannot do better than begin the course of treatment at the present time, the first week in March. The plants will now soon have ceased flowering, when they must have a period of rest for about two months, and for this purpose they may be placed on their sides in any structure with a temperature of about 45°, and water must be entirely withheld. At the end of this time the plants should be introduced into brisk heat (from 70° to 85° by day) with the stems intact, and young shoots will soon issue from the top part of the shoots. These cuttings when about 3 inches long should be cut off with a portion of the old stem to each, and inserted singly into the smallest procurable pots in a mixture of peat and sand in equal proportions, and plunged in a bottom-heat of 80° or 85° with bell or hand-glasses placed over them, leaving a little air on night and day to prevent damping. As the result of cutting off a portion of the old stem with the first batch of cuttings, other shoots will issue lower down the stem. These may be taken off when large enough and propagated like the others. Immediately the plants are well rooted and in a condition to stand more light and air they should be removed to a shelf near the glass, but they should still have a moist atmosphere and brisk heat, but less shade. In this position and with good attention they will soon fill their pots with roots, when they should be re-shifted into their flowering pots—the strongest cuttings into 6-inch pots, and the weaker ones into proportionately smaller ones. In potting, special care should be exercised not to disturb the roots in any way, but to pot the ball as turned out from the previous pot. It



Euphorbia jacquiniæflora (*E. fulgens*).

manures, as horse droppings, spent hotbeds, that are largely composed of decayed leaves and also wood ashes on to stiff borders or quarters that are to be planted with Potatoes, the deep tilth and liberal dressing essential to the successful cultivation of Asparagus and Seakale, the provision of a cool, rich manure, free, however, from insect life, for the Celery trenches, and the very hard seed bed for spring Onions to act as a deterrent to the attack of the maggot. These are all simple matters, but inseparable from the good cultivation of fruit and vegetables, and are but a few examples of the many things that have to be thought of and provided for day by day in all well-regulated gardens.

Claremont.

E. BURRELL.

Frost in the east and west of England.—It seems strange that plants in the west of England have been cut more than they have been in the east. Most people look upon the west as being the most favoured. Such is not the case, however, as far as vegetables, &c., are concerned. While we in West

grand bloom there. I remember the plants were growing in one of the houses or pits in a border against a wall, and no doubt if extra fine branchlets of bloom are desired, and the necessary convenience is available, this is the most successful way of growing this *Euphorbia*. One serious drawback this method of culture has is that for house decoration the plant grown in this way is practically useless, as it can only be used for cutting from, and, as most gardeners are aware, the flowers, and especially the foliage, soon wither when cut. But this fault may be somewhat mitigated by searing the cut shoot with a hot iron to seal up the sap vessels. Previous to this occasion I had only seen this plant as it is usually represented in gardens, in the shape of a few miserable subjects denuded of foliage and a short spray of bloom at the end perhaps 5 inches or 6 inches long. I wish I could convey to the minds of your readers who have up to now neglected its growth the beauti-

ful and striking effect produced by 100 or more plants when successfully grown, and that at a period of the year from December to March, when bright flowers are most appreciated. Perhaps I can scarcely do so in a more forcible manner than by saying that it is quite as effective, if not more so, than its popular relative *Euphorbia pulcherrima* (Poinsettia) and quite as easily grown. When the convenience of a border for planting out is not obtainable, and it will not be in eighteen gardens out of twenty, excellent results may be obtained from its culture in pots, as you will, I think, admit from the sample sprays sent herewith. These flowers have been fully expanded since the middle of December, and have been grown in a house the temperature of which frequently falls as low as 45°. The cuttings were struck in March and April last. In describing the culture adopted here, and which scarcely ever fails, I cannot do better than begin the course of treatment at the present time, the first week in March. The plants will now soon have ceased flowering, when they must have a period of rest for about two months, and for this purpose they may be placed on their sides in any structure with a temperature of about 45°, and water must be entirely withheld. At the end of this time the plants should be introduced into brisk heat (from 70° to 85° by day) with the stems intact, and young shoots will soon issue from the top part of the shoots. These cuttings when about 3 inches long should be cut off with a portion of the old stem to each, and inserted singly into the smallest procurable pots in a mixture of peat and sand in equal proportions, and plunged in a bottom-heat of 80° or 85° with bell or hand-glasses placed over them, leaving a little air on night and day to prevent damping. As the result of cutting off a portion of the old stem with the first batch of cuttings, other shoots will issue lower down the stem. These may be taken off when large enough and propagated like the others. Immediately the plants are well rooted and in a condition to stand more light and air they should be removed to a shelf near the glass, but they should still have a moist atmosphere and brisk heat, but less shade. In this position and with good attention they will soon fill their pots with roots, when they should be re-shifted into their flowering pots—the strongest cuttings into 6-inch pots, and the weaker ones into proportionately smaller ones. In potting, special care should be exercised not to disturb the roots in any way, but to pot the ball as turned out from the previous pot. It is important to observe this precaution, as I have no doubt it is more often the cause of failure than any other mistake in practice. The plants after their final potting should still have the benefit of brisk heat in a light house or pit in a position as near the glass as possible, where they may receive plenty of heat and moisture with a fair amount of sunshine. I say a fair amount of the latter in order to suggest to the cultivator that shade for an hour or two in the middle of the day in very hot weather is beneficial, but must be entirely dispensed with not later than the end of August, as it is essential that the latest growth made should be well matured, as on this in a great measure depends the size of the spray of bloom. When the pots after the final potting are well filled with roots, a slight dusting of some plant fertiliser, such as Thomson's or Standen's, should be applied once or twice in a fortnight up to the time the flowers are fully developed, but not afterwards, and

the plants should be freely syringed at least twice a day morning and afternoon, not so much to keep down insect enemies, as this plant has few, as to encourage free and healthy growth of leaf and stem, without which it is useless to look for fine sprays of bloom.

The best sprays are produced on plants grown with a single stem, and this is the way I prefer to grow them, but several smaller sprays may be had on a plant by stopping the shoot about the end of July instead of allowing it to grow on, and larger plants or bushes may be grown if desired by potting the old plants on and allowing all the shoots to grow instead of removing them for cuttings; but in my opinion the best results are obtained by following the former treatment. The compost I find to suit this plant well is two parts of good peat, two parts loam, and one part sand, with ample drainage.

MONA.

* * The finest sprays of this valuable winter-flowering plant we have ever seen.—Ed.

CLIVIAS.

THE first representative of this genus imported to England was *C. nobilis*, which flowered in the Duke of Northumberland's garden at Syon in 1827. It is a rather curious circumstance that figures of this plant should have appeared in the *Botanical Magazine* and in the *Botanical Register* on the same day, a different name being given to it in each. Lindley's name was the one here given, Sir William Hooker's being *Imantophyllum Aitoni*. On account of this and the fact of the latter having been mis-spelt *Imatophyllum*, some confusion in naming has been the result. It has latterly been decided, however, to retain the name *Clivia*, which is in every way more suitable and convenient. The genus belongs to *Amariyllidaceae*, and is widely spread over South Africa. No plant during the last few years has come more rapidly to the front than *Clivia miniata*. It has been taken in hand both by our own nurserymen and those of the Continent, with the result that by crossing and selection many new varieties have been raised, which show in numerous instances a marked advance in the size of the flower trusses and also considerable variation in colour. Indeed, it would be difficult to find a greenhouse plant which has better repaid or deserved the care bestowed on its improvement. The habit of the plant and its handsome deep green foliage are quite distinct from those of the majority of greenhouse plants, and make its value apparent even when not in bloom. It rarely gets out of health, blooms with unfailing regularity if its simple requirements are met, and its beautiful flowers appear at a time when they could scarcely be more valuable. Although it is only within the last decade that this *Clivia* has pushed so rapidly into favour, it is a comparatively old denizen of our gardens. It was exhibited at a meeting of the Royal Horticultural Society in February, 1854, having been imported from Natal during the previous year by Messrs. Backhouse, of York. Its strap-shaped leaves are arranged in two opposite rows, measure from 1½ feet to 2 feet in length, and are from 2 inches to 3 inches wide; as already stated, the colour is a rich deep green. The flower-spike rises from within a leaf or two of the centre of the plant, and is usually about 18 inches high. The flowers are produced on a large rounded umbel, which on one plant I have now in bloom measures nearly a foot across, and is composed of twenty flowers, each of these being 4 inches in depth and 3 inches in width. The flower consists of six segments, three being an inch broad, the others only half as wide. In the type the colour is a bright orange, but in the later varieties some are nearly salmon-coloured, whilst others are fiery red.

But little need be said on the cultivation of this *Clivia*. I do not think there is any greenhouse plant of equal merit more easily grown. It is evidently not fastidious in regard to temperature, as I have seen plants growing in houses varying from

near stove heat down to one kept at a temperature of 45° in winter. But in neither of these extremes do the plants thrive so well as in a house where a minimum temperature of 50° is maintained in winter. Under such a condition they will mostly be in flower in February and March, but of course the flowering season can be accelerated or retarded by raising or lowering the temperature from Christmas onwards. I find that when grown in a regular heat throughout the year, individual plants usually come into bloom at the same time year after year. One plant I have which, without being forced, is always in flower the last week in January or the first in February, whilst others do not bloom until a couple of months later. In forcing it is well, therefore, to note this characteristic in individual plants. The best compost is one of loam, short manure, leaf soil, and silver sand. Small plants should be potted on until they get into 10-inch pots, which are perhaps the most convenient, and allow plants with two or three growths sufficient space for their perfect development. They like abundance of water during summer, and when the flower-spikes are pushing manure water may also be given. From late autumn until the spikes appear the plants should be kept on the dry side, inattention to this point sometimes causing them to miss blooming. Propagation is effected by seeds or by division. It is always better after adopting the latter method to give the plants a little extra heat, as this enables them to more quickly recover from the effects of injury to the roots.

None of the remaining species can be said to approach *C. miniata* in value, but they may be briefly noticed here, as they are by no means devoid of beauty, their cultivation also being identical. *C. Gardeni* is a species of strong growth, resembling *Agapanthus umbellatus* in habit, and growing into masses quite as large. The leaves are each 2 feet long and arching, differing from other *Clivias* in the greater prominence of the parallel ribs. The umbels consist of from a dozen to eighteen flowers, which are drooping, about 2 inches long, and in the shape of a curved tube. They are chiefly yellow or orange-coloured, but tinged with green towards the tips. It is worth while artificially fertilising the flowers to obtain the bunches of deep red fruits, which are quite as ornamental as the flowers. It was discovered in Natal by Major Garden, after whom it is named. *C. nobilis* is distinguished from *C. Gardeni* by its smoother, darker-coloured leaves and by its smaller and more numerous flowers, as many as fifty occurring on an umbel. They are tubular, a little over an inch long, the colour in the best varieties being yellow, with a flush of reddish-purple; others are tinged with green. It was found by Bowie, a noted traveller, in South Africa. Both it and *C. Gardeni* flower at various seasons. The only remaining plant of note is *C. cyrtanthiflora*, which is reputedly a hybrid between *C. miniata* and *nobilis*. In shape its flowers are intermediate between the tubular ones of *C. nobilis* and the more fully expanded ones of *C. miniata*. They are of a clear rich salmon, or flame coloured, the lower portion of the segments being paler. Next to *C. miniata* it is the most desirable of *Clivias*.

W. J. B.

Azalea narcissiflora.—It may not be generally known to the readers of THE GARDEN that next to the old *indica alba* this *Azalea* has proved quite hardy. Here I have a number of the different varieties which have been planted in the shrubberies for some years. They have grown into large plants, and some of them are between 5 feet and 6 feet across, and flower freely every year. The severe frost this winter has injured them all more or less, with the exception of the old *indica alba* and *narcissiflora*. Like "O. T." (THE GARDEN, February 21, p. 173), I find there is not another *Azalea* that gives so good returns for so little trouble, for with those that are planted out and with a good stock in pots I can cut *Azalea* flowers nearly all the year round with very little forcing. Having occasion to make some alterations in the beds last October, I potted up two or three *A. narcissiflora* and put them in a cold Peach house all the winter. In the middle of February they were put in a vinery just started,

and at the present time they are nearly full of bloom. Anyone having old plants of *Azaleas* that are looking unhealthy will find it a good plan to make a good bed of peat or leaf soil (they will grow well in either), plant them out in it, and layer all the side branches, covering them with a good depth of soil and pegging them down firmly. In a year they will be rooted nicely, and fit to take up and pot into 5-inch or 6-inch pots. It is a plan I have adopted for years, and by so doing I have always a stock of small plants just suitable for decoration either in the house or conservatory.—T. T., Wareham.

TUBEROSES AND THEIR CULTURE.

WHETHER for button-holes or bouquets, floral wreaths or sprays, it matters little—indeed in any floral arrangements requiring pure white and fragrant flowers, these lovely Tuberoses are ever welcome and eagerly sought after by the decorator. In point of fact we have little or nothing at present in cultivation that can equal the *Tuberose* in general usefulness, and nothing that may be said to be so fully under the control of the cultivator, for by introducing successional batches from time to time blossoms may be had any day during the year. This is more than can be said of any other flower possessing so many charms and withal so easily produced by a moderate amount of heat. In saying so much in praise of these chaste flowers, I am not unmindful of the value of the well-known and wax-like blossoms of the *Stephanotis*, whose flowers are perhaps more durable than are those of the *Tuberose*. Yet at the same time one cannot in the same degree regulate the supplies almost to a nicety should occasion arise, as in the case of the *Tuberose*, which may be forwarded or retarded to a very considerable and certainly convenient extent. Not the least important fact about these flowers is that they are fog and smoke-proof, and as such become doubly valuable to dwellers in and around large smoky towns. Of this I have had conclusive proof during the long-continued spell of frost, fog, and snow, and while some flowering subjects suffered to an alarming extent, the lovely Tuberoses continued to bloom. Just prior to the commencement of our winter's frost and fog I had housed nearly 2000 of these useful subjects, and the fact that they continued to produce their flowers throughout December and January is the best proof that I can produce of their fog-resisting capabilities. Of course they did not come on so quickly as when under the influence of full light, nor could that be expected; but the fact that they expanded their flowers in all their purity and chasteness speaks volumes for their powers of endurance. As a rule, flowers that are slow to develop under such circumstances as those I have described generally lack finish. Not so the flowers of which I write, for not only did they patiently resist all this, but, what is more, they had also to endure a much lower temperature by reason of the extreme frost. Points such as these which carry with them considerable merit should be carefully noted by all interested in the production of choice flowers in midwinter.

As a rule, the early consignments of American Tuberoses come to hand in December, when, as I have just stated, the flowers of the previous year's importation may still be with us. Should an early batch be required, the bulbs may at once be potted into 3-inch pots in any ordinary potting soil and plunged in a strong bottom-heat of 85° or 90°. Should a frame exist, such as a propagating case on bottom-heat, the bulbs will the more quickly commence to grow, and even this may be further accelerated by keeping the frame in total darkness during the first two or three weeks, or till growth has got well away from the neck of the bulbs. As soon as plunged in the above bottom-heat they should receive a thorough soaking of water. This at the present stage will last them fully a week or perhaps more, when it may be repeated according as is deemed necessary. In a short time roots will be emitted from the bulb, and these will quickly reach the sides of the pot. Some growers of these flowers start them in boxes of cocoa-nut fibre and pot them

as they start; but this system has its drawbacks, while in its favour it can only be urged that greater numbers may be got into a given space. The evils arising from this system are that all the bulbs do not start growth together, and so many roots are lost in lifting out the few and potting them, that I never practise it. To those who have been content to plunge the pots on bottom-heat and on open beds I would just point out the advantage of encompassing these earliest batches with a uniform heat, an item which I regard as of some importance. With the appearance of roots and sufficient top-growth, the earliest started may be transferred into 5-inch pots, using fairly rich soil, and as room occurs others may be introduced and treated likewise. The earliest started should, if grown in a moist warm stove, be in flower in April and May ensuing, and from this time a constant supply of their flowers may easily be obtained. Those, however, that are intended for late autumn and winter supplies will have to be treated somewhat differently, and instead of being plunged on strong bottom-heat they will have to be grown cool. For the time being they should be safely stored away in any dark cellar or outhouse provided frost can be excluded, but without permitting them to lie in a heap, endeavouring so far as possible to keep them in an uniformly cool spot away from the ever-recurring changes of the atmosphere. In such a place, with an occasional turn, they will be quite safe till the end of April or first week in May, when they should be potted and placed in a cold frame with a north aspect if possible, using 3-inch pots as before; give a thorough watering and keep the frame close. By the end of May the lights can be dispensed with altogether, that their growth may be retarded as much as possible. In about a month from starting them many will be ready for 5-inch pots, with the remainder to follow by-and-by. During the summer the plants should be freely watered in dry weather, and about the middle of August replace the lights, get them to push growth as freely as possible, and encourage the large radical leaves to greater vigour by an overhead dose of weak liquid manure once or twice a week. It will not only improve the plants, but the ammonia arising from it will also assist in keeping red spider in check. A source of annoyance to many, and which occurs equally in early as well as in late batches, is the fact that a certain percentage fail to produce flower-spikes at all, and doubly vexing is it after having grown and cared for them some five or six months to find they are only fit for the rubbish heap. There is, however, only one way for discovering this defect, and that is by feeling before the bulbs are potted. A well-matured bulb of Tuberose should still retain a couple of inches of the old bulb's stump at base, and be thickly studded also with the old dry roots; while the newly-formed bulb containing a good spike will be very firm and solid right to the neck. A bulb that is soft at the neck will invariably, regardless of size, be found on cutting it asunder to have no flower; that is to say, the seat of the flower will be merely occupied by a brown dried-up shred, which at once points to imperfect maturation. This is a fact that cannot be too widely known, particularly as we have to depend for our supplies upon our American friends, and it will hardly be fair to blame the bulb dealers at home for such shortcomings from the other side of the Atlantic.

The greatest pests to the Tuberose are red spider and thrips, and the best advice I can offer to keep them at bay is to periodically syringe with Quassia and soft soap. Do not put off the remedy until they appear in shoals, but rather try to prevent them as soon as the plants are placed in artificially heated structures. A weak solution of the above once a week will be proof against their attacks, and besides this it will also be prudent to maintain a moisture-laden atmosphere, and, where it can conveniently be done, water the floors nightly with liquid manure. It should be pointed out that on no account should these late batches be exposed to the night air after the middle or end of August, while a few degrees of frost at this stage will be attended with most disastrous results, and as the cooler nights arrive slight warmth should be

afforded them. The finest spikes of these will frequently contain forty or more flowers, each perfecting to the topmost pip, while as a punishment for keeping them late for our own convenience sixteen flowers on a spike may be regarded as a good average among the late batches, the remainder being blind, though I am not sure that this may not be reduced by placing the bulbs erect in sand from now till required for potting in April or May; at any rate it is worthy a trial. E. J.

Annuals for the greenhouse.—It always pays to have a good supply of this class of plants when a large display is required and where a deal of space is at command. *Rhodanthes* make a fine show in pots when well grown, and come in very useful from the end of May onwards. For these 6-inch pots should be prepared as for *Mignonette*, with the exception of not ramming the soil quite so firmly. The seed should be sown thinly, so as to allow of ten or a dozen plants in each pot, and be lightly covered with fine soil. A gentle warmth to germinate the seed is best, then gradually harden off to cool greenhouse culture, with plenty of light. The *Globe Amaranth* is a most useful annual for August and September flowering in the conservatory. Seed of this ought now to be sown in heat, the seedlings potted off when fit to handle with safety, and still kept growing in a moderate warmth. They can be either grown singly in small pots or placed three together in larger ones. A light soil will suit them best. Balsams are of great service where large houses have to be kept gay during the summer months. Some seed of a good strain will yield a large percentage of double flowers. It should now be sown, but not kept in much heat; otherwise the plants will be drawn up out of character. *Thunbergias* (annual) are very useful when well grown and kept free from red spider. These, too, will be found of service in the late summer. These should now be raised and treated as advised for the *Globe Amaranth*. *Petunias* ought also to receive attention; seed will no doubt have been sown ere this for a bedding-out supply, but some few at least might be sown in pots and grown into good-sized plants. *Lobelia gracilis*, although of no value as a bedding plant, is one of the best of the annuals for pot culture, far surpassing the more compact types in freedom of growth, being at the same time more elegant in habit. *Nemophila insignis*, a well-known hardy annual, is also suited for growing in pots in a cool house. This might now be sown in the pots (6-inch) in which it will flower well. Some *Primula* seed (Chinese) should now be sown for an early batch of plants. Those who find a difficulty in getting the seed to germinate should put a light layer of *Sphagnum Moss* upon the soil. When any watering is needed, merely sprinkle the Moss, removing it carefully as soon as the seed has started. *Francoa ramosa*, although not an annual, is easily raised from seed. This should now be sown to obtain good plants for flowering next year.—H. G.

SHORT NOTES.—STOVE AND GREENHOUSE.

Rhododendron Williamsi.—This is the result of a cross between *Azalea sinensis* and some species of *Rhododendron*. It produces large heads of pure white flowers, the upper petals being slightly spotted. It is a very free flowering plant.—H. G.

Boronia megastigma.—I am told that the dark-flowered form is the best grower. When I used to have this plant by the thousand at Messrs. Rollison's, who sent it out, I only knew the dark form, so that I have no knowledge of any difficulty in growing the pale green or pale brown kind.—W. G.

Azalea Princess of Wales.—What a beautiful flower this is! I think it is better than *A. Deutsche Perle*, the petals of which are stained at the base with green. There is a very faint tinge of flesh colour at the base of the petals of *Princess of Wales*. It is one of the best double white varieties for early work.

Double white Chinese Primula.—I have received some beautifully fringed double flowers which have sprung from *P. alba magnifica*. The sender says the plant had a fine truss of this double sport, and he is trying to perpetuate it. A fine double-flowered

variety having the habit and foliage of *alba magnifica* would be a great acquisition.—W. H. G.

TREES AND SHRUBS.

JAPANESE EVERGREENS AND THE FROST.
THE Japanese evergreen shrubs, of which we have a goodly number in our gardens, have, generally speaking, suffered but little during the severe winter we have experienced, by far the greatest amount of injury being done to the *Euonymus*, which are so popular everywhere and so much grown. The common green-leaved *E. japonicus* is one of the very best Evergreens we possess for the seashore, and it is also surpassed by none as a London shrub, holding its own as it does even in dull, smoke-laden districts. In some situations around London it has suffered a good deal, but it quickly recovers even if severely cut back. The variegated-leaved varieties show the severe ordeal through which they have passed, as apart from frost, the sulphur-laden atmosphere, which has been especially noticeable during the last winter in London and neighbourhood, has greatly affected all foliage which is in any way delicate. The large silvery-leaved *E. latifolius albus* has with us suffered the most of all, while the variegated form of the little *E. radicans* has lost a great many of its leaves, but the shoots do not appear to be injured. The same, however, cannot be said of the dark green Box-like *E. microphyllus*, which I see in some places is almost killed. *Andromeda japonica*, even in districts where the sooty deposit is so dense that the foliage is black, has passed unscathed, the very youngest leaves being quite fresh underneath their coating of soot. This is a wonderfully neat and pretty little Evergreen, whose flower-buds in the open ground appear almost ready to burst into bloom. The little Japan Holly (*Ilex crenata*) and all the varieties of it do not seem to have suffered in any way, and the same may be said of the different forms of *Osmanthus*, that with very dark green foliage and purplish bark to the young shoots being the best of them all. *Aucubas* are in places slightly browned, which remarks also apply to that pretty flowering shrub *Raphiolepis ovata*, or *japonica*, as it is sometimes called. *Daphniphyllum glaucescens* with its peculiar greyish green foliage is as fresh as ever, and promises to be a valuable evergreen shrub, while the smaller *D. jezoense* is in some places slightly seared, and in others it has passed through the winter unscathed. A great many of the *Elæagnuses* have lost or are rapidly losing their foliage, but I do not think they have suffered much permanent injury. It is, of course, somewhat premature to speak of one's losses at present, but the effect of the winter upon Evergreens can be better ascertained than in the case of deciduous subjects. After a trying winter one must not be too hasty in assuming that a plant is killed, as an apparently dead specimen will often show signs of life during the ensuing spring or summer and then recover in a marvellous manner from its injuries. H. P.

Ivies.—Although Ivies look very pretty on walls, I have often thought that the plan of intermixing variegated and green-leaved kinds or strong growers and those of more refined growth is a mistake, because when walls are Ivy-covered they should wear, so far as is possible, a natural and not an artificial aspect. Still further, many very beautiful forms of the Ivy are smothered in the stronger growth of the robust varieties, and eventually they almost disappear. We grow Ivies for two purposes. First, to cover almost rudely and, so far as is possible, naturally bald or unsightly objects. Sometimes there are buildings—for stone or brickwork, new or old, are rarely pleasing elements in gardens—sometimes walls, fences, or old tree stumps, sometimes arbours or summer-houses, indeed all sorts of objects seem to be at once beautiful and picturesque when Ivy-covered which are even ugly and obnoxious when seen in their naked deformity. The more robust and luxuriant the Ivy growth the better, especially that the climber is so amenable to prun-

ing that any undue development can easily be remedied. With respect to the other use of Ivy that assumes a more distinctly garden aspect, we grow the plants as pyramids or in pots, or in other diverse ways, for the sake of securing their full beauty, irrespective of other considerations. Possibly pyramids of Ivy have a very unnatural appearance, but when a special part of a garden is set apart for Ivy cultivation a very pretty effect is produced when plants of all pleasing kinds are planted and trained somewhat ruggedly over stout stumps or posts, the points of the stronger ones, which should come alternately, being carried in the form of festoons from post to post. In such case Ivies become indeed beautiful garden decorative plants.—A. D.

The Moose-wood (*Acer pennsylvanicum*).—This Maple is remarkable for its peculiarly striped bark, which is so pronounced that the plant is often known by the specific name of *striatum*. The bark is smooth, greenish in colour, and striped longitudinally with white, while the young wood has also some blackish markings. The leaves are very ornamental and the striped bark conspicuous at all seasons, but more especially during the winter when the tree is devoid of foliage. At that season it ranks with the Silver Birch, Black Birch, Cork-barked Elm, Golden-barked Ash, the Dogwood, and Golden Osier, that serve to enliven our woodlands during the dull days of winter. *Acer pennsylvanicum* is a native of a considerable tract of country in North America, from whence it was introduced about the middle of the last century.—T.

Retinospora obtusa pygmæa.—Of all the miniature Conifers, this is, I think, the prettiest when so situated that it does not get splashed or otherwise disfigured during bad weather. For a cool house from which frost is just excluded I know of no prettier plant than this dwarf *Retinospora*, as it forms a round, somewhat flattish little specimen, whose foliage retains its rich green tint throughout the entire year. Treated in this way it might be taken for one of the *Selaginellas* rather than a form of a tall timber tree. There is no danger of it outgrowing the allotted space, as it will not gain in stature above half an inch a year, while the rate of its lateral development is not much greater. It is quite hardy, and in the open ground the best place for it is on the rockwork, where it is not so liable to be passed over as if associated with larger shrubs.—T.

Phillyrea Vilmoriniana.—As in the severe winter of ten years ago, this *Phillyrea* has passed untouched through the last one, the foliage being alike unaffected by frost or fog. It is certainly a very valuable evergreen shrub, and one that bids fair to maintain the good opinions formed of it when first attention was directed to its merits. This *Phillyrea* forms a compact-growing, much-branched bush, clothed plentifully with oblong-shaped leaves, each about 6 inches in length, of a smooth, leathery texture, and dark green in colour. This species, which is a native of Asia Minor, is also known under the names of *P. decora* and *P. laurifolia*. We seldom hear anything of its merits regarded from a flowering point of view, but when a bush of it is in full bloom it is then very pretty, and the blossoms are also sweetly scented. The individual flowers are small and of a whitish tint, but being borne in dense axillary clusters along a foot or more of the shoots, they form when fully expanded quite a wreath of blossom, and are then, of course, far more showy than would be imagined by seeing but a few blossoms. The general appearance of a flowering branch reminds one somewhat of the South African Winter Sweet (*Toxicophlæa spectabilis*), and the *Phillyrea* is equally fragrant with that well-known stove shrub. The flowers are seldom borne towards the extreme points of the shoots, usually commencing at 6 inches or thereabouts from the upper part and being continued often into the old wood. The flowers are succeeded by oblong-shaped berries, which are each about half an inch long, and when ripe much the colour of a Sloe. This *Phillyrea* is by no means difficult to strike from cuttings formed of the current season's shoots, taken when they are about three parts

ripened. They should be dibbled firmly into pots of sandy soil and kept close in a frame till rooted. This mode of increasing the *Phillyrea* is better than grafting on the Privet (with which most members of this genus effect a union), as the foliage of plants raised from cuttings is generally superior to that of grafted ones.—T.

SHRUBS NOW IN FLOWER.

IN the garden, where all the best shrubs find a home, hardly a month in the year passes without something opening its flowers, unless, of course, the weather is so exceptionally severe as it was during December and January. The change has, however, come, and with it the shrubs that naturally flower at this dull period are fast opening their blossoms, and will soon be bright and gay. The gem of the winter is the naked-flowered Jasmine (*J. nudiflorum*). Often it is flowering well at Christmas, but this year it is only now commencing to make a show. It is a lovely shrub for a wall or to clothe a naked fence, but it should be allowed some amount of freedom, as the senseless restriction of growth which some practise in keeping the creepers neatly and firmly trained to the wall deprives the plant of more than half its beauty. Training is essential, but it should consist in securing the main branches, and from these will hang in graceful masses the slender shoots, which bear the pretty yellow flowers. It is a shrub that will thrive almost anywhere. A pretty combination is that of this shrub and Ivy. They blend well together, and the leafless, flowering shoots of the Jasmine look admirable with a background of dark green Ivy leaves. *Chimonanthus fragrans* is another shrub which blooms at the dull season of the year. This, too, is later than usual, but it is now opening its flowers freely. It is a strong-growing shrub—in fact a bush capable of self-support. The shelter of a wall, however, is needful to enable the flowers to open and as a protection to its blossoms. It has a stiff habit of growth, and flowers upon the twigs. The flowers are not conspicuous for their brightness, but they attract with their delightful fragrance, and are pretty upon close inspection. In a cut state, too, they last a long time, and fill the room with their fragrance. The *Mezereon* (*Daphne Mezereum*) is opening its blossoms, and will continue doing so until April, when each shoot will be hidden in the profusion of blossom. One marvels at this shrub being so neglected. The cottagers know its worth and appreciate its beauty. Probably most of the finest bushes in existence are to be found in cottage gardens. This is an admirable shrub for large gardens, where it should be found in bold masses. Beautiful in itself, its effect can be enhanced by associating with it some of the dwarf choice Evergreens, such as *Mahonias* and *Barberries*. There are varieties which in colour vary through all the shades of pink, rose, and crimson, and with single or double flowers. This shrub, too, has an additional charm, for a crop of berries succeeds the flowers, and when these become red, and especially in autumn when they shine out from among the yellow foliage, then the *Mezereon* is as effective and noticeable among berry-bearing shrubs as it is now among those that flower so early in the year. A. H.

Bamboos.—These were so fully treated on in the pages of THE GARDEN a short time ago that it is not my intention to say much about them now, but I wish to recommend one particular variety among them, and that is *B. Metake*, which no amount of cold seems to injure, as our plants of it have stood quite unprotected all through the sharp frost and are as fresh and healthy looking as ever. All other kinds are disfigured more or less, but not so *B. Metake*, which has not a leaf changed, and it seems as if it would grow and thrive anywhere, for we have it in stiff clayey soil and light, wet and dry, the only difference being in the length of the canes it makes and the shade of the green. Not only is this Bamboo exceedingly valuable as an ornamental object on a lawn or other part of the grounds, but it is of great use to cut from or keep in pots as a substitute for, or in some measure to take the place of Palms for church, hall, or

room decoration, as the severed stems dropped into bottles of water last fresh a long time. We use them here largely in our church, and the effect they produce is very fine, as they run up some 7 feet to 12 feet in height and look well standing in corners or up along each side of the windows. For grouping they are just as serviceable, as then the shorter lengths come in, and they are so light and chaste in appearance.—S. D.

GARDEN FLORA.

PLATE 796.

THE COLCHIC LILY.

(*LILIUM SZOVITSIANUM*.)

ALTHOUGH not actually the first Lily to bloom with us (*L. pyrenaicum* having occupied that position for some years), the Colchic Lily is nevertheless one of the earliest flowering Lilies we possess, being usually at its best during the month of June, about the same time as the different forms generally classed under the collective title of *L. umbellatum*, the Siberian *L. tenuifolium*, *L. pulchellum*, and others. Considerable differences of opinion have been expressed with regard to the Colchic Lily, which is of wide geographical distribution in the Caucasian region, and consequently several names have been bestowed on what I should say are but forms of one species. Thus *L. monadelphum*, *colchicum*, *ponticum*, and *L. Loddigesianum* might all be classed under the head of *L. Szovitsianum*, but to some of them varietal rank might be, perhaps, accorded. *L. Szovitsianum* is, however, such a variable Lily, that even where a number of them are grown together it is very difficult—indeed, well-nigh impossible—to find two individuals exactly alike, there being a difference either in shape or colour of the flower, absence or profusion of spots, time of opening, or in some other respect. It is by Mr. Baker included in the sub-genus *Martagon*, or Turk's-cap Lilies, but the leaves, which in the ordinary *Martagon* Lily and its varieties, in *L. pardalinum*, *L. superbum*, *L. Hansonii*, *L. Humboldtii*, and others, form such a prominent feature, being borne in regular whorls, are here broken up and scattered round the stem. This character is also to be found in many other members of the *Martagon* group, some of the best known among them being *L. pomponium*, *L. polyphyllum*, *L. tenuifolium*, *L. chalcidonicum*, and *L. testaceum*. Even though the Colchic Lily is a native of the wild Caucasian district, considerable numbers are imported into this country during the winter. Of course, we are not inundated with them as with the various Lilies from Japan, where they are largely cultivated, for the bulbs of *L. Szovitsianum* received here are simply collected in a wild state and sent to this country. Still, they may sometimes be met with largely represented at the auction sales of bulbs held in London during the winter months. The bulb, which is ovoid in shape, with a prominently raised centre, is composed of a great number of rather narrow pointed scales, which when cultivated in this country are generally of a yellowish colour, occasionally flushed with purple, while in imported bulbs this latter tint greatly predominates. These bulbs may occasionally be met with about a foot in circumference, but such large ones do not always yield the most satisfactory results, as medium-sized bulbs are far less affected by removal than the very largest.

This Lily greatly resents being disturbed at

* Drawn for THE GARDEN by H. G. Moon, in Mr. G. F. Wilson's garden at Weybridge. Lithographed and printed by Guillaume Severeys.



LILIUM SZOVITSIANUM

the roots; in fact, the first season after planting, if imported bulbs, very few leaves and still fewer flowers will be seen, while in the case of home-grown ones, lifted carefully and soon replanted, some may flower satisfactorily, while others will not produce a single bloom. Under favourable conditions, however, the following season a great improvement may be reasonably anticipated, and when fully established this Lily will sometimes reach a height of 6 feet and produce from twenty to thirty flowers on a stem, though as a rule the number is much less. They are generally arranged in the shape of a perfect pyramid, each flower hanging quite clear of its neighbour, and when in good condition it must certainly be ranked as one of the most beautiful and distinct of Lilies. Occasionally the colour of the flower is deeper than that shown on the accompanying plate, while it is sometimes of a lighter tint. I remember a very fine example of this latter class being exhibited by Mr. G. F. Wilson at a meeting of the Royal Horticultural Society as long ago as 1883, under the name of *L. Szovitsianum pallidum*, when it was awarded a first-class certificate. The blossoms of the Colchic Lily possess a heavy, disagreeable smell, on which account they should never be taken indoors. This feature is common to many other members of the Turk's-cap section, being very pronounced in the common Martagon and varieties, in *L. pomponium* and *L. pyrenaicum*. As might be imagined from the wild and exposed region it inhabits, the Colchic Lily is thoroughly hardy, but to succeed in its culture very different conditions are needed from that required by many Lilies. The roots of this Lily are strong and proceed directly downwards, so that a comparatively deep soil is the best for it, and though it may grow in composts of a peaty nature such as some Lilies delight in, the greatest measure of success with *L. Szovitsianum* is attained when planted in a good loamy soil, which is never parched up, and where the bulbs are allowed to remain undisturbed for years. H. P.

FLOWER GARDEN.

AUTUMN-BLOOMING SNOWDROPS.

THE Snowdrop is so essentially a spring-flowering plant as grown in most gardens, that it may be of interest if I allude to the autumnal-blooming Snowdrops which as yet are confined to the gardens of the specialists. These early blooming varieties, so far as at present discovered, seem confined to the Grecian Archipelago, and they are far more delicate in constitution than their relatives of Northern Europe. It is probable that all of the five are nothing more than geographical variations of *G. nivalis*, and they are mainly interesting to specialists, being far too capricious for ordinary culture.

Fond as I am of all Snowdrops, I am fully aware that a Snowdrop of the autumn can never have for most of us the value or peculiar luxuriance and beauty of a Snowdrop of the spring. So also the greenish or yellowish or pinkish Snowdrops can never rank with the real varieties that rival in purity the freshly driven snow. Still, to collectors anything and everything distinctly different in the genus *Galanthus* are welcome, and after all I am as eager to see and to grow these curiosities as anyone else.

AUTUMN AND WINTER-BLOOMING SNOWDROPS.

G. OCTOBRENSIS.—This is said by Herr Max Leichtlin in THE GARDEN, March 30, 1889, p. 300, to be only another name for *G. Olgae* *Reginæ*, and he is corroborated by M. Victor Von Tanka, a bo-

tanist who well knows the Greek and Turkish floras. (See also GARDEN, March 13, 1889, p. 250.) In cultivation the flowering of this form varies with the seasons, and Mr. Allen records its flowering with him at Shepton Mallet on November 1, 1885; on October 10, 1886; and on October 28, 1887. (GARDEN, November 5, 1887, p. 417.) As implied by the name, it usually flowers in October, often before the upstarting of its leafage. It was collected near Scroftiza, or Conchi, in Albania, fifty to sixty miles north of Corfu, by Lord Walsingham, who sent it to the late Rev. H. Harpur Crewe.

G. PRÆCOX (= *corcyrensis*) was sent to Mr. Harpur Crewe from Corfu by the chaplain there, the Rev. Mr. Hughes. A form of *G. nivalis*, flowering in December or January, and Mr. Hughes thought it to be the ordinary Snowdrop of the island of Corfu. It is smaller than *G. octobrensis*, and, like it, very delicate. Leaves two, *G. nivalis*-like, white line broader than midrib, flowers small. Kew. (GARDEN, January 14, 1888, p. 43.)

G. RACHELLE.—A solitary bulb of this found by Professor Mahaffy was introduced to the College Gardens, Dublin, in 1884, from Mount Hymettus. It flowers in October and November, before or upon the first upstarting of its leaves. Flowers like those of *G. nivalis*, but its leaves are broader. Mr. Allen remarks in THE GARDEN (March 30, 1889, p. 300) that all three of the autumnal flowering Snowdrops have a distinct glaucous line down the centre of each leaf.

G. ELSÆ.—This Snowdrop was found on Mount Athos, in Macedonia, by Professor J. P. Mahaffy, who introduced seven or eight bulbs to the College Gardens, Dublin, a year or two ago. It throws up its leaves in November, and flowers from November to January along with *G. corcyrensis*, from which it differs in having larger flowers and stouter leaves.

G. REGINÆ OLGÆ (= *G. octobrensis*).—This is the *G. Olgae* of Orphanides, and I only know it by the following description, kindly sent to me by Mr. Jas. Allen some time ago:—

G. Olgae (Orphanides).—Leaves two, produced at a different time to the flowers, 6 inches to 8 inches long, quarter of an inch broad, linear, obtuse, very glaucous beneath. Scape rather longer than leaves. Flower nodding, white, outer segments elliptic, obtuse, about an inch long, quarter of an inch broad, narrowed into a claw. Inner segments (petals) half as long, obovate, with rounded lobes, apparently not spotted with green. Stamens two and a half times shorter than inner segments of perianth. Anthers subulate, acuminate; filaments very short. Mount Taygetus; flowering in October.

It would be very interesting to hear from anyone who has introduced any autumnal Snowdrops from Greece or Asia Minor as to their habitats and cultural behaviour in gardens.

F. W. B.

Columbines.—The very robust foliage which Columbines are developing shows how very hardy these plants are, and how suitable they are for the hardy flower garden. A garden without Columbines is indeed lacking in one of the most beautiful of hardy flowers, and yet they may be obtained easily enough because so productive of seed and so easily raised from seed. Sown now, seed will produce fine young plants during the summer, most of which will bloom fairly well the following year, and most profusely for many years afterwards. Really, Columbines seem as if they would endure for ever once they have become established. To lift plants and divide them for the sake of increasing stock seems to be a superfluity when seed may be relied upon to reproduce its kind absolutely; and if variety be desired, then that may easily be obtained by a little intercrossing. So far as what are commonly called the garden forms of the *Aquilegia* are concerned, these come from what is now a thoroughly broken race, and will give considerable variety without taking special trouble to create it. The popular species, however, such as *chrysantha*, *californica*, *cœrulea*, &c., usually need some intercrossing to produce breaks, but the best break I have found at any time has been the product of crossing *cœrulea* with *chrysantha*, as giving a very

robust and free-blooming race, far more effective than is *cœrulea*, and earlier and more compact habited than is *chrysantha*. An imported white form of *chrysantha* designated *alba*, so far as it has yet bloomed, seems disappointing, and the best whites have come out of the mixed garden hybrids, some of which are very pure and good. Could we but join on to the best of these the long spurs of *chrysantha*, we should have very beautiful flowers indeed. Beautiful as *glandulosa* is, it proves to be such an indifferent bloomer generally, that it is often disappointing, and I much prefer the more robust forms, because flowering so abundantly.—A. D.

THE PINK.

THAT section of the National Pink Society which holds its shows in London will have an exhibition in connection with the show at the Royal Aquarium, Westminster, on June 24 and 25. In order, apparently, to give greater latitude to Pink growers, Mr. E. R. Johnson (secretary) has struck out from every class the prefix "florists" to laced Pinks; so it will not follow as a matter of course that all the Pinks exhibited in the first four classes shall of necessity be white ground flowers. That is what I take to be the intention of Mr. Johnson in striking out the term "florists." With the exception that the large class for twenty-four varieties is struck out of the schedule, it remains as it was last year, including special prizes for three blooms of any seedling laced Pink not in commerce, given in memory of the late Henry Hooper, of Bath, a noted cultivator and raiser. The classes for bunches of garden border Pinks are still retained, and they are undoubtedly the means of bringing to public notice many pretty things admirably suited for border decoration. What with a projected exhibition at Wolverhampton early in July and the exhibition in Manchester (first held last year) a little later, the Pink is likely to be to the fore in the coming season, and a considerable impetus will no doubt be given to its cultivation.

In one of his characteristic addresses on the Carnation the late Mr. Shirley Hibberd mentioned that it will "endure with patience the smoke and dust of great towns," and he made allusion to the perfect blooms Mr. Dodwell produced at Clapham in 1850 in his garden "favoured by a railway company with a perennial shower of blacks night and day the whole year round." Mr. Rowan at Manor Street, Clapham, which is near two railway lines, produces Carnations and Picotees of great beauty and finish, which often take first prizes at Carnation shows. The Pink also, a very near relative to the Carnation, but which blooms a month earlier, is perfectly hardy, and readily accommodates itself to varying soils and situations. The Pink will resist even the noxious exhalations of large towns, not only existing, but blooming freely amidst the smoke and dust which prove fatal to other flowers; and it is remarkable for the freedom with which it produces its blooms. When to a chaste white ground there are added a disc of colour in the centre, and a lacing of red, purple, and black laid on upon the petal margins, together with an agreeable perfume it appears to possess in excess of the Carnation, we have a flower well worthy of being generally cultivated.

The undoubted neglect of the Pink which continued up to the last few years laid at rest some of the old controversies as to the shape, size, and fullness of the flowers. When the northern growers derisively termed the larger flowers grown by the southerners as "mops," whether the lacing should strike the petal edge or not, and whether the margins to the petals be smooth or fimbriated, what was declared to be a cultivated taste set itself in fierce hostility to the serrated edges, and it still characterises in part our leading florists' variety, as if inherent in the flower's nature and not to be wholly eradicated. Even now one catches the echoes of some of these disputed points, as the agreement between north and south is not assured, but the disputes are little likely to rise again.

One thing is quite certain: the Pink shows of

1890 operated to impart a great impetus to the appreciation and production of fine border varieties. Some of these put in an appearance at Manchester, and their beauty was universally acknowledged. Raisers of seedlings are on the alert; the new white varieties, *Her Majesty* and *Mrs. Lakin*, are decided advances and an earnest of what is in store now that seedling raising has commenced in earnest.

The black and white type, a flower with a rich dark centre, but the petals wholly devoid of lacing and pure white—a Pink that displays a singularly harmonious contrast of colour—appears to have become quite lost. There is such a charm in the very absence of the coloured ornamentation seen in the laced Pinks, that there is urgent need for the reappearance of the black and white. Not one put in an appearance at Manchester. But to see this type of Pink in all its beauty and purity the flowers should be carefully shaded or produced under glass, neither sun, wind, nor rain being permitted to dim their lustre. The pretty single fimbriated varieties also should be encouraged. They are wonderfully well adapted for border culture and for rockeries, and they yield a large supply of bloom for cutting and decoration.

R. D.

WINTERING DELICATE ALPINES.

I HOPE my friend M. Correvo (p. 186) has not been forgetting that this subject has been under discussion in special reference to localities near to large towns. If instead of from the mountain-sides of Geneva, or the equally pure and genial climate of Valeyrès, he had dated from near some big city with large factories and half a million of population, we might have had more faith in the lessons of his experience of plant culture. Why, who in this country can say they ever grew in the most favoured spot, or with the greatest care, such plants as *Saxifraga florulenta* for a stretch of 25 years? I question if it is possible here, and if not, this alone would show clearly that the natural conditions are very different. *Androsaces* (*helvetica*, *imbricata*, *pubescens* Packeri) and some other exceptionally fickle alpine plants mentioned by M. Correvo can scarcely be kept growing in England. How then can the cultural measures under which they succeed in another climate, and that their native one, be expected to answer here in localities where the atmosphere is relatively poisoned? I am now speaking exclusively on the point of localities with a view of showing that a gardener's experience in one place may not always be reliable, and sometimes may be misleading for another climate, and especially when what may be fairly termed the extremes are under notice, as in the present case, of a Swiss alpine garden and another near Manchester. In short, I fear cultural experience of alpine plants in alpine places may not exactly meet the case for success in the thickest manufacturing districts in the north of England. We have learnt to envy Mr. Ewbank at Ryde, Mr. Woodall at Scarborough, Canon Swayne at Salisbury, the owners of some noted collections of alpine plants in the districts of Dumfries, South Wales, Kyles of Bute, and Ireland, and there is in some degree a comparison of conditions, but when the Swiss Alps come into view there is an absolute contrast. I have learnt the great advantage of planting many things in the crevices of perpendicular surfaces, but who has succeeded in getting things so finely balanced artificially, that the exact food the most fickle of alpine plants require is by them obtained from the stones only? It is true it is so naturally, but Nature evolves more than we have yet found out how to do. Moreover, we have not in the lowlands the mitigation of summer heat and drought, the coolness and thinness of air peculiar to high elevations, and one hot summer's day might on an over stony rockery almost consume a set of

plants that were possibly otherwise fairly well accommodated, to say nothing of a contaminated atmosphere. I think many of our most expert cultivators will be of the opinion that the selection of plants adapted for local conditions is a point well settled for all practical purposes. If you make "tufa" walls in Yorkshire or even steeply inclined rockeries, they bulge and fall down in frosty weather. My losses from this sort of structure are not likely to be forgotten. I may not have been over clear, but at any rate my meaning has been mistaken when it is supposed that I advocated glass covers with open sides for all alpine plants. Just the opposite. I would employ them for only the tomentose, hairy, or otherwise exceptional species which are comparatively few. At this moment, excepting cold frames, I have not more than half a dozen in use.

It is fortunate that there are some hundreds of lovely alpine and other plants suited for English rockeries, and possessing such robust constitutions, that you may almost, if you like, reverse some of the conditions of their wild homes, and yet they will thrive and increase in their own natural ways. But when we come across the more delicate and sensitive species, they may be kept going only for a time with loving care. Though I would strive to attain a high standard of results, I believe it to be a vain task to try to succeed with some alpine plants away from alpine conditions. I am glad to admit that, relatively, the number of such species is small, and I am aware that the *Androsaces* mentioned above, and other similar delicate kinds, have often been made to flourish in some favoured gardens, or under very skilful management, but they do not continue like the Maiden Pink, the common Harebell, and other native flowers. I am struggling here with the ground Laurel (*Epigæa*), Pine Barren Beauty (*Pyxidanthera*), some rare Indian *Gaultherias*, with foliage small and of a densely glandular character; but it is simply a race whether the roots can send out new foliage faster than these evergreen species become chronically choked in their older leaves by unavoidable impurities. If our aims are moderate, well-reasoned, and persistent, we may almost surprise ourselves by our successes in alpine culture; but we may eventually become discouraged if we aim at the unattainable.—J. WOOD, *Woodville, Kirkstall*.

—Many who take up the cultivation of alpine plants frequently fail because they have never thought the subject thoroughly out, but when Mr. Williamson says that he is still disposed to regard the wet as his difficulty as much so as the smoke, I have no hesitation in saying he is perfectly correct, and further I would say that for every single death in alpine plants that may be traced to the direct influence of smoke, a score may easily and more readily be traced to the wet and damp. For this very reason I have for years past advocated a perfect and continuous circulation of air about the plants, particularly when the latter are placed in any kind of frame for the winter months. The pot culture of alpine plants, or indeed most things, reveals to us the following conditions: First, the possibilities of imperfect drainage of the soil, especially if worms have access to the pots; second, the possibility of over-wetting the soil for these delicately constituted gems; and thirdly, the fact that we grow these lovely things in a flat dab or pot; whereas in Nature they are the occupants of inclining surfaces, or, what is even better, the horizontal or perpendicular fissures of gigantic rocks. In either of such cases in Nature there is no chance whatever of water gaining a lodgment in the woolly tufts of these

alpine gems, yet at the same time we encourage the thing most fatal to the plants by the very way in which we cultivate them in pots. If we would only remember that these downy tufts have a decided tendency to retain every atom of moisture that falls upon them even in the summer, it should at once prove how very fatal any moisture would be to them in the winter, particularly if such moisture obtained a lodgment in the tufts. For example, take that inimitable gem *Eritrichium nanum*, than which we have none so really difficult to please or accommodate. For such an one, had I a good rockery, I would select an horizontal fissure of rock having a north-westerly aspect, securing a deep run of soil for the roots, and making sure that it was tightly wedged between the upper and lower surfaces of the rock, and, of course, making sure that no vacuum existed behind the plant. Given these conditions, with comparatively little soil except in depth, I should be quite prepared to see as good results from wedging this plant between a pair of bricks perpendicularly placed as I should were it merely transferred from its native home on the mountains, with a few bushels of soil and all complete, to any garden you choose in Britain. Too much stress cannot be laid on position and aspect for such things as these. The same plant when grown in pots should receive a special treatment, and it may either be tightly wedged between two pieces of stone perpendicularly placed in the pot and allowed to extend 3 inches above the rim, ramming it very firmly in position, or a pot with a broken side may be selected, placing the tuft outside to prevent water lodging in the tuft. The great difficulty, however, is getting respectable pieces to begin with, for nearly all collected specimens are ruthlessly torn from the rocks, i.e., the tops brought away and the bottoms left behind. Importations of this plant should never be potted in the usual way when received, and the best treatment I know is this: Fill some 5-inch pots nearly half their depth with crocks, then put in an inch or so of sandy soil, afterwards placing the plants around the interior of the pot at a little distance apart; now insert a 3-inch pot in the centre of the 5-inch, and allow it to be fully an inch above the plants, when the plants in the narrow fissure caused by inserting the one pot in the other may be rammed very tightly in their places. On no account place them in a closed frame, for even in summer this delicate alpine is impatient of anything approaching a stuffy atmosphere. Stand the pots behind a north wall in a saucer of water, and let this saucer form the medium of watering this plant. Scores, even hundreds, perhaps, may love to grow choice and rare alpine plants, but they are deterred by notions of rockeries or frames, and it may never have occurred to all these that nine-tenths of our very best alpine plants when grown in pots may be wintered quite safely behind a north wall laid on their sides, and stacked one above the other from early in November till the middle or end of February. I select a north wall because the temperature would at all times be more equable and uniform, a much desired state for many such things. Let those who have not thought of this and who grow alpine plants in frames—I had almost said coddle them—give it a trial. It is infinitely superior to a frame, particularly if shut at any time; and mats or covering I always regard as fatal. A frame at any time when closed is quickly charged with moisture from the soil, and trebly so in winter; therefore, I say, avoid it by all means. It may assist Mr. Williamson to know that the walls to which I referred were in a great measure a necessity,

and really formed supports for huge banks of soil, e.g., terraces, croquet lawns, and such like. They were, however, made to fulfil a two-fold purpose, and while furnishing the requisite support, were also made to accommodate hundreds of alpine and similar things; and I can only say, in answer to Mr. Williamson's suggested wall, that if he cannot command a bank of soil to build against, the next best thing would be a rockery wall with both sides available for the plants, thus affording considerable variation of aspect which is of great importance, and if erected at the angle stated, I should not regard a frame as at all necessary, as protection could be afforded in all cases by selecting positions, such as projecting ledges and so forth. I cannot but think, too, that such erections would rob it of much of the natural beauty which might otherwise surround it; for instance, if carried out as Mr. Williamson suggests, it must of necessity be straight to accommodate the frame above it, but if made with both sides available, it might with advantage take an irregular course, and thereby accommodate a far greater number of really beautiful plants. Mere height is optional and best regulated by circumstances. With regard to a modification of light, I confess I had never taken that into consideration, though I should imagine that our average light in winter hardly stands in need of modifying at all. Mr. Williamson, I think, hardly follows me as I intended when he says that I appear "to attach more weight to ventilation than to the exclusion of damp." But he must not overlook the fact that it is confined damp, which is virtually a stuffy atmosphere, that is so fatal to these plants, and nothing will dispel damp more rapidly than continuous ventilation. Even on wet days when the atmosphere is fully charged with moisture the latter could not linger about the plants with the lights raised at back and front, while the slightest breeze would carry it away. But the reverse is the case where the frames are closed, for in ten minutes the glass will be coated with condensed moisture, which increases in density hour by hour. The case of Mr. Williamson's friend is an excellent lesson on the importance of elevation, the value of which I have repeatedly urged; and it is in such positions that many of our most fastidious alpine plants thrive under very ordinary conditions of soil and other things, while they refuse to be comforted with the best that skill can devise in dozens of gardens at decidedly lower levels.

I notice at page 186 that M. H. Correyon, while agreeing with the principles which I advance, takes exception to my advice to mix soil with the mortar, and that such a proceeding is both from his experience "injurious and unnecessary." M. Correyon adds that "in their native habitats rock plants send their roots into the fissures of the rock, where they meet with only two things, viz., moisture and the undissolved component elements of the rock." Let us now take these points *seriatim*. Firstly, my recommendation of soil and mortar being "injurious and unnecessary." That it is not injurious I have conclusively proved by the hundreds of plants which I have grown in the manner indicated, and which included sixty or seventy species and forms of Saxifragas of several sections, Drabas, Aubrietias, Sedums and Sempervivums in quantity, dwarf Campanulas, Erinus, Rock Roses, Androsace lanuginosa, Linaria alpina, L. hepaticifolia, Lunaria biennis, Oenothera humilis and O. Rafinesquiana, Saponaria ocyroides, Dianthus, &c., while its being unnecessary is quite outside the question when plants in such variety are quite a

success under the treatment accorded. Secondly, M. H. Correyon goes on to state that "in their native habitats rock plants send their roots into the fissures of the rock." Exactly so; not from choice, however, but by force of circumstances, and because they have no other means of existence, while in the struggle for existence they send their roots down to an almost incredible depth, frequently adhering to the rocks in a surprising manner—a fact alone which points to the utter impossibility of collecting good roots with many species; but because they dive thus deeply in the struggle for life, and because they exist in fissures in their native habitats, by no means prove that these very plants would raise any objection to a bit of good loam. Our experience in England proves the contrary very conclusively, and my experience in the cultivation of alpine plants proves that we can with impunity ignore the conditions of soils on which they are found naturally; for beyond the fact, which is undoubtedly interesting in itself, it constitutes no fitting guide to English cultivators of these plants. Attempts have been made to imitate the natural conditions of soil which some hold essential to their success without any good resulting from the trial, while instances are on record where the plants have been grown on the reverse formation and succeeded admirably; in other words, the lime lovers and the lime haters have done equally well under the same conditions. I am not saying this without deliberation, for I have proved it. But the point at issue is not alpine plants in their native habitats, but alpine plants in English gardens, which is a material difference; and here I may add that of the vast majority of very rare alpine plants, we only fail, either wholly or in part, with an exceedingly small percentage, these being possessed of dense woolly tufts, e.g., Eritrichiums and some Androsaces, and even here our failures are not due to the presence or absence of certain rock formations or soils, but absolutely to an incessantly damp or foggy atmosphere over which we have no control. In the higher parts of Scotland many rare alpine plants thrive under very ordinary conditions, the same plants in the lowlands defying our best endeavours to keep them alive. All these delicately constituted plants should either be placed in crevices on the perpendicular face of the rock or in shallow recesses, where a slight projecting ledge may protect them from heavy rains.—E. J.

—This has raised a very interesting discussion. I reserve my opinion as to the merits of many different points of the controversy, as it is a subject so full of anomalies and paradoxes, that it is very difficult indeed to construct any code of rules about it, but I venture to raise a question on two statements that have been made:—

1. That an alpine flora likes a dry air. On the other hand, they seem to me to like an air saturated or nearly saturated with moisture whenever it is above freezing point. What alpine plants hate is evaporation; whether they are flourishing at the sea level in Scandinavia, or at an elevation of 2000 feet in Wales or the Highlands, or 6000 feet in the Alps or Pyrenees, or 12,000 feet in the Himalayas, they delight in a condition of atmospheric moisture which prevents damp rising out of the ground; their water supply, whether from rain, or from dew, or from melted snow, must be passing downwards and must feed the leaves and roots as it passes without any of it rising again by evaporation. You cannot make them happy in a damp closed glasshouse, still less under a close bell-glass. I refer to flowering plants, not Ferns, though there are exceptions, but I find that where alpine plants flourish best there is generally little or no evaporation from the surface, but abundance of atmospheric moisture.

2. That in the natural state the roots of the

plant dissolve the rock and assimilate its essential elements. Whether this is true or not is a question I leave to experts in vegetable chemistry, but I cannot see why plant roots should be supplied with so elaborate an apparatus for doing what the atmosphere and the rain will always do for them. We are told that a very gradual and slow decomposition into soluble forms takes place on the exposed surface of all rocks more or less according to their kind. This is washed by the rain into all the cracks and crevices of the rocks and so feeds the roots of the plants. It certainly seems puzzling when we lay bare the roots of an alpine plant amongst pieces of rock and fail to detect a particle of soil by which the roots could be fed, but the water which penetrates to them has first washed the surface and carried with it dissolved plant food. As a matter of practice there are very few alpine plants which will not do equally well for a few seasons whether planted in limestone or granite. This proves to me that they are fed more by dissolved food carried to them in water than by dissolving the stone for themselves.—C. WOLLEY DOD, *Edge Hall, Malpas.*

SPECIES OF PRIMULAS.

In order to interest the admirers of the various species of Primulas, there are usually classes for twelve and six plants in the schedule of prizes of the National Auricula Society. In order to supply information as to the species and varieties most desirable to grow for the purpose, the committee of the above society have published with their annual report a list of twenty-three forms, all of which are readily obtainable. These classes have an interest for many who take but little notice of the ordinary self-edged and alpine Auriculas, on the ground of their inevitable sameness and somewhat formal character, but who find in the species much to admire. It is only a few persons who could send in selections, because the majority of those who grow Auriculas for exhibition give their attention to these alone, the result being that very few grow the species and stage them at the annual exhibition. With a view of adding to this number, the committee of the society have published with their annual report the selection just referred to. *P. rosea grandiflora*, the large-flowered form of the Indian *P. rosea*, heads the list. I have seen two or three different forms under this name—selections made by those in the habit of raising seedlings, for this species is found to seed freely, and the seedlings often show a great improvement upon the parent type. *P. rosea* blooms very freely in the early days of spring, and it seems to do best planted in a moist shady position in rich loam and peat. When grown in pots it requires to be well looked after during the hot days of summer, and I find it succeeds best plunged in cocoa fibre on a north aspect where it gets but little sun. Seedlings come readily from seed, but it is best to sow it as soon as ripe. The variety *grandiflora* has large flowers of a deep bright crimson colour. *P. marginata*, one of the easiest to grow, and which takes its name from the silvery margin of meal which lies upon the leaf edges, comes next. It is a plant that propagates itself readily enough, throwing up, in the case of a well-established example, many young growths from around the roots. A remarkably distinct variety named *cœrulea* has the leaves powdered over with a deep creamy or pale golden farina, the young leaves in spring being especially embellished in this way. The flowers, which are of a pale violet-rose colour, differ but little, if any, from those of the type. *P. japonica* and its varieties are well known, and being late in flowering can be had in bloom by the third week in April only by giving them warm treatment. It is seen in its best character when grown in rich soil in the open. When cultivated in pots it needs very liberal treatment. *P. obconica*, an evergreen species from China, a form that is scarcely ever out of flower when well looked after, and *P. floribunda*, also an evergreen species, cannot be classed as hardy, and require a little warmth during winter. I have endeavoured for three or four years past to keep them through the winter in a cold house, but have failed to do so. *P. obconica* varies considerably from seed both in

the size and tint of the flowers, though the deepest I have ever seen did not get beyond a pinkish-mauve. *P. floribunda* appears to vary but very little from seed, and seedlings of both are easily raised. They partake of the long-continued flowering character of *P. sinensis*, and when well cared for are scarcely ever out of bloom. *P. sikkimensis* is hardier than either of the foregoing, but I fear not absolutely so. A very fine plant in my Auricula house perished completely during the past winter, to my great sorrow. Its tubular pale yellow flowers are produced in whorls; it is very free, and a stately plant for a cool greenhouse in summer. To have it in flower in April it needs a little gentle forcing. *P. denticulata*, *cashmeriana* and *capitata* are but forms of one species, but the finest is *purpurea*, which is superior to *pulcherrima*, an allied form. They are strong-growing and bloom early, among the earliest of the species to flower in spring, and consequently should be either planted out in a frame or grown in pots to preserve their blossoms from the frost and rain of the spring-time. *P. Auricula* is of no particular form, but any yellow-flowered type that does not approach too nearly to the florist's standard will do for its representative.

P. nivea, or *nivalis*, as it is usually called, is a charming type, and is well named the Snowy Primrose of the Alps. It blooms very early, sending up clusters of snow-white blossoms; it is quite distinct in character and very free. It is so early in flowering, that its chaste blooms need protection in order to maintain their snowy purity. I have seen this grown as a market plant, and it is no wonder it found a ready sale. It is a plant that needs dividing frequently, for it, like some other species, has a tendency to go naked about the stems, and these should be repotted, placing the tufts of leaves down close to the soil. *P. intermedia* is a very pretty purple-flowered form, regarded as a garden hybrid, and a charming subject for pot culture. *P. ciliata* and its fine varieties *purpurea* and *coccinea* are near this, and probably no botanist would pronounce them as distinct species. The two last named are particularly well worthy of cultivation, and are found to do well in pots if kept cool during the summer. I find they do well in a gritty soil with plenty of leaf mould and some pieces of charcoal mixed with it. *P. spectabilis* is a very pretty rose-coloured species, well deserving of being more generally grown; it blooms early, and in trusses similar to *P. ciliata*. It is said to do best in a rather heavy calcareous loam. *P. Censiana* is a charming alpine species, with large, brilliant rose flowers borne in large clusters. It seems to succeed best on rockwork. *P. viscosa* has been termed "one of the most beautiful of the alpine Primulas, and one of the most widely distributed." The bright rose-coloured flowers are very pretty, and it can be well managed in pots. A large form of this is known as *viscosa major*. *P. Reidi* I am not sufficiently acquainted with to describe. *P. Munroi*, or more properly *involucrata*, is a white-flowered deciduous species with granular tubers as its roots. It is very pretty and distinct and well worth cultivation, but cannot always be had in bloom by the third week in April. *P. Sieboldi* is so superior to *P. cortusoides*, that one wonders the latter was mentioned. Still, it has its admirers. It is not essentially necessary in exhibiting species of Primulas that the true species of any one be staged; it is enough if a variety of one of them be present. In the case of *P. Sieboldi* there is an abundance of garden seedlings to choose from. *P. farinosa*, the Bird's-eye Primrose is the last on the selected list, but, pretty and winsome as it is, it is scarcely striking enough for exhibition, unless there is a mass of its crowded heads of rosy pink blossoms or a made-up specimen in a pan.

It is to be hoped the publication of this selected list will be the means of calling attention to some of the most desirable forms to cultivate, and that before another two years are over there will be a marked accession of numbers to the growers and exhibitors of these pretty Primulas. R. D.

Double crimson velvet Primrose Pompadour.—I have often seen articles in different papers on the true old Pompadour Primrose. It certainly

does not thrive in all soils, but I think, with proper management and grown in the right kind of soil, it may yet become a common plant in England. I have been a successful grower of this rare plant for many years, and the soil I have found best, and really the only soil it will grow in properly, is the top sod of an old pasture field that has been put in a heap for twelve months and got thoroughly rotten. It must not be broken up too fine. This, with a little clay, as the ground does not require making too heavy, is, with a small quantity of road scrapings to keep down slugs and worms, a splendid mixture. The purples (Ann Dumolin and Marie Crousse) and red I find do well with the same treatment, and they are very beautiful when grown to perfection. The rare old yellow Cloth of Gold blooms later, and is quite an acquisition when all the rest are over. Sulphur, white, and lilac I grow in large quantities. Salmon is not yet very plentiful, but a delicate shade.—M. H., *Knutsford, Cheshire.*

TALL-GROWING PLANTS.

IN the days of carpet gardening, now happily almost passed away, the great thing was to obtain dwarf-growing plants which would present an even surface, and thus bring out the pattern required. The object was that the plant should lose its own identity in being amalgamated with a quantity of its own species, so as to produce a flat surface of one colour. Every effort, therefore, was made to find dwarf varieties of well-known bedders. When a nurseryman was fortunate enough to secure such a variety, it was brought before the public with all the flourish of illustration and large print to which we have become so much accustomed in modern catalogues. Even in the kitchen garden, where of course the above reason cannot apply, there is a great effort made to produce dwarf vegetables, so that we may now gather wonderful Peas off rows not a foot high. There is no doubt a great advantage in dwarf flowers and dwarf vegetables, and they will always be found useful in their place, but to my mind they can never equal or even approach in beauty or usefulness the taller varieties, which assert their own individuality and make themselves conspicuous wherever they are placed. However successful cultivators may be in producing dwarf Peas which bear long pods and excellent crops, such Peas can never be compared with the fine rich Marrowfats which grow 6 feet to 8 feet high, and go on producing their large pods for such a long period in late summer. I suppose the size of the garden must always be considered in this matter. Dwarf plants are a great blessing in little gardens, and fine, tall, strong-growing plants look beautiful in large ones, where they can have proper room to show themselves. Hollyhocks, for instance, are chief among the tall-growing plants which add so much to the beauty and dignity of a large place. What can have a better effect than a row of tall double Hollyhocks, backed by dark Irish Yew trees as stiff and upright as themselves and a little taller? Suppose an old moated grange or castle with its grey walls extending out in terraces and gardens some distance from the actual building itself. There is sure to be an old bowling-green attached to such a place; it seems to have been a necessity to our forefathers, and the game of bowls played then, happily now reviving again, is associated in our mind with 4 o'clock dinners and long pleasant evenings in the summer air. Very often quaintly cut trees, which seem to remind one of stately ladies and gentlemen solemnly dancing Sir Roger de Coverley, shut in the precincts of this bowling-green. The Grass, which has never been disturbed in the memory of man, is beautifully green and soft and well cut. In olden days, the pleasant sound of the sharpening of the scythe would be heard constantly in the early and dewy summer morning; now the machine and the donkey with his feet in boots shave off the Grass in quicker time. We seem to be always losing in sentiment and poetry as we gain in speed and power. Well, at all events the result is good, and this old bowling-green is at least as rich and soft as ever it was when in feudal days it was the resort for a favourite game when the evening shadows were lengthening

across its smooth shaven surface. It is left in comparative quiet now, and yet when visitors go to see an old place they never like to go away without seeing the bowling-green. This place is the very home for Hollyhocks. They are so stiff, and stately, and upright, that they seem to associate most happily with all that reminds us of an age so much more stiff and stately than our own. Then it is sure to be a sheltered place, so that these plants may run up to 10 feet high, with their beautiful spikes heavy with the great round blossoms of gorgeous hues, without any fear of being injured. They look exceedingly well in a long straight row, backed, as I have said, by taller Irish Yews, and that again backed by an old wall, itself a treasure garden of Rue, Ceterach, Snapdragons, Wallflowers, and Valerian. There is no use in attempting to graduate a series of dwarfier plants in front. If anything is wanted between the Grass and the Hollyhocks, it must be a border of mixed hardy plants. Here in spring-time our beautiful new varieties of Narcissi might enjoy the warm sunshine sheltered from the eastern breezes, so cutting and so dangerous to all living things. Here later on, Lilies, the cup-and-saucer varieties of Canterbury Bells, and other well-known and familiar outdoor hardy things would tend to make the quiet old bowling-green bright and pleasing to the eye. I have mentioned Hollyhocks first because they take the leading place amongst other tall-growing flowers. But I must mention next a flower more common than the Hollyhock and frequently met with in cottage gardens—

THE MADONNA LILY. There is something specially beautiful and interesting about all Lilies, but the old white Lily (*Lilium candidum*) is certainly beautiful and attractive where it is well grown. Of late years this Lily has been imported in large quantities for the purpose of being forced. It can be bought from this time onwards in our flower markets, and no doubt it has proved a most useful plant for this purpose. But the forced flowers of the Madonna Lily, denuded of their handsome stamens, because of the quantity of pollen with which they are loaded, are scarcely to be recognised as flowers identical with the tall graceful Lilies of our gardens in June. It seems almost a shame to treat such a lovely flower in this way, and yet those who want to make up bouquets, or to fill church vases in early spring, know well the great advantage of being able to get this stameness flower at this time of the year. I have planted imported roots by the side of those which have been long grown in this country, and I have noticed a difference in them. Home-grown plants have a more fleshy petal with greater substance, and, therefore, a different white from imported plants. The latter being thinner in the petal are slightly more transparent also. I prefer our own, but the foreign are equally free-flowering. Many complaints have been made lately about disease in this beautiful Lily. I have not met with it, nor do I notice any signs of it in cottage gardens, in which I am glad to say this Lily seems quite at home. Cottagers, as a rule, are very careful over plants of this kind, and give them plenty of rich manure collected carefully off the high road. One old woman who grows this Lily with great success tells me that she takes care to transplant them every three years. Provided this transplantation is done at the right time, shortly after the plant has gone to rest, I think it may be useful; at any rate in the case mentioned it has been highly successful. I have been disappointed to find that *Lilium candidum* will not grow in the shade. Some Lilies will do well in a comparatively shady spot; this Madonna Lily seems to prefer the full open sunshine where it can get plenty of light and air. Few border plants are more beautiful, and I am glad to see that the late hard frost has had no pernicious effect; they are just now sending up the cylindrical stems, which give promise of fine flowers later on. They come up from the heart of the long root leaves, which are formed the previous year. *Lilium giganteum* is a still grander flower, but as it has not the same associations, it will probably never be so great a favourite. Moreover, it is much more shy in flowering, and therefore will

never be of any use to the cottager. But a fine stem of this Lily with its massive flowers is worth going a long way to see, and one reads of places where it has become plentiful in moist shady woods. So far I have only seen it in lonely specimens as a great curiosity in the gardens of the west country.

Sunflowers are tall, and to a certain extent magnificent, and they naturally please those who like large and gorgeous flowers, however ugly their growth or strongly marked their character. In a small garden they look ridiculous; in a large one they may be tolerated. They have become associated with the extravagances of modern æstheticism, and we are all familiar with the portrait of a gentleman with an immense round Sunflower for a button-hole. It is hard to rescue this giant plant with its single immense flower, nodding on the top of its stem, from the charge of vulgarity except on the ground that no flowers can by any possibility be vulgar. This may be admitted as an absolute truism. There are places where the giant Sunflower is acceptable to the eye, but it is only in remote corners of large gardens. Tomtits are always grateful to the lovers of this flower, and perhaps at no time is this plant so interesting as in autumn, when two or three of these beautiful little birds may be seen twisting themselves into all sorts of attitudes to get at the seeds, which are produced on the great receptacles. There are smaller Sunflowers which, however, may still rank amongst tall growing plants, and are extremely pretty, bearing an abundance of their golden yellow flowers with black centres. Notably this is the case with a Sunflower called the New Miniature.

Peonies may be ranked amongst our taller plants, and they have lately attracted much attention, and they thoroughly deserve it. The variety of colours in which they may be had and the softness of their fluffy balls of flower make them great favourites in the outdoor garden. Single Peonies are very beautiful, but surely it is an objection to any flower that it will only last a day. In some things this fault is not of so much consequence, as, for instance, in the Day Lily (*Hemerocallis*) or in the common major *Convolvulus*, because a rapid succession of new blooms opening makes up for the constant decay of old flowers. But in the single Peony this short life is a positive defect. *Humea elegans* is a beautiful plant when well grown, but troublesome, inasmuch as it requires to be under glass the first winter. Still the peculiar scent of the leaves and the very graceful habit of its growth make it a plant worthy of some care. Pampas Grass is essential in a large garden. I have seen it in perfection in a sort of wilderness in Hampshire, where it was mixed with huge clumps of *Tritoma*. They were both in flower, and the effect was very fine. Pampas looks untidy in the winter, and it will not bear the entire removal of its dead leaves. But it is easy to put up with this defect in order to have its grand feathery flowers and long grassy leaves in the autumn. Moreover, few things are so really useful for all manner of decoration. At the harvest festival Pampas Grass is always acceptable for the decorations of the church, and through the winter mixed with other quaint Reeds and Teazles it looks beautiful in some tall vase in the drawing-room.

A GLOUCESTERSHIRE PARSON.

Brompton Stocks.—The severe weather of December and January has, I fear, completely destroyed the biennial Stocks in the open ground, unless in specially favourable positions. Even in an ordinary winter Brompton Stocks are frequently much affected by dull cold weather, especially when accompanied by fog, if the plants are in a low and moist situation, and the spring will find many gaps in the ranks. What is the best course to adopt to save the plants? An old and good method, not so much followed as formerly, was to sow the seed at the end of May or early in June, and when the plants were large enough to pot them into 5-inch pots, three or four in a pot, using a very rich loamy compost, a good quantity of well decomposed manure being included. When potted a good sprinkling was given, and the pots placed in a shady situa-

tion, being well looked after in the matter of watering. Towards the autumn the plants were moved to a hard walk facing the south, where they remained until frost set in. Then they were plunged in a bed of coal ashes under a wall having a south aspect, and where they could be covered up if necessary during severe weather. Here they remained until the end of February, when they were planted out carefully in a well-prepared rich soil. They soon made roots and grew to a great size—it has been stated from 3 feet to 4 feet in height. That plants so treated produced flowers abundantly, of large size, and great beauty is not to be wondered at. It is a case in which extra trouble is amply repaid. We do not in these days cultivate our biennial Stocks as they deserve. They are too frequently put out in poor and ill-prepared ground, and it is not to be wondered at if they fail to do justice to the strain, which is not unfrequently blamed when in reality the fault lies with the cultivation. Improved cultivation will bring a higher degree of quality as well as beauty in the flowers.—R. D.

Sweet Sultan (*Centaurea suaveolens*).—This pretty annual is very useful where cut bloom is in demand. The beautiful soft yellow flowers last a

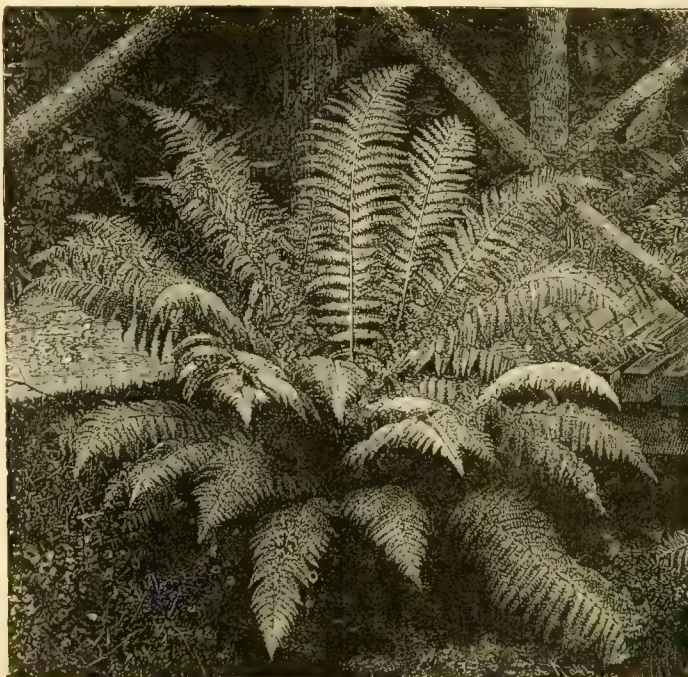
should come into bloom early in June. As the plants do not root deeply they are liable to suffer from drought; this may be prevented to some extent by mulching with short manure or any other material that will retain moisture and prevent evaporation. The later sowings may be made in the open ground; either in very wet ground or where it is too dry the plants are liable to die off just as they are coming into bloom. The Sweet Sultan cannot be recommended for beds, from its tendency to die off just as it should be most effective, but in less conspicuous positions it may be grown in clumps, and when it succeeds well it is very effective.—H. D. L.

FERNS.

THE LADY FERN.

(*ATHYRIUM FILIX-FEMINA*.)

This is one of the most elegant of our native species, even in its normal condition. The Lady Fern when growing freely attains a height of some 4 feet, sometimes even more, the large, finely-divided, feathery fronds being exceed-



The Lady Fern (*Athyrium Filix-femina*).

considerable time, and as they can be cut with fairly long stalks they may be used very effectively for vases, &c. In a dry, warm atmosphere the flowers will last better than in a moist cool place; in fact, to wet the flowers is to spoil them, for they will close up, and unless well exposed to the sun will not open again. It was by accident that I discovered that it was necessary to keep the blooms quite dry. A lady complained that the flowers did not last well, and she assured me that they were put into water as soon as received, and that they were also sprinkled overhead as well. It so happened that I had found a bunch which was cut at the same time, which instead of being put into water, &c., had been left lying on the ground fully exposed to the sun, and although the stems were shrivelled up, the blooms were fresh and bright. To keep up a succession of bloom the seed should be sown at intervals. The first may be sown early in the year; if sown in pans or boxes and placed on a shelf in a cool house the seed will soon germinate, and as soon as large enough the seedlings should be pricked off. After they are established the protection of a cold frame will be sufficient until the weather is favourable for planting out. If put out in good ground the plants will soon start away, and

ingly beautiful. I cannot understand why this plant is not more grown in small suburban gardens, which now remain bare and unsightly. How beautiful this Fern is, with many others, in the garden of Mr. Smee, The Grange, Wallington, its roots going down into the water of the river Wandle, which meanders through the grounds. Besides the normal form, as shown in our illustration, there are many varieties, a few of the best of which are named below, all of them exceedingly beautiful and deserving careful attention. It is not amongst the earliest kinds to put forth its fronds in spring.

A. FILIX-FEMINA CORYMBIFERUM.—This is a bold-growing, handsome Fern, nearly of normal size, having the apex of the frond and each of the pinnae densely tasselled. It is one of the oldest recognised sports of this species, and up to the present time it retains a first place amongst them.

A. FILIX-FEMINA CLARISSIMUM.—This is a very large form of great beauty; it is not crested in any way, but the pinnae are unusually long and the segments very finely cut. It does not produce young plants readily.

A. *FILIX-FEMINA ACROCLADON*.—Of this form there exist many sub-varieties, all of which are beautiful. The apex of the frond is more or less densely crested with a very finely divided mass of short Moss-like tufts.

A. *FILIX-FEMINA KALOTHRIX*.—This is not a crested plant, but it is one of the very handsomest forms into which the species has sported, and were it not known to be a seedling it might lay claim to specific origin. The fronds are of large size, and the divisions of each are as fine as hair, with a peculiar translucent lustre. It requires to be sheltered from rough winds to preserve its beauty.

A. *FILIX-FEMINA PLUMOSUM ELEGANS* is another form of exceeding beauty, but not in any way crested. The fronds are large, much broader and longer in the pinnæ than those of the type, and very elegantly divided. Every lover of Ferns should grow this variety.

A. *FILIX-FEMINA VICTORIÆ*.—In the present plant we have one of the most extraordinary crested forms it is possible to conceive, and at the same time one of the most beautiful. The pinnæ are reduced in width, so that no confusion can be detected; in fact had the plant been grown by rule and compass, it could not have been more strictly symmetrical. The pinnules fork immediately upon the rachis, spread out, and each side pinnule crosses the next one near the point and the apex of each one has a small crest or tassel. The top of the frond has a large crest; the colour is deep green. The plant under cultivation produces forms more or less true. Only one plant was found in a wild state in Scotland.

Besides the above kinds, there is an immense number of all sizes and density; some are small kinds heavily crested and much forked. The smaller kinds, which require an elevated situation on the rockwork, will thrive well in a Wardian case. W. H. GOWER.

SELAGINELLAS.

In my notes on plants for edging (GARDEN, March 7, p. 219) I alluded to several of the Selaginellas, which, besides being useful for that purpose, form a fine groundwork for foliage plants when grouped for effect. There are also several other sorts which may be recommended for this purpose; in fact, some are well worthy of a place among fine-foliaged plants. A few well-developed variegated foliage plants over a bed of fresh green Selaginellas and Ferns are far more effective than the massing together of so much colour. The Selaginellas are even more appropriate for the purpose than Ferns, for they do not mind being wetted with the syringe so much as Ferns do and are equally effective. The Selaginellas may all be propagated from cuttings or by division. Some of them are rather slow to start, but after they once get established they grow freely enough. Some of the most useful sorts may be increased very rapidly, and as they do not require even a close pit to start them, there should be no difficulty in having a good supply throughout the year. Of the taller-growing sorts *S. Martensi* is most extensively grown, the variegated variety also finding favour as a market plant. These start away best if kept in a close frame until the cuttings have taken root in the new soil, three or four cuttings together in small pots. By the time they are rooted they may be potted on into 4½-inch pots, and will soon be ready for use. *S. amena* is a most desirable species, growing from 9 inches to a foot high, having slender wiry stems, with horizontal branches much divided, of a rich deep green. It spreads freely from the root-stock, and may be increased either by division or from cuttings taken from the lateral branches; the latter make the best plants, but are much longer in forming good plants. *S. erythropus* is a free growing species which spreads freely; the stems are reddish-brown, the beautiful plumose branches forming a fresh green mass with a slight bronzy tint. When well grown this is certainly one of the best of the class. It may be readily increased by division, and if kept close the young plants will soon become established. Being of a soft texture, it suffers

from a dry atmosphere. *S. Emiliana* is a very distinct and pretty species; the branches, produced from a tufted crown and growing about 6 inches or 8 inches high, are much divided and of a soft pea-green. It makes a nice plant for small pots, and as it does not spread from the roots it must be propagated from cuttings. On the surface of the pots may often be found a lot of young plants which have been produced from small tips of branches that have dropped off the parent plant. *S. suberosa* is another free growing species of dwarf habit and spreads freely. It will succeed well in a greenhouse if given a shady position and a moist atmosphere. There are many other beautiful sorts, among which may be mentioned *S. Lyalli*, *S. grandis*, *S. caulescens* and *S. Victoriae*. These, however, are not free enough to be grown for ordinary decoration, but should always be included where a collection is grown. All the Selaginellas like a rough open compost with plenty of drainage; peat, leaf-mould, and loam in equal parts, with plenty of sand added, are most suitable. The plants should be potted loosely. The temperature may vary according to their natural habitat, but all delight in a sheltered, shady position. F. H.

KITCHEN GARDEN.

CUCUMBERS ON HOTBEDS.

FRAMES on hotbeds are still relied upon in the majority of gardens for the production of Cucumbers during the warmer months of the year, and in many gardens this is the only means at command for the purpose. In larger gardens, where there are suitable heated structures for the growth of Cucumbers, the summer supply is generally maintained in frames. In my own case this is so, as the structures may be put to a more profitable purpose, either for Tomato or Melon growing. It is rare that a large supply of Cucumbers is needed in private gardens for home consumption, and in a two or three-light frame properly managed, sufficient Cucumbers for an ordinary sized family may be grown. The supply certainly must be judged by the demand, the aim being to secure a succession of fruits, not a glut at one time and then a considerable falling off. During the early stages of growth, when the plants are in full vigour, very often larger quantities of Cucumbers are allowed to form than are really required, with the result that the plants almost collapse later on, through the great strain put upon them. The wisest course is to have sufficient fruits in various stages of growth continually coming on. Some varieties will show two or three, or even more, fruits at a joint, but it is unwise to allow a tithe of these to remain. To be successful with Cucumbers in frames, and especially where they are required as early as possible, a well-made hotbed in the first instance must be provided, and one in which the heat may be maintained for a considerable time after being made up. In years gone by the formation of hotbeds was an important part of a gardener's duties. The preparation of the material for the formation of the bed is of the greatest importance, as without this a suitable heat cannot be maintained. The material should consist of long stable litter, or, what is to be preferred, stable litter and leaves in equal proportions, the heat being more genial and lasting. The material should be well shaken out and thrown together in a heap, and if too dry to cause fermentation, water must be poured over the mass as the work proceeds. In the course of two or three days the heap will require turning again, and no doubt also the third time, the aim being to turn sufficiently to prevent violent heating when made up. When such takes place, the heat suddenly cools down afterwards. When ready for forming into the bed a space should be marked out

6 inches larger than the frame intended to be used. The heating material should be well shaken out in forming the bed, and be well beaten with the fork as the work proceeds; especially is this necessary with the outside. A well-made hotbed should not be trodden upon. A depth of 4 feet or 5 feet is none too much, and the back should be 6 inches higher than the front. When placing the frame upon the bed, it is not at all necessary to trample upon the bed, and this can be easily managed by placing two pieces of quartering across the bed. A man at each corner will lift the frame upon the front of the bed, and by pushing the frame along the pieces of wood it can be placed in position. The lights should be opened about an inch at the back, so as to let off rank steam. As soon as this has taken place the frame will be ready for the soil. In the first place it will be necessary to lay a body of material over the frame. For this purpose there is nothing better than turves, placed Grass side downwards. A hillock of soil must be placed upon each light for the reception of the plants. Two parts turfy loam to one of well pulverised horse droppings with a little charcoal is a suitable rooting medium. One plant is sufficient to each light, and should have been previously raised and growing on in a 4-inch or 5-inch pot. The seed may also be sown in the frame, but much time will be gained if the plants are prepared beforehand. In sowing the seed the best system is to place one or two seeds in a 3-inch pot, thinning out to one as soon as it is seen which will make the best plant. When sown several seeds in a pot and the seedlings afterwards potted off, much time and labour are wasted. The soil used in sowing the seed should be light and also sufficiently moist, without any water being needed until the seeds have germinated and appeared through the soil. Watering as soon as the seed is sown is very frequently the cause of its rotting. When ready for planting out lay in a slanting position, pressing the soil up to the seed leaves. A day or two afterwards nip out the points to induce secondary growths. Each of the shoots should be trained in an opposite direction equally to the back and front, and be allowed to grow on to within a foot of the outside of the frame. The laterals should be pinched at the fruit, as when the growths are allowed to grow a joint or two beyond the fruit before being stopped, the frame becomes filled with useless growth. The temperature aimed at should be about 70° during the night, or not lower than 65°. Linings of fresh material will therefore have to be provided as occasion requires to keep up the requisite temperature. During the early part of the season it is very desirable that coverings be provided to assist in maintaining the temperature; 70° or 65° being therefore taken as a minimum, the ventilation should be increased in the morning at 80°, and also increased further at 90° if the temperature shows signs of rising, but sooner than increase the ventilation beyond this, and if a cold wind is blowing, a slight shade should be afforded during the sunniest part of the day to counteract the evil of too much ventilation. As the sun loses power reduce the ventilation, finally closing about 4 p.m. with a damping down of tepid water. This damping down is only necessary on fine and warm days. Too much water over the foliage on cold days is a sure source of mildew. A period of two, or at the most three hours is quite long enough for the frame to remain closed after damping down and shutting up, as if allowed to remain completely closed during the night, if the lights should be at all close fitting, too much rank

steam is confined about the plants, this being much against their well-doing. To obviate this, a little ventilation should be given at the time stated. Attend to earthing up the hillocks as the roots protrude, taking care that only previously warmed soil is placed in contact with them. The growths must be regulated, cutting out older and large leaves to allow light to reach every part of the vine. The older growths must be gradually kept thinned out to allow room for a continual run of fresh growth. Sometimes the growths are allowed to become so crowded, that the plants are soon exhausted, especially where a quantity of the older growths and leaves is allowed to remain on and afterwards cut suddenly away. The young fruits must be cut as soon as ready, and not be allowed to become coarse through being overgrown. Besides causing injury to the plants through being allowed to remain on too long, old Cucumbers are also very injurious to health. The plants must never be allowed to suffer from want of water, this always being applied in a tepid state. Later on in the season, watering with liquid manure would be of assistance.

A. Y. A.

SEEDLING POTATOES.

In spite of the fact that we have such a wealth of Potato varieties, there seems to be no check given to the production of others from seed. After all it is very doubtful whether we do not owe our comparative freedom from disease in the crops more to the continuous production of seedlings than to any other cause. Last year when we had to endure so virulent an attack of the *Peronospora* we found the oldest varieties the greatest sufferers, and the robust seedlings the least injured. We have for the past ten years, during which time literally a revolution has been worked in our home Potato production, found that the disease-resisting powers more or less evidenced in new varieties have done more than anything else to work the revolution, and now in spite of occasional disease attacks we still have Potatoes in abundance. But there is about raising Potatoes some charm also which those engaged in their production find it hard to resist. It is true that with the decadence of Potato exhibitions we have given over the production of coloured varieties materially, for these find very little sale in the market. It was chiefly a desire to have variety, colour, and form on the show table which led to the production of coloured varieties. Nevertheless, we have had many very fine ones, not merely in appearance, but in quality and productiveness. Such varieties as Reading Russet, Vicar of Laleham, The Dean, Conference, Blue Beard, Prizetaker, &c., have hardly been excelled for quality, but as market varieties they have not found a high place. Had some of these, the Vicar of Laleham, for instance, been but white-skinned, we should have hardly had a more widely grown market Potato. There is, in spite of growlings occasionally indulged in by pessimists, still plenty of room for an improved early section of Potatoes. When such a variety as the old Ashleaf Kidney, which has been in cultivation for some fifty years, continues to hold the leading place amongst first earlies, no wonder there should be found room for an improved early section. The Ashleaf is of capital quality and fairly early, but there seems to be no reason why we should not have some still earlier of as fine quality and of greater productiveness. It is in the market gardens where fine earlies are needed, because the putting of a crop on to the market even but a week sooner than can be done at present represents an enormous gain to growers. For field or other extensive form of culture the Ashleaf Kidney is not in it with Beauty of Hebron, White Beauty, or Puritan—American varieties. We have employed Beauty of Hebron largely for the production of seedlings, but so far not with the best results, as the progeny seems not to be sufficiently hardy, although some capital very early border or garden forms have resulted. We spe-

cially need moderate hardiness in first early Potatoes, as they have to grow usually in colder weather than the later ones have, and being planted early find the soil specially cold also. I got a seed cross last year between the Ashleaf and Puritan, which is perhaps the earliest of all white-skinned varieties America has sent us. The Ashleaf is far from being a free-blooming variety, and it is not at all easy to get it to flower. Why it did so last year I cannot tell, except that it was owing to the excessive rainfall of June and July. However, it is evident such a cross should give something good, but experience in Potato raising shows that there is hardly more uncertainty incidental to any seedling raising than attaches to Potatoes. Natural seedlings, which, of course, are the product of flowers not fertilised with foreign pollen, usually reproduce their kind only. That is of little advantage in gardening, and there is lacking that stamina which the crossing of two diverse sorts invariably gives to seedlings. The ordinary method in dealing with seedling Potatoes is to sow the seed in pots or pans under glass early in April. By shifting the seedlings into small pots singly later, and from these when well rooted and the plant hardened, into some good fine soil in the garden, very fair tests of the prospective value of the new ones are obtained the first season. Out of perhaps 100 a score only is saved, and these again the second year after being tested are perhaps, reduced to a dozen, and the next season, it may be, the final selection comes down to half-a-dozen. I have usually found that new varieties tell their real character only after some four or five years' testing. Not a few that look wonderfully promising at the first fall off later, whilst others less attractive soon develop admirable qualities. It is a capital feature in a seedling variety when it thus advances in quality, because then it indicates a long season of endurance and prolificacy.

A. D.

WELL-TRIED SORTS OF PEAS.

No doubt the Pea crop is one of the most important in the kitchen garden. Now-a-days there is such a striving after novelties in things horticultural that cultivators are likely to miss some of the old sorts of Peas which even now cannot be beaten by any of the newest kinds of to-day. Indeed, it is not necessary to invest in any absolutely new sort, although this may be done for the sake of comparison. There are now plenty of well tried kinds to enable anyone to keep up a succession of Green Peas, even though they may be required twice every day for five months at least. I confine myself to five or six kinds, and have no reason to regret my choice, and cannot possibly run the risk of disappointment, as is sometimes the case when many new kinds are being tried and do not come up to expectation. I do not care for an extremely early Pea. Ringleader and William I. are not favourites in my opinion; they only increase varieties. I fail to find any flavour in such sorts; they are hard and dry, and not at all to be compared with American Wonder, which has everything in its favour as an early variety. American Wonder needs no stakes to support the haulm, although if some 1 foot high were used, they would pay for the trouble of staking. Not only would the Peas be more handy to get at, but the slugs would be more easily kept off the pods. The flavour of this Pea is certainly good, far superior to that of either Ringleader or William I. Duke of Albany is my next favourite. By sowing five or six Peas in a 3-inch pot, growing them on in a coolinery, shifting them into 5½-inch pots, and planting them out thinly in rows in a sheltered part of the garden, we manage to gather grand crops of this exceedingly high-flavoured Pea by the middle of June. Where is there a better sort for flavour, quantity, and appearance? Fortyfold is our next kind in succession, and for freedom of crop, combined with flavour, it cannot be beaten. Its supposed height is 5 feet, but last year, owing to the wet season, the haulm ran up 9 feet high and was well podded all the length. If I were compelled to grow one variety only, Fortyfold would be my choice; it has stood me in good stead now for the last twelve years, and still holds its position for

general quality. It is not an exhibition variety. I presume this sort is an improved Champion of England, as it partakes largely of that sort in its appearance. Veitch's Perfection is still unbeaten for quality of the Peas; true, it is rather precarious, being so liable to mildew. This variety for its height bears most profusely. Where late Peas are appreciated, Ne Plus Ultra still holds its own as a late cropper. During a mild autumn Ne Plus Ultra may be depended upon to produce a dish of succulent Peas as late as the early part of November. For a small-podded variety, Ne Plus Ultra produces an immense number of Peas; the haulm grows vigorously and needs well supporting with stout stakes.

Under proper cultivation no one need despair of maintaining a succession of Green Peas with only those named. There are two or three important points in the matter of culture which I will name. Sow a few at a time and often in preference to a larger quantity and at longer intervals. Deeply dug and highly enriched soil is of importance in Pea culture. Sow the seeds thinly to obtain robust growth in preference to thick sowing and more haulm. Plenty of space is what is required for free development of the growth, without which no good results can be achieved. Mulch with partly decayed manure previous to blooming if the weather be hot and dry to maintain the soil in a cool moist condition. Abundance of water to the roots, in dry weather will make all the difference between a good and a bad crop during a dry season.

S.

Winter Onions and the severe winter.—

The destruction of vegetables by the frost is enormous in this district, but in nothing is this seen so much as in the winter Onions. It is not often these suffer to any great extent. Occasionally when sown too early and growing on rich ground this useful vegetable becomes a prey to frost. My method is to sow them at two different times, one in the middle of August, the other early in September. Should one suffer the other escapes. This season neither sowing escaped. I generally sow a large patch of three or four of the best autumn kinds, moderately thick, thinning out in spring, and planting elsewhere. From some unexplained cause the seed did not come up so freely as usual, thus causing the plants to be a good distance apart. I regret that neither sowing early nor late, thinly nor thickly, had any effect. On looking them over to-day I believe I have not one out of 1000 left. In endeavouring to make up for the loss I have prepared some portion of a warm border, and hope to sow seed of White Queen. Should I have a few spare lights at the time I shall place them over the seed to help forward it. By so doing I hope to have some nice bulbs early in July for bunching. To get over the difficulty I have obtained some good bulbs of Potato Onions from a cottager, and planted these in a good situation. I am surprised to see the large size these attain in cottage gardens in this district, and how well they keep. I saw some recently from 5 inches to 6 inches round, and which had kept as well as spring sown. It is a good method to plant some of the grown Onions about this time to give Scallions. These come in very useful early in a season like this.—DORSET.

Mushrooms in unheated structures.—

The past winter has been very unfavourable to the growth of Mushrooms in sheds and other unheated places. Beds spawned rather late in the autumn and which failed to produce Mushrooms before the severe weather set in are still in a comparatively dormant state, and judging from the inquiries that have reached me on the subject, many will have arrived at the conclusion that they are complete failures. My advice to all so situated is to leave the beds alone, or at any rate not to break them up yet, and in all probability there will yet be heavy crops of Mushrooms to reward them for their trouble and patience. An examination of the beds may not disclose the presence of much mycelium, but I have frequently been surprised at the crops produced by beds that have long been spawned, and yet few or no spores detected when search was made for them. It must be added, however, that these beds were neither watered nor frequently damped

down. A low temperature will not alone do much if any mischief, but if, coupled with this, the beds are in a very moist state, then the spawn will most probably perish. The other extreme—excessive dryness—is also objectionable, though this is not often noticed in unheated structures. An examination of the beds would disclose the fact of their being either too moist, moderately so, or in a much too dry state. In the latter case only should a gentle, yet thorough soaking of tepid water be given—two or three applications being necessary to accomplish this, but all may well be heavily covered with straw litter. Some of the best crops I have ever had have resulted from beds spawned in November, and which did not commence bearing till late in March.—W. I. M.

WOOD ASHES AS A FERTILISER.

Wood ashes are very valuable for many purposes on account of the large amount of potash they contain; indeed for heavy, cold soils they are invaluable, and when applied at this season the ground can be more easily worked later on and the crops greatly improved. In many old gardens that have been cropped for a great number of years, if wood ashes were the only manurial agent employed for a time, the produce would be more satisfactory, as often the soil is so rich in organic manures, that the change would be beneficial in every way. I find a difficulty in obtaining sufficient of this valuable manure for my purpose, and often resort to many devices to obtain more of it or as much like it as possible, by burning refuse containing the same properties as wood ashes. In country districts little difficulty is experienced in obtaining a good supply of wood ashes, but near large towns they are scarcer; therefore when they can be had, they should be saved for the spring crops. They are invaluable as a top-dressing before sowing the early seeds, or they may be placed in the drills when sowing such crops as Onions and Carrots, as they are the best remedy for maggot and grub I have tried; indeed in many old gardens it is almost impossible to get good crops of these vegetables because of the maggot. A good dressing of wood ashes mixed with soot will in badly infested soils be found of great value. I have also used gas-lime as an autumn dressing, digging it into the ground, and by using wood ashes for sowing the seeds I have not been troubled for years afterwards. Wood ashes are also good when used as a surface dressing in the spring on poor soils, mixing with guano and applying the mixture to the crops in showery weather. I have often seen a bed of these two useful vegetables saved by timely application at the beginning of the attack. There is nothing better than pure wood ashes for using in composts indoors for such plants as are liable to canker. For Melons and Cucumbers wood ashes are most valuable, and if placed round the collars of the plants will often prevent canker if used in time. The ashes of strong growing vegetables, such as stems of Brussels Sprouts, Kale, and Cabbages, when used for manure after they are burned are valuable. For Potatoes in heavy land wood ashes are very valuable if they can be obtained in sufficient quantity, placing them in the drills at planting. I have used wood ashes largely in many ways, and found them beneficial where strong organic manures would be out of place. For ground badly

infested with wireworm, wood ashes are also valuable. I have mixed them with old mortar rubble for ground that I could not get Carnations to make any growth in, and they proved efficacious. I once had some very wet lawns under my charge and had them well drained, but could not get rid of the Moss and coarse Grass. On the tennis ground I took great pains to get rid of it, but to no purpose. The soil was heavy and new soil was added, but the Moss still appeared till heavy dressings of wood ashes were given each year in February or early in March. I had little trouble afterwards, the turf improving greatly and becoming as soft and velvety as a carpet. I also found it a good plan to mix some bone meal with the ashes after the Moss was destroyed, this mixture proving of great assistance



Odontoglossum nevadense.

to the turf under large trees or where the roots of shrubs robbed the Grass; the ashes and fine bones applied yearly were more efficacious and lasting than farmyard manures and did not encourage a coarse growth. For lawn tennis grounds or bowling greens wood ashes should be largely used. More bone meal should be added to the ashes if the Grass is much used than when giving lawns a yearly dressing.

Syon, Brentford.

GEO. WYTHES.

ORCHIDS.

ODONTOGLOSSUM NEVADENSE.

EVER since its discovery and introduction to Europe in 1868, this distinct and handsome *Odontoglossum* has been a rare plant. It was originally found by Gustav Wallis on the Sierra Nevada, near Merida, Venezuela, and by him was sent to Linden's establishment at Ghent. It is stated that the first importation consisted of three or four plants only, these having been unknowingly sent over in a consignment of *O. Wallisi*. The first plant that flowered in England was in the collection of Mr. Mendel at Manchester. It belongs to the large section of *Odontoglossum* so well known in collections, whose flowers are coloured chiefly in yellow and various shades of reddish brown, and if not the most beautiful of this group, it is at any rate one of the most striking in the shape and disposition of the markings. On strong plants the pendent spikes are over a foot long, and bear a dozen or more flowers, each of which is 3 inches in diameter. The sepals and petals are nearly alike in size and shape, the latter being, however, slightly smaller. They are lanceolate and pointed, and the colour is chiefly cinnamon-brown, with a couple of transverse bars of yellow on the upper half and a few longitudinal stripes at the base; a thin marginal line of yellow also runs round each segment. To the sepals and petals the lip forms an effective contrast; the front portion is white and fringed at the margin, the lateral lobes being also white, but marked with several blotches and stripes of chestnut-brown. Although the number of plants in cultivation is comparatively small, they show considerable variation in colour, some having larger and differently shaped blotches of yellow (usually maintaining, however, a somewhat geometrical outline), whilst in others the lip is pale straw-coloured instead of white. Its cultivation is the same as for *O. crispum*, from which in general habit it does not materially differ.

W. J. B.

Orchids at Park Village.—Amongst the various things in flower here is a very nice show of *Dendrobium*, *D. nobile*, *Wardianum*, *Ainsworthii*, *crassinode*, and *fimbriatum* being conspicuous. *Phajus grandifolius* is very fine. *Angraecum modestum*, with pretty white flowers which are slightly hirsute on the column, is also in bloom. *Odontoglossum maculatum*, *Cattleya Percivaliana*, and various *Cypripediums* were also flowering. Mr. Jones, the gardener, sends me some flowers of *Odontoglossum Coradinei*, which represent the best form of the plant I have ever seen. The petals are broader and more heavily spotted than usual, the ground colour clear yellow, spotted and blotched with bright chestnut. This plant is certainly not a variety of *O. Lindleyanum*. With it comes also another *Odontoglossum* for a name. This, I think, must be one of the forms of *O. Ruckerianum*, which is very variable.—G.

Epidendrum Wallisi.—"J. T." sends me some flowers of an excellent variety of this species, saying he has 120 flowers which have been open since the beginning of February. I heard the other day of a plant with a much larger quantity of flowers open in Belgium, but I have forgotten the numbers; this species makes lateral as well as terminal spikes, and it continues to throw out the lateral ones in a downward manner. The sepals and petals of the flowers now before me are rich golden-yellow dotted with crimson, the fan-shaped lip being white, streaked with a few feathery lines of bright purple. It will thrive well in a *Cattleya* house.—W. G.

Lycaste Harrisoniae (J.B.).—The two flowers sent by this correspondent are both varieties of this fine old species. Those marked No. 2 are the flowers of the typical plant, the sepals and petals

being large and fleshy and of a creamy white, lip dull purplish, streaked with red and having a yellow base. Those marked No. 1 represent the variety known as *Harrisonæ eburnea*, the sepals and petals pure white, lip also white flushed with primrose-yellow and streaked with radiating forked lines of bright purplish-red. The flowers of these plants last a very long time in perfection if care is taken not to wet them when syringing.—W. H.

DENDROBIUM NOBILE AND ITS VARIETIES.

THE extent of country over which *D. nobile* is now found is very large, and therefore it is not to be wondered at that many varieties are to be had from amongst imported plants, those which are flowering out of recent importations being remarkably bright in colour. *D. nobile* and its varieties are amongst the easiest plants to grow in either hanging baskets or pots. They require good drainage. Good rough fibrous peat and sweet living *Sphagnum Moss* with some small nodules of charcoal pressed into it form a good potting material. The whole should be made firm, setting the plant on a slight elevation.

DENDROBIUM NOBILE NOBILIUS.—The flowers of the variety now flowering in the nurseries of Messrs. B. S. Williams and Son remind me of those I had in the nurseries of the Messrs. Rollisson at Tooting. In growth this *Dendrobium* cannot be recognised from one of the typical form, but in size and depth of colour the flowers are readily distinguishable. The blooms are each about 4 inches across, the sepals and petals of a very rich deep amethyst-purple, the colour carried almost quite down to the base; the lip is large and full, the base rich maroon or blackish purple, surrounded by a zone of white, having a broad belt of amethyst-purple. This variety is as easily cultivated as the typical plant. The flowers of the forms that I have seen lately are more highly coloured than those figured in *THE GARDEN*, Sept. 8, 1883 (p. 206).

D. NOBILE COOKSONIANUM is another variety I have likewise seen in several collections. This has a deep stain of maroon-purple at the base of each petal. It appears to crop up frequently among imported plants, and remains true to its character.

D. NOBILE TOLLIANUM is another remarkable variety having a great deal of colour in the sepals and petals, but the flowers as far as I have seen are inverted, and the sepals and petals do not spread, so that the colour is hidden.

D. NOBILE SCHREDERIANUM is a superb form, the sepals and petals white tipped with pale rose-purple; the lip is very dark maroon with a zone of soft yellow surrounding it, this yellow passing into cream colour, and ultimately into white at the border.

D. NOBILE SANDERIANUM.—This is a very richly coloured form, first obtained by Mr. Sander, of St. Albans. It is frequently compared to *nobilis*, but it is distinct from that plant principally in the flower being smaller, rounded, and therefore more compact.

D. NOBILE ELEGANS.—The flowers of this are also very compact. I have seen it in excellent condition in Sir Trevor Lawrence's garden at Burford Lodge. The petals are broader than the sepals, and are tipped with rose; the lip is deep maroon at the base with a pale yellow zone, the tip being pale purple. W. H. GOWER.

Calanthes in America.—*Calanthe* grows on this side of the water have better success than that reported by Jas. Graham in *THE GARDEN*, Jan. 31. There can be no doubt that our more sunny climate brings out the colouring of the flowers better, and has probably more to do with that than the compost the plants are grown in. Mr. Geo. McWilliam, gardener to Mrs. J. W. Lasell, Whitnissville, Mass., has grown *Calanthe Veitchii* for six years past with great success, the flowers colouring to perfection

every season. The plants are grown in fibry loam and fine rotted cow manure, with charcoal and crocks to keep the material open and sweet. As soon as the roots penetrate all through the compost, he waters every time the plants require it with weak liquid, which produces a strong healthy foliage and also strong flower-spikes; many of the spikes had forty-eight perfectly developed flowers last season. There are four distinct varieties of *C. Veitchii* in this collection, which are shown both in the size of the bulbs and the colour of the flowers. The largest bulbs of one variety by accurate measurement are each 14 inches long; this is the most bottle-necked in shape. The best one is compacta, the flowers being set very closely on the stem. It makes a beautiful spike. Each bulb of this is not more than 10 inches long, thicker at the base, and does not show so much of the bottle-neck shape. With the yellow and red-eyed *vestita* varieties and a few each of *Reginieri* and *oculata gigantea*, Mr. McWilliam had last season 106 plants of *Calanthes*. Those he grew on a bench 29½ feet long by 2½ feet wide. By the time they were about full-grown the plants were somewhat crowded, but all flowered and coloured up finely. The longest flowered stems were fully 4½ feet in length. *Calanthes* here are much liked for room and table decoration.—W. S., Whitnissville.

Cœlogyne ocellata.—This species belongs to a large and distinct group of *Cœlogyne* whose flowers, both in colour and outline, bear throughout a close and striking resemblance to each other. Of these, besides *C. ocellata*, may be mentioned *C. corymbosa* (the finest of the group), *ochracea*, *corrugata*, and *nervosa*, all of which have white flowers marked with variously shaped blotches of yellow on the lip, but have, nevertheless, well marked distinctions in time and method of flowering as well as in habit, &c. Next to *C. corymbosa*, *C. ocellata* is perhaps the best of these, especially if represented by the variety *maxima*. The pseudobulbs are ovate and bear a couple of lanceolate, semi-coriaceous leaves, from between which the raceme of four to six flowers is produced. The flowers are each 2½ inches to 3 inches across, entirely pure white with the exception of a few orange-coloured streaks on the lip and an eye-like yellow spot on each of the lateral lobes, from which character the plant takes its specific name. Several plants are in flower at Kew. It is a native of Sikkim and other parts of North India, occasionally ascending to an altitude of 7000 feet.

SHORT NOTES.—ORCHIDS.

Lycaste costata.—This is a creamy-white flowered species. It produces quite a quantity of flowers from the bulb, and they last a long time in full beauty. It is a cool house plant from Colombia, and belongs to the same set of plants as *L. lanipes* and *Barringtonia*.—W. G.

Dendrobium Findleyanum.—A pure white form of this species is now flowering with Mr. Horsman, of Colchester. Curious to relate, the piece with the white blooms was picked out from a mass with the very darkest blooms I have ever seen this species produce.—W.

Odontoglossum Oerstedii grandiflorum.—“J. B.” sends me flowers of this species which are fully twice as large as any I have seen of the majus variety. The flower now before me measures upwards of 2½ inches across and has a delightful odour. There is no other distinction in the flower, and my informant says he sees no difference in the growth of the plant. Such a fine form should be carefully preserved.—G.

Epidendrum bicornutum.—This fine species is now showing numerous spikes of bloom in the Holloway Nursery, so that Mr. Williams may be said to have fairly conquered this hitherto supposed difficult plant. The plants are growing in baskets near the roof in one of the hottest houses. The growths are stronger than they were last year, and they bid fair to develop fine spikes of bloom. In the same house I also saw *Dipodium paludosum* growing well, and I hope Mr. Williams will succeed in flowering this plant again this year.—W. G.

Calanthe Stevensi.—This is a supposed variety of the form brought from Cochinchina by M. Regnier, but whatever its relations, it is valuable, inas-

much as it flowers so much later. This year I think most of the *Calanthes* have suffered from the foggy weather we have experienced, but *C. Stevensi* seems to have passed through this all right, and now its flowers are opening freely.—G.

Dendrobium nobile pendulum.—Mr. Cypher of Cheltenham tells me that his plant of this variety, of which he recently sent me some blooms, had upwards of 400 flowers open at one time, and formed a pretty sight. This I can easily imagine, as the flowers were large and deep in colour.—W. H. G.

FUEL AND BOILERS.

I FULLY agree with the remarks of A. Douglas (p. 201) concerning the value of anthracite and its many advantages over coke, and if there was no other advantage to be gained from its use I should most decidedly prefer it for one thing, and that the absence of sulphurous fumes when stoking. I agree, too, with Mr. Burrell in saying that “a careful stoker is an absolute necessity in the case of anthracite,”—but surely by this he does not infer that a careless stoker may be trusted with coke—“for,” continues Mr. Burrell, “economical as it is if used judiciously, it requires careful handling if a steady, equable temperature is to be maintained.” Now of all fuels for horticultural purposes we have none in large or small boilers that can equal, much less excel, anthracite in producing and maintaining an even uniform temperature, and hour after hour anyone sufficiently interested may note the solid contents of the firebox, very slow in consuming, but encompassing the boiler with a steady durable heat, while coke, on the other hand, would flare itself away, cover the fire-bars with a solid clinker, and need replenishing again to maintain a similar temperature. The amount of heat required must be regulated by the draught, and also by the weather, and if mild, an abundance of heat will be forthcoming by merely applying one-third or one-fourth the amount of fuel that would be necessary in severer weather. I am fully convinced, too, that it is quite as economical in mild as in severe weather, the economy coming in by only half the amount of fuel being required, while this will last nearly double the time and maintain the heat also. For mild weather such as we are now (March 2) experiencing, a fire of anthracite coal will easily last eighteen or twenty hours, but not so with coke; and if time is money in any sense at all, it must be so in the stoke-hole as much as out of it, and therefore the extra stoking necessary for coke must be added to the latter's cost when comparing this and anthracite. But is it reasonable that coke, with its very essence stewed out of it at the gas-works, could compare with anthracite from the pits? I think not. To purchase coke by the ton is also a very treacherous business, as we have few substances that can compare with its absorbing powers, and my advice to those who buy coke by weight is to buy in summer-time, and so reap the advantage. The instance cited by Mr. Burrell is one rather of selecting suitable boilers for given work, and if a too large or too small a boiler exists for any given duty, it becomes an error of judgment—injudicious selection, and quite unconnected with fuel of any kind. Mr. Burrell further alludes to “larger vessels” to “counterbalance the great heat from pipes.” To effectually overcome “the great heat from pipes,” my advice is never allow them to get overheated, but as a safeguard employ considerably more piping, and keep it at a much lower temperature, which virtually is this, a maximum of piping at a minimum temperature. Were this plan more universally adopted, plants generally in heated structures would find a more congenial home, insect life would be far less troublesome, and evaporating troughs would soon fall into disuse. One of the greatest mistakes in heating by hot water is that of a minimum amount of piping which of necessity has to be maintained at a high temperature. The atmosphere is always dry and arid, to counteract which is only to fill the house with hot steam, than which nothing is more injurious.—E. J.

— Like many more gardeners, I am not possessed of what your correspondent Thomas Fletcher (p. 216) terms a reserve tank. To persons like “T. F.,” possessed of exceptional means

for heating and surrounded by coal pits and coke ovens, anthracite may not be quite such a boon; but to those like me having only ordinary heating apparatus and situated at some little distance from a fuel-producing district, anthracite is an acquisition, and to those who have not already done so I would again say, try it. The advantage in cartage is that the same man, horse, and cart required to bring 10 cwt. to 12 cwt. of coke from the station now bring 23 cwt. to 24 cwt. of anthracite with ease—a decided advantage in my estimation—as I find 1 ton of anthracite go very much further than the same weight of coke, hence the saving. Respecting smoke, I have very seldom had a brand of coke that did not at times give off a murky exhalation; this I have not so far detected from anthracite. Would "T. F." state the cost of a tank to contain about 4000 gallons, also expenses, fixing, casing, &c.?—A. DOUGLAS.

—The merits of anthracite coal are well spoken of by Mr. A. Douglas. Can he or any of your readers recommend a good slow combustion stove to place in bedrooms, &c., in which this coal can be burned without attention for twenty or more hours? The Scandinavian is reported to do all this. Has any correspondent had experience of it?—E. G.

NOTES FROM THE RIVIERA.

So much has been written about the severe frosts of this winter, that I think a few notes from Cannes may be of interest. Needless to say, much damage has been done even on the sunny shores of Provence, but if many tender shrubs are cut down to the ground, there are still more bright and charming plants that attract attention, and prevent the damage being noticeable to any but the trained eye. In exposed places the Orange and Lemon trees are sadly bare and brown, but on some sheltered terraces there is already a fair quantity of fragrant Orange blossom fully expanded, which is a delightful welcome to a new-comer fresh from the frost-nipped uplands of Central France. *Acacia dealbata*, so often miscalled *Mimosa*, is, if possible, more full of flower than ever this dry season, and its profusion of flowers would hide any quantity of deficiencies were it needed. This year nothing is more striking than the apparent capriciousness of the frost, which in one place has blanched leaves and stems to a papery whiteness, and in another left them rich in untouched green. Not having been on the spot at the time, it is hard to offer any positive solution of the problem, but it seems as if the combination of wet, snow and frosty wind was the most fatal thing, so that even a little shelter from one or the other was sufficient to have saved some tender plants to a surprising degree. The Australian *Acacias* have come out quite unharmed from the ordeal of 8° or 10° of frost, while the *Eucalypti*, generally speaking, are severely cut, in some instances looking like gigantic *Honesty* plants, so silvery-white are their leaves. *Cocos australis* is killed at the core, while the outer leaves are fresh and green; but other Palms have only their outer leaves browned. *Chamerops excelsa* is, of course, quite uninjured, as is its near relative the beautiful *Brahea Roezli*, which surely must prove hardy in light soils and warm situations in England. Its silvery-blue colouring is unique, and I know of no plant so well worth planting where an unusual effect is sought for. *Pritchardia filamentosa* has stood the cold fairly well, but in damp positions it is all but killed, showing it will not succeed in England. *Sparmannias*, *Heliotropes*, *Abutilons*, and a multitude of winter-flowering shrubs are leafless or killed to the ground, but *Roses* have evidently enjoyed the rest enforced by the cold, and are pushing more strongly than I have seen for years. The prospect of bloom is something prodigious, and in another three weeks these *Roses* will be a sheet of flower, when poor northern gardeners will still be pruning the mutilated stumps that the winter has spared. Such is life—abundance on one side and misery on the other. Neapolitan Violets have suffered most severely in many instances, and they are much less abundant than usual, but *The Czar* and *Victoria Violets* are simply splendid in their rich masses of flower. *Carnations* are most abundant and cheap, and large

handfuls of sulphur, red, or white *Carnations* are to be seen in every flower-shop. They are grown on sunny terraces and covered up on cold nights with reed mats, flowering very freely all winter when it is sunny. *Anemones* and *Narcissi* are the most abundant of all, and the fragrant and brilliant masses of them heaped up in the market-place are worth all the journey down from the grey and misty north to these shores, where for more than six consecutive weeks the fierce sunshine day by day has been unclouded, and the sky of a blue not to be believed by those who have not seen it. This it makes it so difficult to say that such or such a plant is hardy when it bears without injury 10° or more of frost, because plants that have their roots deep in such dry and warm soil as this, which is daily baked by the sun, can pump up sufficient warm sap to prevent all but their extremities freezing, which in a soil chilled down to within a few degrees of freezing would be no longer possible.

E. H. W.

MARKET GARDEN NOTES.

THERE has been for the past month unwonted activity in the market gardens and fields in sowing and planting. Encouraged by the wonderfully dry condition of the soil, its admirable working, and the open weather, even Potatoes have been got in in large breadths unusually early, there being in the minds of the growers apparently the impression that we shall have an early spring. It will be indeed a misfortune if these hopes are not realised, for the great dearth of green stuff of all kinds is now so apparent, that there seems to be literally nothing to market, or will be for some three months. Really until early Peas come in it is difficult to see from whence home market produce is to come, as autumn planted Cabbages generally wear a poor half dead aspect, and look as though the bulk would not turn into useful heads. As for Turnips, they are terribly injured, only the very late sowings which gave bulbs of the smallest escaping, and of these there are not many breadths, as such late sowings are not general about here. Any such breadths will probably be worth a large sum later, as then Turnip tops will be in great demand. Because of the destruction wrought amongst green stuff, more Peas are being sown than usual, and wider breadths of Potatoes got in. The ground usually occupied until the end of April is ready now for the plough, and growers have been only too glad to put out of sight as soon as possible evidences of the mischief and loss wrought by the frost. For that reason we shall expect to see not only unusually large crops of these vegetables, but such a glut of them as to render them too cheap to be very profitable. In market gardening it would seem as if too much or too little was the rule, and rarely is it the case that crops are just good enough to be generally profitable; in fact, whatever season favours production in one case favours all, whilst the contrary, as shown during the winter, also usually happens. Very few growers seem to have the courage to get out of the beaten track and produce quick coming catch crops, which in barren seasons such as the present would certainly prove very profitable. Almost anything green which could be induced to turn in for marketing before Peas come would be indeed serviceable. There is a good deal of routine in the cropping formula found in market gardens. Peas with hardy green stuff following, Potatoes if early, succeeded by Coleworts, Spinach, Turnips or winter Onions. Runner Beans almost always are planted with Brussels Sprouts, because in all cases and to make land profitable two crops in the year are needful, one in the summer and one in the autumn or winter. There is hardly a less popular crop than is white late Broccoli, because it has to stand so long on the ground that it can rarely be cleared off in time for some summer crop; still further it is, because of its tendency to suffer from frost, far too uncertain to be trusted. When warmer localities can produce Broccoli in abundance and with some certainty, the produce being sent wholesale and cheaply into market per rail, it is found very unprofitable even in mild seasons to have much of white Broccoli on hand. The facility with which all kinds of vege-

tables can be placed on the market by means of railways places the country grower in even a better position than is the metropolitan grower, because he can choose his soil, his climate almost, and finds labour and land very much cheaper. Manure also can be purchased very cheaply in country districts, as the railways place it so readily at the disposal of their customers at low rates, and the haulage is often far less than is that of the grower near London, who all the same has to draw his manure some 12 miles to 20 miles by road, thus needing costly horse labour which often can hardly be applied to other purposes, so long are the journeys to and from town and so exhausting the labour when loading heavily both ways. Market growers are finding also that the metropolitan fogs, so terribly injurious to vegetation, offer difficulties to culture which do not always trouble their country competitors. Fogs have of late become far more dense and abundant, as also more full of deleterious substances than used to be the case. To have cheap land, cheap labour, moderate rates and manure in abundance at reasonable prices are such great advantages, that they are not to be at all ignored even when perhaps 50 or even 100 miles from the metropolis. The railways have made that long distance only a few hours from the chief markets, and produce can be run in both cheaply and quickly. When to these advantages are added those of ample light, pure air, rare fogs, and an absence of sooty vapours, the country grower then enjoys advantages beyond what the metropolitan grower can command. The chief advantage to the latter is that he can be on the spot to sell his own produce. The wonder is that every considerable metropolitan grower has not a farm or market garden in the distant country also.—A. D.

—Unusually fine weather characterised the whole of the month of February, and ploughing, sowing, and planting were pushed on vigorously. As prices rule high for all crops that escaped the destructive frost, growers are anxious to get other crops as early as possible. The greatest activity appears to centre in

POTATO planting, for owing to the losses by frost and other causes, the price obtainable now is close on double what it was in the autumn. Really good cooking Potatoes appear scarce, even at a high price. The majority of growers here confine themselves to the production of early sorts, and the planting of these has been going on rapidly during the past month. Sharpe's Victor is the favourite for very early crops, but the price for the seed is very high. There is nothing in such demand as white and pink Beauty of Hebron, and for main crops *The Bruce* has already become very popular; it is about the best in season now for cooking and sells readily, owing to its good appearance, combined with good table quality.

CABBAGE planting has been going on briskly of late, but the scarcity of plants and the high prices asked for them have checked many from putting out the quantity they would have done. In this locality they were nearly all killed, and large quantities have been brought by rail from places where the frost was less destructive. Those who have any Cabbages or Savoy to send to market now are making good prices of them. The crops that stood the winter best are Savoy that had not made much heart, and these have grown considerably during the fine weather of late. Anything in the way of late planted winter greens will this year yield a good return.

PARSNIPS have been sown in larger quantities than usual, and under most favourable conditions of soil, the reason being that they have been about the most profitable winter vegetable of all, as the demand has been most unusual. As the severe winter set in so early there has been nothing to take their place, and farmers that had any quantity on hand, which in ordinary seasons would have gone for pigs or cattle feeding, have realised a high price for them from greengrocers.

PEAS AND BEANS have been got in splendidly, the soil being dry and crumbling. The second earlies, such as Veitch's Perfection, Stratagem, and other large-podded sorts, are the ones growers

favour, as they sell so much better than the round smooth-seeded sorts that used to be so much in request.

CARROTS of the early sorts, such as the French Horn, have been got in on warm sheltered spots, and James' Intermediate is now being sown in the open. This is the most popular of all market Carrots, and on this light sandy soil the roots turn out bright and free from canker.

RADISHES have been sown in very large quantities in beds about 4 feet wide with alleys between, French Breakfast and Wood's Early Frame being the ones for early work. As soon as sown the beds are covered with litter, which answers the double purpose of keeping off frosts and prevents the birds from scratching up the seed. The earliest sowings are making rapid progress, and the litter is raked off on fine days and returned at night, or when cold storms prevail.

RHUBARB has sold well, as the scarcity of Apples is all in its favour. It is now coming in more freely from open-air beds that have been covered thickly with litter or tubs and pots. The bright dry weather of February suited this crop well. In the neighbourhood of large towns a great quantity of fresh stable manure is employed to hasten the growth of this crop, that is far more remunerative if got in early than if left to come on quite naturally.

FRUIT PLANTATIONS AND ORCHARDS have had the finishing touch put to the pruning, while the planting has been going on briskly, having been delayed. Fortunately, the season promises to be a late one, as the severe frost chilled the soil so deeply that very little activity is observable in the buds; consequently the late planted trees will probably do as well as the early ones. A great deal more interest is taken in having good marketable varieties of fruit now than was the case a few years ago, and the high price obtainable for late-keeping Apples has drawn the attention of growers to their merits, and to the equally important matter of storing them better. Grafting worthless sorts with the newer and more profitable kinds is now being done, and the prospects of a good crop of hardy fruits are very good, the buds being plentiful and strong and late in starting. If the severe winter has mitigated the attack of insect pests, we may reasonably hope that there will be a good crop of home-grown fruit this year.

STRAWBERRY beds are receiving their spring cleaning, as during the severe weather a good coating of manure was spread over them, not only to mitigate the effects of the frost, but also to nourish the roots when the growing season came round. The old foliage has nearly all perished, but the young leaves are already pushing up, and weeds are starting as well; these are being forked out by the root, all big stones and rubbish being removed, and the manure worked down fine and pressed firmly round the crowns. Any young plants that have been loosened by the frost are trodden firmly into the soil.

SPRING FLOWERS, such as Wallflowers, Violets, and other market specialties, have suffered very much, and many of them are an entire failure. This will be a heavy loss to small growers who rely a good deal on intermediate crops of this kind.—J. GROOM, *Gosport*.

RAINFALL AT BELVEDERE HOUSE.

As I have done on former occasions I send the rainfalls of Belvedere and Belvoir Castle. It may interest some of your readers to compare them. Both are in midland counties, about the same distance from the sea. Belvoir is 237 feet and Belvedere 367 feet above sea-level. While in England a great deal of injury has been caused by the severity of the winter, here, as far as at present can be ascertained, no great injury has been done. There is no sign of loss amongst either Tea or Hybrid Perpetual Roses. *Chamaerops Fortunei* (12 feet high), *Veronica Traversi*, Sweet Bays, *Bambusas*, *Olearia Haasti* have stood out without protection. *Dracæna indivisa*, *Elæagnus pungens* slightly protected, *Eugenia Ugni*, *Arundinacea falcata*, and standard

Laurustinus are slightly injured. The winter, too, in this part of Ireland was much severer than in Wicklow, Dublin, or the south, where it was really mild and pleasant. It was the severest winter for ten years past, and 17° of frost were registered on three occasions. There can be no doubt that for many forms of gardening the advantages in Ireland are very great. Nowhere is wild gardening more beautiful.

RAINFALL DURING 1890.

Month.	Total depth.	Greatest fall in 24 hours.	Number of days on which '01 or more fell.
	Inches.	Depth.	Date.
January ...	2.50	.58	27
February ...	.97	.51	16
March ...	2.10	.60	20
April ...	.45	.08	25
May ...	2.56	.76	11
June ...	1.00	.25	19
July ...	2.88	.65	1
August ...	2.29	.57	11
September ...	.60	.18	20
October ...	1.24	.38	16
November ...	3.42	.50	7
December ...	.99	.33	27
	21.00		183

—BRINSLEY MARLAY, *Belvoir Castle, Leicester*.

Month.	Total depth.	Greatest fall in 24 hours.	Number of days on which '01 or more fell.
	Inches.	Depth.	Date.
January ...	5.18	.82	26
February ...	1.05	.25	16
March ...	3.73	1.20	51
April ...	1.05	.24	7
May ...	2.38	.95	6
June ...	3.04	.35	5
July ...	2.67	.54	25
August ...	2.93	.70	22
September ...	3.91	1.18	21
October ...	2.06	.31	29
November ...	6.76	1.02	6
December ...	.94	.27	19
	36.30		193

—JAMES BAYLISS, *Belvedere, West Meath*.

SPADES AND FORKS.

"A. H." refers to the spade at page 171 as one of the most useful tools in gardens. The remark reads somewhat oddly where, as in this locality, few tools are so little employed. I have had a spade for some fifteen years and have in that time worn out as many digging forks, whilst the spade bids fair to endure yet another fifteen years. The fact is, in our stiff loamy district the digging fork is the instrument of cultivators. Happily, we have such splendid tools as flat-tined steel forks, light and long of metal, for they turn up the soil far more easily, freely and deeply than spades could do. The tines are when new about 13 inches long, and being well driven into the soil always breaks it up to the depth of a foot, and few or no spades do that. These forks are wonderfully useful for breaking the soil where fine roots abound, as they stir the ground without materially harming the roots. Were shrubbery or herbaceous borders only lightly forked over, roots would come to no harm. It is when the sharp cutting spade is employed, and only a cutting spade can go deep enough to turn the soil over, that roots suffer so severely. Those who use spades only decline to have their Strawberry or Raspberry quarters dug amongst, and very likely they are right. We who use forks only are not at all particular, and a light forking over during the winter is the rule with all kinds of fruit. The depth at which the soil is disturbed depends, of course, materially upon the root development, as where thick, forking is not deep, the chief object being to destroy small

weeds, aerate the soil, and bury the manure dressing laid on previously. Later the hoe may be applied freely and with ease, as the surface being loose if rough it is soon levelled, and incipient weeds later destroyed. We dig the ground with the fork for all sorts of crops; even with trenching the fork is the chief tool employed, a shovel being used when it is needful to throw up the crumbs in the trench left from the forking. The worn or shortened forks are very useful for pointing amidst Violets, dwarf plants of all kinds, Strawberry plants, Gooseberry and Currant bushes, &c., until they are worn too short for further service. To those unaccustomed to these flat-tined tools, they may at first seem heavy or cumbersome, but after men have become used to them they decline to employ other tools. The narrow-tined steel forks in common use in gravelly districts are of no value whatever in our stiff soil. Probably they would soon break, as where the ground is hard or heavy a thin steel tine soon snaps. The favoured steel forks are of Birmingham make, and are sold in the district at from 3s. 6d. to 4s. each. Enormous quantities are required where so many hundreds of acres are down in fruit. The ordinary market garden labourer's pay is 3s. daily, but more is earned when piece-work is entered upon or overtime made. The busy labour season has now begun, and although there is little call for overtime yet, because the recent open weather and the dry state of the ground have enabled work to be pushed on with more than ordinary rapidity; hence the work is, in spite of the check received during the hard weather, well in hand. Forks are, however, nearly always in use, and they are in the hands of active industrious men the very best of all cultivators, working the soil deeply and pulverising it thoroughly. A. D.

CHURCH DECORATION.

THIS is a department in floral decorations of which it may be fairly said (I think without any contradiction) that greater strides have been made of late years than in any department of domestic floriculture. Immense quantities of flowers are now weekly required by many churches, whilst at certain seasons of the year such supplies have to be considerably increased. I have been impressed with this fact, however, and that is, there is frequently a great waste of material both in the methods of arrangement as well as in the excessive crowding together of far greater quantities of flowers than are really needed to make a good display.

In the methods of arrangement due regard is not given in many cases to the diversity of the flowers employed; these may not in any way harmonise, being grouped together without any attention being paid to their affinity or characteristic resemblance. If more attention were given to this one particular point in arrangements, far better displays would be made than are now oftentimes to be seen. Overcrowding in order to produce effect is generally the first failure that young beginners make. It is a great mistake, and one which they should endeavour to remedy as much as possible. Again, using flowers in an unnatural position should never on any account be tolerated. Thus we often see such as Primroses being festooned and hung in wreaths, totally out of all character with this modest flower. Why not have grouped these in small clumps upon the floor, close to the columns or other similar and appropriate positions, and not have spent the time in encircling them with long wreaths? Such flowers as these will always look best when arranged as I have advised. A great advantage will also result from the better preservation of the flowers by reason of more accessible means to this end. Young beginners in all kinds of floral arrangements would do well to scrutinise carefully the paintings of some of our best known masters who excel in this particular line of thought and design. They would then see the great disparity between a crowded arrangement, void of all taste, and the effect produced in a pleasing manner upon canvas of a far less number, and that in a natural style

also. Where much decoration in churches is done, every facility should be afforded for keeping the flowers as fresh as possible. This may at the outset be thought rather expensive and in no way necessary, but surely the keeping of the flowers as freshly as possible should be duly considered as being of primary importance. Various methods may be adopted to attain this end, these also facilitating the arrangements rather than otherwise. Zinc troughs would be the most useful things possible, and should be largely employed in every position where they could be securely stood, or in any way be fixed. Two sets would be advisable, the fresh filled lot to be exchanged for the stale ones, which could be cleaned. Fresh green Moss and water will be found the best preserving mediums; these necessities can easily be brought into requisition with such troughs. They should be made to fit their respective positions with neatness, the depth being regulated according to the place they are to occupy, and with regard to the respective kinds of flowers that are likely to be chiefly chosen for filling them. Those of greater depth are, of course, necessary in the case of any flowers which are selected with long stems, unless means are employed for securing them by tying them to some upright stays. These same troughs when of sufficient dimensions can be made to act as receptacles for plants of convenient sizes. In order to keep them in a good state of preservation, a coat of paint is to be recommended. The cost of these articles will soon be compensated for by the considerable gain both in time and material employed. The fresher the flowers can be kept the better in every way for those concerned in the arrangements. Designs in zinc can also be employed in an upright manner by the additional aid of some galvanised netting of small mesh; this can be fixed upon the face of the design, filling in behind with damp Moss to preserve the flowers. The netting in this way will keep the flowers in position with comparative ease. Large trumpet-shaped glass vases will also be most appropriate and useful adjuncts for bold and striking flowers, such as the Trumpet Lily or Calla, spikes of garden Lilies, and those of the Gladioli; also for those of the beautiful pendent flowers of the Brugmansias or Daturas, the Solomon's Seal, and other subjects of bold outline or drooping habit. Fronds of those Ferns which develop into a great length would be useful to associate with the flowers when filling such vases. Upon special occasions a fine effect may be made by using large Palm leaves where it is not possible to stand the plants themselves. Bamboos in a growing state, with the foliage fresh, can also be employed in a similar way. In this manner I have seen very fine effects produced quite out of the ordinary style of arrangements. The Bamboos thus in a cut state would look fine at the base of columns, being in this way easily arranged. Other receptacles in harmony with the surroundings can be advantageously employed.

All flowers, in fact, that are choice should have some means by which they can derive nourishment for their better preservation. It seems to me such a waste of flowers, as well as a great detraction from their beauty, when they are seen to be faded a few hours only after having been arranged in their respective places. Such work as this is generally done the day previous to the services being held, and for which the arrangements are intended; all possible means, therefore, should be used to retain these productions in as fresh a condition as possible. The flowers, as well as the foliage which is likely to suffer, should always be kept in water until all the preliminary portion of the work is completed; then as each kind is required it should be taken to its respective position. This is a point often overlooked, the flowers and foliage oftentimes being withered, or at least suffering, before a commencement is made. This particular point should be all the more closely observed if the decorative material has been by necessity obliged to be cut some little time previous, perhaps a day in some instances, and then sent a long distance to its destination. The grouping of flowers with as much as possible their own foliage is a point which cannot be too much impressed upon those who have the decorations

under their supervision. Better effects can thus be made with a less amount of material. Characteristic grouping of flowers is another point to observe. The flowers of liliaceous plants look exceedingly well when kept quite to themselves; in fact there are no finer or more suitable subjects for the purpose. The flowers of the Irises and those of the Gladioli, as well as those of the Narcissus, are all fine subjects. One or other of these kinds can be had nearly or quite throughout the entire year, and, what is of greater importance still, they all usually last well when cut. H.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

MARCH 10.

THIS meeting was held in the Drill Hall, St. James's Street, W., but was not so extensive as one would expect in March. This was undoubtedly owing to the severe weather for the past few days, several intended exhibits, we were informed, having been kept at home from that cause alone. Orchids were not shown in such numbers as upon the last occasion, but some superior examples were staged by different growers. Fruit and vegetables were prominent by their absence, but this is only reasonable, particularly so with the latter, after the severe weather of the present winter. Those who ventured to bring out their plants with such an unfavourable turn in the weather are to be congratulated, considering the risks which are run in many instances.

The following certificates were awarded:—

ODONTOGLOSSUM LUTEO-PURPUREUM VAR. AMESIANUM.—The plant shown carried one good spike of a dozen or more flowers. The colour of the blooms almost throughout is a pale yellow with a fringed lip of a slightly lighter shade. Although not so showy as some kinds, it is decidedly a good thing. Shown by Messrs. Sander and Co., St. Albans.

Awards of merit were given to—

DENDROBIUM NOBILE (Hardy's var.).—This bore highly-coloured flowers, the growths being very sturdy and strong. From Mr. G. Hardy, Pickering Lodge, Timperley.

CATTLEYA TRIANÆ HARDYANA.—A handsome variety, conspicuous by the broad sepals and petals, the lip having a warm purple blotch with a paler margin. From Mr. G. Hardy.

AMARYLLIS SEEDLING J. R. PITCHER, with flowers of a rich deep red colour, and of good substance. From Messrs. B. S. Williams and Son.

APPLE CHELMSFORD WONDER.—A promising variety of handsome appearance and good keeping qualities; the examples shown were very firm and weighty, and of medium size. From Messrs. Saltmarsh and Son, Chelmsford.

Messrs. H. Low and Co., Clapton Nurseries, sent an extensive group of greenhouse spring flowering plants, which made a capital display. This was an instructive exhibit, illustrating the variety of plants suited to early spring decoration. The chief things to be seen were several well-grown examples of Cyclamen, very compact and dwarf with fine flowers; Acacias in variety, the best being A. Drummondii, very showy and well flowered; A. ovata, a distinct small-growing variety with globular blossoms; A. cordata, with paler coloured flowers, was not sufficiently advanced. Boronias were represented by B. heterophylla, a plant of which the value is more and more apparent every spring, being of such free-flowering character and good habit; B. megastigma, well known for its fragrant perfume. Chorozema Lowi was shown in better condition than at the previous meeting, the examples being in profuse bloom. Several capital plants of Genista fragrans were shown, both dwarfs and standards, the latter being as equally well-flowered as the former, but upon a clear stem of about 2 feet; G. elegans is quite distinct, with paler flowers and glaucous foliage. Pimelea spectabilis was shown, but hardly in bloom. Diosma capitata with its pale

lilac heads was, however, in good form. Erica melanthera, a useful decorative variety, was also staged. Silver-gilt Banksian medal.

Messrs. Wm. Paul and Son, Waltham Cross, were also awarded a silver-gilt Banksian medal for an extensive and varied collection of cut blooms of Camellias staged in boxes upon Moss, making a good show; the most prominent kinds were Marchioness of Exeter, fimbriata, Montironi vera (a fine cupped white), C. M. Hovey (a fine deep red), Lavinia Maggi (striped), Countess of Derby (a pale pink), Beauty of Waltham (blush, large blooms), conspicua (a semi-double showy red, fine flowers), Mathotiana (extra good blooms). Messrs. W. Paul and Son had also some fine forced examples of the yellow Banksian Rose, very freely flowered clusters and cut blooms of La France and Duchess of Albany, the latter being of a deeper shade than the former. They also showed plants of White Lady, a Rose stated to be good for bedding, of which proof will probably be forthcoming at the proper season; it is after Lady Mary Fitzwilliam, but paler in colour.

Mr. G. Phippen, florist, Reading, was likewise awarded a silver gilt Banksian medal for an excellent display of spring flowering bulbs, amongst which were several panfuls of Tulips in capital condition, the best kinds being Leonardo da Vinci, Tournesol, Yellow Prince, Toreador, Purple Crown (with leaves margined silvery white), Keizer Kroon, Vermillion Brilliant, White Pottebakker, Proserpine, and White Von Vondel. Crocuses were represented by Mont Blanc, Albion, and Sir W. Scott, also in pans. An attractive feature in this group were three pans of the blue Grape Hyacinth (Muscari botryoides), each pan having some fifty spikes well advanced. This as shown is a fine addition to early spring bulbous plants for pot culture. Next these were several clumps of Lily of the Valley in good condition, and some also of Scilla sibirica. Hyacinths were represented by the best of the well-known varieties usually grown.

Messrs. Barr and Son, who were awarded a silver Banksian medal, had a fine display of cut blooms of Daffodils staged in their usual style; the best amongst these were incomparabilis Leedsii, Queen Bess, obvallaris (Tenby Daffodil), poeticus ornatus, Golden Spur, Sir Watkin (fine blooms), incomparabilis, princeps, bicolor Horsfieldi, Orange Phoenix, and Henry Irving (a striking variety). Chionodoxa Lucilæ and various forms of Iris reticulata were also staged.

A silver Banksian medal was awarded to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, for some splendid examples of cut spathe of Anthuriums. This exhibit fully testified to the value of the Anthuriums as superior decorative plants for the stove. A variety after A. Scherzerianum Rothschildianum, but with a finer spathe and more distinct markings, was to be seen in A. Marie Therese with a spathe some 6 inches long and 3 inches wide; two seedlings, one darker and one lighter, but of the same character were also shown. Of the stronger-growing varieties there was a fine spathe of A. Andreanum, and a seedling darker than that well-known kind; A. Laingi, of which one fine spathe was put up, is of a pearly white colour and extra large; A. leodiense is after A. ferriense, but much larger and a shade deeper in colour; A. carneum is still darker—these two were extra fine examples; A. Edwardi roseum is of a pale flesh colour. A splendid specimen of Cymbidium eburneum with about fifty spikes of bloom was shown by Mr. Burbury, gardener to the Duke of Norfolk, Arundel Castle. The plant had borne the journey well. A silver Banksian medal was awarded, and most deservedly so.

Messrs. Sander and Co. showed a group of Orchids (plants and cut flowers). Prominent amongst other things was a splendid lot of cut spikes of Celoglyne cristata alba (hololeuca), some sixty in number having been cut from one plant; these were of very pure colour. Cattleya amethystoglossa was represented by two good spikes; Cattleya Trianæ alba and Phajus tuberosus were also shown. The same award was given to Mr. Wm. Whitely for a group of Odontoglossums, chiefly

consisting of forms of *O. triumphans* and *O. t. superbum* with one or two good plants of *O. Alexandre*, and an example of *Cattleya citrina* with two flowers. A larger collection chiefly of Orchids came from Messrs. B. S. Williams and Son, to which a silver flora medal was awarded. Prominent in this group were *Cypripedium vernixium*, some of the spikes carrying twin flowers, a fine plant; *C. Williamsi*, a good form; and *C. Argus*, finely spotted. A fine plant of *Cœlogyne cristata alba* with fifty flowers upon it; *Odontoglossum Alexandræ* roseum, a rose-coloured form; *Cymbidium Lowianum* with three spikes; *Cymbidium eburneum*; *Odontoglossum Ruckerianum*, two plants, one an extra fine variety; and a pretty example of *D. Farmeri aureum* were also shown. In the same group was a fine example of *Tillandsia Lindenii* major, with its deep rich blue flowers. Mr. N. C. Cookson, Oakwood, Wylam-on-Tyne, showed a plant of *Phajus Cooksoni*, with a good spike, and a hybrid *Dendrobie*, *D. Cooksonianum*, with dark blotches upon the sepals. From Messrs. Low and Co. came two little gems in *Saccolabium bellinum* and *S. b. aureum*. Several forms of *Lachenalias* were shown in cut spikes. Prominent amongst these was the yellow variety *L. Nelsoni*, also the old *L. bicolor*, with hybrids intermediate between the two. No entry card being placed against this exhibit, we cannot give the name of the exhibitor. A small exhibit came from Messrs. G. Paul and Son, who had *Bulbocodium vernum*, a light purple, and *B. ruthenicum*, a dark purple, quite distinct from the first-named. *Galanthus Elwesi* and *G. plicatus latifolius* were also represented.

A splendid basketful of plants of Violets in profuse bloom was brought by Mr. Allan, gardener to Lord Suffield, Gunton Park, Norwich. Both were of double varieties, which are undoubtedly the best for frame cultivation. *Comte de Brazza* is a fine double white of good habit, a capital grower, and a free bloomer. *Marie Louise* was of a darker shade of blue than usually seen in the London locality where Violet culture is next to an impossibility in frames.

From the Chiswick Gardens came examples in excellent condition of Chicory (blanched). Three large strong-growing forms were shown, viz., the Whitloof, the Magdeburg, and the Brunswick. Of these the latter struck us as being the best.

The lecture on this occasion was upon Snowdrops, when Rev. W. Wilks, M.A., read papers sent by Mr. Allen, Park House, Shepton Mallet; by Mr. F. W. Burbridge, M.A., of Trinity College, Dublin; and by Mr. Melville, Dunrobin Castle Gardens, N.B., all bearing upon the varieties of the Snowdrop and its culture. An excellent photograph of Snowdrops in bloom taken during February at Dunrobin was contributed by Mr. Melville. The profusion of bloom seen in this photograph testified to the suitability of the spot chosen for their culture, viz., upon the ground under large forest trees, heavily shaded in the summer.

British Fruit Growers' Association.—A meeting was recently held in the Horticultural Club Room, Hotel Windsor, when the arrangements for the conference to be held at Cardiff on August 12 at 4 p.m., and at Edinburgh on September 11 at 3 p.m., were discussed at some length. The correspondence which had passed between Mr. A. H. Smea, the Rt. Hon. J. Chamberlain, M.P., and Mr. Jesse Collings, M.P., relative to a great County Council grant for technical education was also read. A sub-committee was appointed to prepare a syllabus of lectures appropriate to the required conditions. Several members and vice-presidents were elected.

Horticultural Club.—At the monthly dinner of the above club a paper on "Seeds—Curiosities in Vitality, Distribution and Germination" was read by Mr. George Bunyard, of Maidstone, which opened a very interesting discussion, in which important facts were stated by Mr. D. Morris, of Kew, and the subject was warmly entered upon by the members present—Rev. W. Wilks, Messrs. P. Crowley, Jas. Walker, George Paul, Cousens, A. H. Pearson and others taking part in the discussion,

as well as the newly-elected president, Sir John Llewellyn, Bart., who presided. A hearty vote of thanks was accorded to Mr. Bunyard for his paper.

ROYAL AQUARIUM.

MARCH 11 AND 12.

CONSIDERING the large area of the building, the show of spring flowers held on the above dates was not so extensive as was desirable, but in a more limited area the show would have been regarded as remarkably pretty and effective. Big masses of plants are necessarily needful to furnish the Royal Aquarium floor, but these cannot be found so early in the season. The show also had to suffer from the truly inclement weather which prevailed on the morning of the 11th and the day preceding, weather of an almost unequalled kind so late in the spring, and which effectually checked the sending of plants out to any exhibition. Later the weather very materially improved, but too late for exhibitors to benefit by it.

MISCELLANEOUS GROUPS.—A very fine collection in this class came from Messrs. J. Laing and Sons, Forest Hill. Very effective indeed were numerous fine pieces of *Dendrobium Wardianum*, *Phajus grandifolius*, the beautiful clear yellow *Dendrobium Brymerianum*, with its quaint feathery lip; some good forms of *Cattleya Trianae*, *Odontoglossum Alexandræ*, *Azaleas*, *Cyclamens*, and other flowering plants, these being effectively set in a dressing of Palms, Ferns, &c. Beyond the group in the competition, which was, of course, placed first, were some extra plants filling a large table and producing a charming effect. An attractive feature amongst them was a large head of *Clivia Lady Wolverton*. Mr. Nunn, of Greenwich Park, was a further exhibitor in this class.

CYCLAMENS formed perhaps the most striking feature amongst market plants, nearly 1000 of these being staged. In the unlimited collection class there were five lots, most of high merit, the collection awarded the first prize being sent by Mr. J. Walker, of Hounslow, whose plants were finely bloomed and with flowers of the best quality, but lacking colour. The plants of Mr. May, of Isleworth, who came next, were very rich in colour, his plants being arranged in blocks of crimson, red, white, rose, and the tipped persicums. Somehow, exhibitors of Cyclamen collections seem quite unable to devise any really ornamental method of exhibiting their plants. The general effect is of exceeding flatness and of a bizarre mixture, which hardly help to display the Cyclamen to the best advantage. In the case of the competition for thirty-six plants, or such as the trade term specimens, the St. George's Company, Hanwell, were first, being strong in whites; Mr. J. Odell, Hillingdon, who was second, had some pretty pink and rose tints in his flowers, of which we have far too few in Cyclamens.

HYACINTHS AND TULIPS.—Only two collections of fifty Hyacinths were shown, the best batch coming from Finchley, Messrs. Williams and Sons being with all their exhibits invincible. Still the spikes of Hyacinths were not at all up to the true exhibition mark. The best sorts seemed to be Lord Macaulay, red; Gertrude, pink; Gigantea, flesh; Ida, yellow; La Grandesse, white; and of blues, Charles Dickens, King of the Blues, and Marie. Mr. W. B. Morle, of Regent Street, was the only other competitor. Messrs. Williams and Sons had the best thirty-six pots of Tulips, the flowers only partially expanded, but very fresh and richly coloured; the best were Vermillion Brilliant, Proserpine, Van der Neer, Ophir d'Or, Joost van Vondel, Kaiser Kroon, Hector, and Van Spindonk. In another class for amateurs, Mr. Turk, of Highgate, was the chief exhibitor of twelve pots of Tulips and twelve Hyacinths, all of fair quality. Messrs. Williams and Sons were first with Lilies of the Valley, having fine, clean, well-flowered clumps in 9-inch pots—the same exhibitors being first also with twenty-four pots of Narcissi, chiefly of the Polyanthus section, but with some very good double yellow Van Sion added.

AZALEAS were found in small plants, those which secured the first place being rounded, semi-

trained, but very thinly flowered and leaved, though seen in greater variety than were the very finely bloomed heads of small standards in 6-inch pots from Finchley, which we thought incomparably the best. Of the best were Baron Rothschild, white; Comte de Chambord, cream; Van Houtte and Mme. Van der Creusen, red. The season so far prevented the exhibition of hardy Primroses, Polyanthus, &c., but the Narcissus was well represented by the collection of out blooms sent by Messrs. Barr and Son, Covent Garden, who easily took the first prize in the class for a group of these popular flowers. Very attractive amongst the varieties were Sir Watkin, Golden Spur, princeps, Henry Irving, maximus, cernuus, ornatus, &c. Some pretty *Lachenalias*, *Crocuses*, *Squills*, scarlet *Anemones*, and other hardy flowers were also shown by this firm. *Spirea japonica* in pots was very well shown, but, of course, chiefly of the ordinary market forms. Of subjects not sent for competition, Mr. Davidson, The Gardens, Iwerne Minster, Blandford, showed half a dozen new *Clivias*, the finest of which were Lord Wolverton, rich carmine, petals broad and well reflexed, and Miss Ethel Parsons. Mr. Edmonds, of Hillingdon, had some plants of a very pretty Cyclamen named Purple King, the flowers being of a magenta-purple. Mr. Morle showed, with some ordinary foliage plants, several handsome specimens of *Araucaria excelsa* from 2 feet to 3 feet in height, and very fresh and handsome. An attractive object was found in a basket of fine Uvedale's St. Germain Pears, very handsome, and of a golden-yellow hue. These really resembled fine Pitmaston Duchess Pears as seen in November. Very effective here, as at the St. James' Street Drill Hall on the previous day, was the beautiful collection of *Camellia* blooms staged by Messrs. W. Paul and Son, Waltham Cross. There were in the collection some 300 blooms, all keeping wonderfully fresh to the last. It is rather strange that the *Camellia* has not been made a flower for competition ere now at spring shows.

THE LATE E. R. CUTLER.

It will, I feel sure, interest your readers to know that at a very full committee of the Gardeners' Royal Benevolent Institution, held at 50, Parliament Street, S.W., on March 5, 1891, the following resolutions were unanimously adopted:—

That this meeting desires to place on record its sense of the irreparable loss sustained by the Gardeners' Royal Benevolent Institution in consequence of the death of Mr. E. R. Cutler, its secretary during the long period of fifty years, and who, by his untiring energy and devotion to its best interests from its commencement, succeeded in leaving it in the gratifying position of having an invested capital of £25,000, while at the same time pensions amounting to £2648 are being paid annually to 156 pensioners.

It was unanimously resolved that the following resolution be forwarded to Mrs. Cutler:—

That the members of the committee of the Gardeners' Royal Benevolent Institution desire to offer to Mrs. Cutler their very warmest sympathy and condolence in the lamented death of her husband, a loss felt by each member to be that of a valued personal friend, and of one whose memory will ever be affectionately cherished by all who had the gratification of knowing him.

A sub-committee was also appointed to consider the best steps to at once obtain the services of a new secretary, and to carry on the general working of the office.—H. J. VEITCH, *Treasurer*.

Death of Mr. Wm. Richards.—Just as we are going to press we are informed that Mr. W. Richards, who for many years has been publisher of the *Gardeners' Chronicle*, died on Wednesday night. Mr. Richards, who had been in failing health for some time, last year undertook a voyage to Australia in the hope that the change might benefit him. The funeral will take place at Kensal Green on Monday next.

Names of plants.—*J. M.*—1, *Linum trigynum*; 2, *Toxicoplasa spectabilis*; 3, *Armania alnifolia*; 4, *Hibiscus rosa-sinensis*.—*Jersey*.—Frond No. 4 too much shrivelled.—*B. J. S.*—1, *Epidendrum fragrans*; 2, *E. vitellinum majus*.—*July*.—1, *Cœlogyne Massangeana*; 2, *Cattleya amethystoglossa*; 3, *Oncidium splendidum*; 4, *Phajus grandifolius*; 5, *Cypripedium Amesianum*.

WOODS AND FORESTS.

TREE MANAGEMENT IN AND AROUND LONDON.

NOWHERE in Britain are trees and shrubs (the former in particular) so sadly mismanaged and mutilated as in the parks and grounds in and around the great metropolis. Vandalism is the mildest term to the promiscuous hewing and hacking that have of late been going on in some of the London parks—a pernicious method of pruning carried out by workmen who are totally ignorant of the simplest rules whereby the amputation of large limbs and branches might be successfully carried out, and who, moreover, seem to have no one to guide them in their haphazard work. In the first place, I may well ask why are these trees shorn of their branches in this unmerciful way, and left like so many gaunt, mop-headed curiosities, that one could only find an equal for in some plantation where “the survival of the fittest” was gradually going on. Surely trees, as Nature intended them to be, branched to or near the ground are infinitely preferable from any point of view to those made naked and wretched by this absurd practice of so-called pruning! In our parks and open spaces it is not the greatest number of trees that is wanted; if it were so, less might be said against this butchery; but a few well-grown, well-furnished, and natural-habited specimens, and that are at all times allowed plenty of room for the perfect development of root and branch. Pruning, if at all engaged in, should be very sparingly done, and only to correct rival leading shoots, foreshorten straggling and ungainly branches, and attend to such as have become damaged by the wind or through other accident, and should never be performed unless by a skilled workman and under proper supervision. Were such well-developed trees encouraged, and the present system of planting and after-management entirely abolished, we would not only have far more ornamental specimens adorning our parks and commons, but a great saving of public money would be brought about as well.

Pruning the shrubs in some of the squares and parks is an operation that is well fitted to make one shudder, but this has been fully commented upon in the pages of *THE GARDEN* by Mr. Goldring. To see the pruning-knife at work, slashing right and left without the least method or caution, and without any distinction as to the particular shrub being operated upon, reminds one of nothing so much as the wielding of the shearing-hook on a long handle on some hedges. Few things in connection with the management of shrubs require more caution and skill than their proper pruning, for if not rightly done and the individual requirements of each studied, the flowering buds may be unknowingly destroyed. Nine-tenths of what would otherwise be beautiful Lindens are so mutilated by the annual topping and side shearing, that one cannot but feel sorry that a practice fraught with such evil consequences has become so common. To strive and keep one of our noblest forest trees, like the Lime, dwarfed and distorted by this system of management is cruel indeed. The pruning goes on from year to year, thus causing great ugly protuberances to be formed at the points where amputation of the branches took place, the vigour of the tree is crushed and destroyed, and the whole appearance of the handsomest denizen of our woods and plantations completely thwarted and changed. In many cases the Elm fares no better, the rage for these mop-headed trees being evidently characteristic of town taste. The Lime evil

might be greatly lessened by a proper consideration of the trees that are suitable for the extent of ground at command, for, strange as it may seem, persons who own but a dozen square yards of frontage must follow the custom of the district by having their line of Limes planted, as they often are, within a few inches of the division fence, or close alongside a walk or drive. These naturally in a very few years outgrow their allotted bounds, the only choice of evils left being either to cut them down or have recourse to dwarfing and pinching by the much-to-be-condemned practice of beheading and stem-pruning. It would be well did those who contemplate tree planting where ground space is confined first consider well the size to which the individual specimens are likely to attain, and suit their trees to the ground, thus doing away with or greatly minimising the evil of distorting and dwarfing by pruning some of our noblest forest trees.

That there are numbers of small growing and highly ornamental trees in every way suitable for confined towns and suburban gardens and lawns must be apparent to every reader of *THE GARDEN*, for many such have been described lately. The excuse, therefore, for planting unsuitable subjects is small indeed, and the prejudice against removing trees that have once been planted being no doubt hard to overcome, it is well to consider before a specimen is planted whether after a few years it will be in keeping with the surroundings.

A. D. WEBSTER.

THE BLACK WALNUT.

(*JUGLANS NIGRA*.)

PREJUDICE can surely be the only or chief reason why this tree is not more commonly cultivated in the British Isles. Few trees produce wood so valuable as that of the Walnut, while it is of rapid growth and fairly free from disease, and one of the most easily propagated. True, the soil required to produce good Walnut timber and rapidly can perhaps ill be spared from agricultural purposes, for to grow the tree in anything like a satisfactory and remunerative way it must have a good rich and deep loam, or some nearly allied soil, for the tree is a gross feeder, and one that dislikes light shingly gravel or soil of poor description whatever it may be. Timber that at present is fetching from 3s. to 4s. per foot delivered at some of our ports is certainly worthy of attention, and when we know that such can be produced in not one, but every county almost in England, the wonder is that some far-seeing landed proprietor has not caused acres of so valuable a tree to be planted, if only as a commercial speculation. For rifle and gun stocks most of the Walnut wood used in this country comes from the Continent, France in particular, and the consumption is large and ever on the increase. But not only for fire-arms is the wood of the Walnut sought after, as in the making of our best class of furniture it holds a high position. Not long ago a large consumer of home-grown timber was inquiring for logs of Walnut, but he could not find them, although the price offered was tempting. The same timber merchant tells me that home-grown Walnut wood is little inferior to that sent from the Canadian ports; indeed, that for depth of veining and colour, old and well-grown stems are quite equal to any he has ever shipped from Canada. The timber of the Walnut is hard and heavy, but easy of manipulation, and will take on a good polish, while the beautiful satiny tint of the richest and most distinct colour places it high on the list of ornamental cabinet-work timber.

I have now before me boards of home-grown Walnut wood that could not be detected from the finest Italian; the boards certainly were cut from a large and old specimen—I should say a perfectly developed tree. Everyone acquainted with our forest trees must have remarked how distinct of tint are

the leaves of the tree, those of few other woodland subjects wearing the same pea-green colouring, particularly in the earlier stages of their development and at full maturity as well. Black Walnut trees that have been allowed plenty of room have a fine umbrageous branch-spread, but the tree never looks heavy of top, the branches being so arranged as to allow plenty of light and air around the main stem. The fine old specimens of the tree in almost every English and Scotch park tell very plainly that this Walnut is peculiarly suitable for the climate of Britain, and when we link this with the great value of the wood, tree planters should not be slow in turning the fact to good account. A. D. W.

ELMS IN EXPOSED PLACES.

THE Elm does so well in many gardens, and for planting in kept grounds by its rapid growth, that it has been extensively used for shelter and effect. I consider it one of our most dangerous trees to plant near a house or building of any kind, especially in an exposed position, as when a certain age is reached it becomes dangerous, and the trees fall without much warning, being often decayed at the ground level. The common Elm when grown in a light porous soil is very subject to decay, and there is great danger from the branches when of a large size, as these decay in the centre, and often give way, causing much mischief to other shrubs and trees around them. The Elms delight in a low, humid situation, as many of the fine specimens on the Thames bank testify by their enormous size. We have *Ulmus americana* in fine condition with a clear bole or trunk some 40 feet or 50 feet high, and a grand head. The tree is distinct from the ordinary kind, and the wood less useful. The variety called *glabra vegeta*, or the Huntingdon Elm, has been much planted of late years for its quick growth, but it is one of the worst trees in a small garden if allowed free play, as it overgrows everything, besides taking all the nourishment out of the soil. There are many of the smaller varieties which do not grow so vigorously as the better known kinds with smaller foliage, such as *U. fulva*, *U. nana*, and others. As there are many other trees of greater merit I would prefer them to the Elm unless it was desired to form a collection of varieties of this genus. Fortunately, the free-growing kinds when they become dangerous may be topped and the danger to a great extent averted, but it is not a satisfactory proceeding, as the trees look bad for a time when topped till new shoots have supplied the place of the old. It is necessary to be very careful with old trees, as they are often decayed in places that look quite sound. This is especially the case with *U. campestris* and *americana*, and others of rapid growth. I have noticed that *U. montana*, or the Wych Elm, does not suffer so badly in this respect if in good loam. The Elm is often used as a town tree for roadside planting. As a timber tree in this locality I find *U. stricta*, or the upright Elm, the best. Besides being a rapid grower its timber is of the best quality. This, also known under the name of the red Elm, is, I consider, one of the best of the small-leaved species. It is a great mistake to plant the Elm among shrubs, as it ruins them when it gets a few feet high. I once planted Elms in this way, and my employer would not sacrifice them, the result being that we had poor shrubs. No matter what was planted, the Elms took all the goodness out of the soil. G. WYTHES.

Syon.

Best forest trees to plant.—When speaking the other day to a gentleman, who is an extensive land agent, regarding the best and most profitable forest trees to plant, he informed me that he had been advised by a large timber merchant to plant Ash and Sycamore, as these are the most likely to be in demand in the future. I would be glad to have the opinion of some of your correspondents on the matter.—THOMAS CANNING, Aldenham Park, Bridgnorth.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakspeare*.

KITCHEN GARDEN.

SPINACH.

SPINACH is one of the most wholesome of vegetables, and in the majority of establishments is in almost daily request. Excepting, perhaps, during a month or two in the heat of summer, there should not be any difficulty in producing a supply. During the past severe winter the supply of Spinach was out of the question, but as soon as the snow melted away, and with the return of more genial weather early in February, it was astonishing how quickly the plants started into growth. Those who took the precaution to sow a good-sized breadth during August have reason to congratulate themselves, as in many gardens it is about the only green vegetable left. No doubt it was owing to the protection afforded by the snow that it passed through the trying ordeal so well, even small plants being uninjured. It is generally after the winter crop of Spinach is over that the continuous supply fails. Especially is this so if the spring should happen to prove a late one. To bridge over this supply I always make an additional sowing about the second or third week in September, thus giving the plants time to appear above ground and also make perhaps an inch of growth before the rigours of winter set in. Very little more than this amount of growth does it make during the winter, but on the approach of more genial weather the plants start away freely and form an admirable link between the last of the winter crop and the earliest sowings of the new year. To grow good Spinach a generous treatment must be afforded, as it will not succeed on poor soils, for almost as soon as the seedlings are an inch or two above ground they run to seed. Especially is this so with the spring or early summer sowings. Heavy clay soils are about the worst for Spinach growing, although on soils such as these the ground may be brought into a sufficiently pulverised condition to produce good crops. On some soils the Spinach will always run to seed, and in one garden I had to deal with I could do very little with the summer or round on this account, so had to depend solely upon the prickly-seeded, which succeeded well. A fertile soil, therefore, being very essential for the spring and summer crops, the ground must be deeply worked, well manured, and brought into a well-pulverised condition. The earliest sowings are generally made on a warm sunny border, or on an open sheltered plot facing the sun, as well as between the earliest Peas when these are allowed a fair distance between the rows. A favourite position with many, and especially so for later sowings, is between the rows of second early Peas, the slight amount of shade being beneficial. As the season advances, east or even north borders are the best positions to select for keeping up the summer supply. Moisture being so important, water would have to be freely applied during the heat of summer, and this in conjunction with a rich soil will prevent the plants running to seed. The ground previous to sowing should be freely dusted with soot, as being an incentive to free growth, and with the winter crop this is doubly necessary to prevent the attacks of grubs. In some seasons these are very destructive, whole breadths being quickly cleared off. The drills

should be marked off about 15 inches apart, and drawn about 1 inch in depth; a less depth especially during a dry time must not be allowed, or the seeds will fail to germinate. The seeds must be sown thinly, and as soon as large enough to handle the seedlings must be thinned out, so as to give the plants room for free development. The later thinnings may be used up, and the plants which remain may be advantageously cut over as required. Frequent sowings during the spring and summer are more profitable than allowing the plants to remain after the first few gatherings of leaves. A sowing should be made about every three weeks until the latter part of April; afterwards and up till the early part of August every ten days is none too often where a succession has to be kept up. For the winter supply, an open plot fairly sheltered and exposed to the sun should be selected, but it need not have been recently manured. Our breadth for the winter supply generally succeeds the second early Potatoes or Peas, the preparation necessary for which as regards manuring being all that is necessary, excepting the dressing of soot. The plot will have to be forked over to bring it into condition for receiving the seed. For the winter crop the prickly or winter must be resorted to, although when it becomes better known, the Victoria is likely to become an established variety either for the summer or winter crop. It is altogether more vigorous than the other varieties. Although thinning of the winter Spinach is very necessary, yet it must not be resorted to too severely. Where the grubs are known to be troublesome, it is advisable to be very careful with early thinning. It must not be inferred that I favour overcrowding in the rows, but it is as well not to be too exacting. Hoeing being such an essential operation in promoting free growth, this must be practised as opportunity offers.

SUBSTITUTES FOR SPINACH.—During the months of July and August, and especially during hot and dry seasons, the growth of the summer Spinach is often very precarious, on some soils the plants running to seed almost as soon as through the ground. During the months named if a supply should be absolutely necessary, it is as well to rely on the New Zealand Spinach, and, failing this, the Spinach Beet is a capital substitute. The New Zealand Spinach should not be sown later than the present time, and as it is necessary to raise it in heat, the seeds should be sown two or three in a 4-inch pot either on a gentle hotbed or in an intermediate house, and thinned out to one plant as they grow. Being a very luxuriant grower, the plants should be put out early in June, placing them 3 feet apart. Two dozen plants would be ample for an ordinary household. A south border is the best position for it, but failing this, an open sunny spot should be selected.

SPINACH BEET.—This is what may be termed a hardy perennial, and considered by some an excellent substitute for Spinach, and as it continues growing throughout the summer there need not be any fear of being without a supply in the driest season. It may either be raised by seed or division, the latter for preference. An open plot of ground, which should also be deeply dug and well manured, should be selected. Plant out at the present time in rows 30 inches apart and 18 inches in the rows. Plant firmly, afterwards mulching with decayed manure. Throughout the growing season the flower-stems must be kept picked off. A surfacing of rotten manure should be applied in spring, which will be all the attention necessary to ensure a regular supply. The same plants will

last for years, but it is advisable to take up, divide, and replant about every second or third year. When raised from seed it should be sown in drills at any time from now up till the end of April. A. Y. A.

A note on Turnips.—When the thaw set in after the late very severe frost, it was found that all the white Turnips left out were rotten, and the Red Globe was not much better, the bulk of the roots having since collapsed. Orange Jelly stood the frost much better than the other two named, but even this compared badly with Chirk Castle Black Stone, which is undoubtedly by far the best Turnip for winter use. It has several good qualities and not one bad one that I am aware of. Seeing that it belongs to the Strap-leaf section, or at any rate greatly resembles these in that it forms but little foliage, and that not at all coarse, the roots can be grown more closely together than is the case with any other late Turnip. The roots are of medium size and nearly as round as a cricket ball. Although the skin is nearly black in colour, the flesh when cooked is beautifully white, and the quality second to none. This variety ought to be extensively grown wherever Turnips are in demand. For the earliest crops there are none to equal Extra Early Milan, the French Long White Forcing and a selection of Snowball forming a good succession. The two latter are also very useful in the autumn, and I can strongly recommend Veitch's Red Globe. I sow the last and Chirk Castle extensively in July and August, as they can always be relied upon to do good service.—M. H.

New white Jerusalem Artichoke.—This new Artichoke is certainly an acquisition, and should in time take the place of the old variety if it proves to be as hardy and prolific. I have seen this new Artichoke on several occasions, and it is a decided advance, having a nice clean white skin with smaller eyes and altogether of a better shape, and not so rough or irregular as the old form. I think when it is better known it will be found a most useful addition to our list of winter vegetables, and as of late years the Jerusalem Artichoke has found more favour and is being more grown by market gardeners, the newer introduction should be extensively cultivated. Being one of the best and most robust-growing vegetables we have, at times it gets planted in unsuitable places and the produce is poor, but when given plenty of room and liberal treatment, by trenching the ground and giving a dressing of decayed manure, the Jerusalem Artichoke well repays for the trouble taken. I do not advise planting in richly manured ground in the spring, but preparing it in the early autumn, as fresh manure causes badly shaped tubers. If ground is not prepared as advised, I would prefer to plant on ground heavily manured for the previous crop. In heavy land the soil is benefited by using decayed leaves, wood ashes, and similar materials in preference to a mass of fresh manure, planting the tubers 3 feet apart in the rows and 18 inches between the tubers in the row. Leave in the ground till early in March, digging up the tubers as required, and saving the smaller ones for seed. At the end of March all should be dug up and stored in a cellar for use, as when they commence to grow they take on a bad colour when cooked and lose the flavour.—G. WYTHES, *Syon House*.

Storing Potatoes.—The enormous losses of Potatoes through the exceptional visitation of frost ought to call attention to the manner of storing. If the losses throughout the country have been anything like what they have been in this locality, then the money value must amount to thousands of pounds. Possibly the fact of growers in this locality having been favoured with mild winters for many years in succession may have led to careless storing compared to what is adopted in places where severe frost is of more frequent occurrence. In any case, the mischief is done, and now we find Potatoes fit for cooking at least double the price they were in autumn, while good seed has gone up enormously. Having been fortunate enough to escape with very trifling loss to my stock of

lead, I wish to call attention to the merits of underground storing compared with any kind of ordinary building. I had a good many of the best kinds that naturally start into growth very early spread out so that they might not sprout too soon in rather an elevated building, and although I kept them safely, it was only by a great deal of attention in covering. In one case, although I kept the frost out from the top, it reached them from underneath, owing to the floor on which they lay letting the frost in from below. I had stored a quantity of seed in open flat baskets in a cellar that, although not exactly underground, is nevertheless banked up with earth all round, and in this place there never was any necessity to cover, as the temperature all through the severe frost remained quite high enough for seed Potatoes, and I feel sure that anyone having to store valuable Potatoes would find it by no means a bad investment to erect such a place, as it does not take a very large building to store a large quantity, at least until the danger of freezing is over, when they can be spread out thinly for sprouting.—J. GROOM, Gosport.

Seakale.—Fortunate indeed are those who possess a good breadth of strong Seakale left undisturbed in the ground after such a heavy drain on it for forcing, as there has generally been this season through the great dearth of vegetables. Such, and those who have not hitherto done it, I would advise to at once cover the crowns over to the depth of a foot or 15 inches with fine soil or sand to produce Kale during the latter part of April and through May useful and acceptable, for then will undoubtedly be the time—prior to the advent of Peas, Cauliflowers, &c.—that the pinch of the severe winter will be most keenly felt. Seakale thus blanched is infinitely superior to that forced, and from strong crowns the produce is large and very fine. I annually reserve a breadth here for this season and purpose. This is planted in double rows 18 inches apart and 4 feet between, and on account of our soil being very stony—too much so for covering from the 4-feet way for blanching—we use sand and mud as carted from the estuary of the river. This answers the purpose perfectly, imparting no unpleasant flavour nor colour to the stalks, which grow through it white, clean, and exceedingly brittle. On the first appearance of cracks and small mounds being raised on these ridges (similar to what Potatoes make in pushing through the ground) is the time to scrape away the sand in order to reach the crown for cutting the produce, again covering over if a second crop of smaller growths is desired. At the end of the season when all are cut the sand is turned aside on to the space between the double rows, there to remain until wanted for the same purpose another year. In performing this operation all the crowns are cut down with the spade level with the ground, a good dressing of artificial manure given and lightly forked in. This, with the exception of cutting out flowering shoots, weeding, and an occasional dressing of some artificial manure during the growing season, is all the cultivation necessary until blanching time comes round again. I would wish specially to recommend Lily White as being superior, in at least appearance, to the ordinary Seakale.—J. R.

Effects of Tomato disease.—Recently, when in conversation with a friend who grows Tomatoes for the markets very extensively, and who was at the time commenting on the wonderful extent of houses now principally devoted to Tomato culture, I put the question, "What would be the result if a successful remedy for *Cladisporium*—the most deadly form of Tomato disease—was forthcoming?" He at once unhesitatingly replied that the prices obtained for the fruit would drop to a very low figure indeed, or probably at times to about 1½d. per pound, and which for house-grown fruit would in most cases fail to pay. Those near the markets might contrive to make Tomato-growing pay, however low the prices might drop occasionally; but great and ever-increasing though the demand may be, those at a great distance from the principal towns would soon cease to compete with their better situated rivals till the slackness of the supplies once more caused a rise in the prices. Few

outsiders have any conception of the amount of capital invested and labour expended upon the production of Tomatoes, hundreds of acres of glass being devoted principally to this fairly profitable industry, and every year the extent is being largely added to, not merely in the Channel Islands, but all over the country. As conveying some idea of the progress still being made in this direction, I can vouch for the fact of one firm of boiler-makers having booked orders for twenty boilers of the largest sizes in Guernsey alone last autumn. Nearly the whole of these were for new houses. Other makers have not been idle, so that there is every prospect of still heavier consignments of Tomatoes leaving the Channel Islands during the coming season than in previous years. Even if many of the houses erected during the past autumn and winter are intended principally for Grape culture, these will yet be largely utilised for the growth of Tomatoes, the latter being planted all over the interior during the first season, and in diminishing quantities during the next year or two, or as long as the vines do not unduly shade them. The earliest Tomato plants, and which are principally grown in pots, are now setting rapidly. Some of the fruits are nearly the size of Walnuts, and will therefore be ready for the markets early in May. Already the disease has put in an appearance, the various remedies, drastic as they have been, having failed to destroy the germs, and the crops will inevitably be lighter accordingly. On the whole, probably, consumers have far greater cause to regret the advent of disease than have the growers; at least, this is the opinion of some of the latter, but these may yet have cause to think differently, especially if foreign competition increases.—W. I.

EARLINESS OF VEGETABLES.

DOUBTLESS "A.D." has good opportunities for observing what takes place in the market gardens in his locality, but evidently his experience is limited to these. Were it otherwise he would never have committed himself to the assertion that market gardeners are at a disadvantage as regards earliness of vegetables, notably Peas, as compared with private gardeners with their "warm borders and walled-in gardens to give needful shelter." All the good the latter do is to promote an extra length of haulm in early Peas, and it is not that we want, but a quick, even if light crop of well-filled pods. For four years in succession I tried my best to gather a good dish of Peas from rows grown on a south or well-sheltered border before market gardening friends could do so from their breadths of plants sown in the open fields, but failed to do so each time. Their seeds of *Caractacus*, a supposed improvement on Sangster's No. 1, and William I. were usually sown as early in the year as the state of the ground permitted, while I tried both sowing early in the border and also raising the plants under glass and early planting out. Most of the presumably superior early varieties, in addition to those named, were tried in my case, the same results attending my efforts throughout. As a rule, the market gardeners sent their first gatherings to the markets three or four days before I commenced picking, and I have known them to be a week ahead of me. The reason for this precocity on the part of the field-grown Peas is not far to seek. Being sown on ordinary ploughed ground, though well manured, the root-run is necessarily firm, and therefore conducive to sturdy, early, productive growth of the plants, the openness of the position also tending in the same direction. The spaces between the rows are frequently stirred with hoes, and that is all the trouble taken with them, stakes being simply out of the question—in fact they would probably do more harm than good. The haulm does not trail on the ground far, but the points draw up to the light and sunshine, and with plenty of the latter the pods fill quickly and early crops are the result. Contrast this with what happens in walled-in gardens. In this case the Peas are either planted or sown on heavily manured, deeply-dug ground, sheltered, staked, and otherwise coddled, with the result that the haulm grows to nearly double the length of that in the open fields, this

being at the expense of earliness, and, as far as the early crops are concerned, there is no gain in the weight of produce. Let "A.D." or someone still nearer the markets learn when the earliest Peas from the open fields round London are sent in and publish the date. If many private gardeners can then truthfully assert they commenced gathering from rows grown in sheltered borders still earlier, then "A.D." is right and I am wrong in the conclusions arrived at. What applies to Peas grown in the open fields is equally applicable to Beans, Cauliflowers, Broccoli, Brussels Sprouts, and Strawberries, the command of extra shelter giving little or no advantage to the private grower of these crops. W. I.

Mushrooms in unheated structures.—The advice given by "W. I. M." to leave beds alone which do not come into bearing as soon as they are expected to do, is quite sound. I have had beds upon which there was not any appearance of a Mushroom for four months at least after spawning. I would not think of destroying any bed until that time had elapsed, and then even if the room be not wanted I would prefer to leave it a little longer. I have one bed now just giving indications of a crop which was spawned in November last. Several were made up about the same time, but this one happened to be in a cold corner; the others have been yielding well for several weeks past. In making up beds in unheated structures I am more impressed than ever with the necessity of paying good attention to the preparation of the manure. On no account should a bed be made up with the manure at all on the wet side; if it is, the probability will be more often than not that the temperature will fall too low for the spawn to work. When made up in a fairly dry condition, the temperature remains more equable for a greater length of time. When this is so with the assistance of the covering, as mentioned by "W. I. M." there should never be any fear of failure, provided good spawn were used. In our cellars we have been gathering a continuous supply since the first week in September of last year, having now five beds in good bearing. One of these commenced about the middle of December and has not ceased to give a good return, bidding fair to continue some time longer yet. Through all the severe cold of the past winter the temperature rarely fell below 50°, more often than not rather over that point, the only means of keeping up the heat, being the manure in preparation for the next bed (fully described in a previous article). I find this plan to answer well. In the Mushroom house proper with a higher temperature maintained by hot-water pipes, I find the produce not to be so fleshy as that from the cellars. These beds are, however, bearing well. In one instance, upon the expiration of two months without any signs of a crop, I spawned again, but this had hardly been done when the results of the first spawning appeared. If the second lot of spawn takes we shall have a most unusual crop, the present being a very heavy one. This is, I consider, a very good time for making up beds in unheated places; they will thus get a fair start before the hot weather sets in. Such beds will then prove useful during June and July if lightly covered with litter to prevent them getting dry.—JAMES HUDSON.

Turnip-tops at £50 an acre.—In consequence of the severe weather green food and vegetables in Kent are fetching almost famine prices. Potatoes are dearer than they have been for many years. Farmers who have vegetables at all worth selling are obtaining fancy prices, and as much as £50 per acre has been given for Turnip-tops. Such a dearth of winter greens has rarely been known.

The weather.—Yet another visitation of most severe weather. On the night of the 8th the thermometer in our most sheltered kitchen garden registered 10° of frost throughout the night, accompanied with fierce east winds and a slight fall of snow. In the more exposed parts of the grounds the frost would be 2° or 3° more. The 9th was one of the bitterest days of the season, freezing all day and blowing quite a gale from the east, with occasional snow showers. By present appearance, it is

likely to be of some duration and perhaps increased severity. Through all this the outlook is not encouraging. What the previous severity had crippled, this, I suppose, will kill outright. The fruit prospects are anything but promising, for as a result of the quite summer-like weather we had recently, Gooseberry bushes are quite green, Currants unfolding their buds, Strawberries throwing up nice fresh growths, while Plums and Pears are on the point of opening their flower-buds.—J. R., *Merioneth*.

ORCHARD AND FRUIT GARDEN.

VINES INSUFFICIENTLY RESTED.

IN bygone days the exposing of Vines to all weathers enforced a thorough rest, and from what I have seen of the practice it answers well. Then came a time when it was possible and likewise thought correct for the Vines to be grown in houses specially constructed and set apart for their culture. Even under these circumstances a considerable number of pot plants were wintered in the vineries, these being principally of a half-hardy character, and not greatly interfering with the resting of the Vines. In more recent years, however, or since the rage for cut flowers has set in, far too many vineries are, of necessity in some cases and thoughtlessly in others, crowded with a great variety of pot plants during the late autumn and winter months, beginning probably with Chrysanthemums and finishing up with bedding plants, and perhaps Strawberries in pots. In the autumn or while the Chrysanthemums are about it is very certain low temperatures are seldom if ever reached, while throughout the winter, frosts are most carefully excluded. This treatment does not prevent the Vines from shedding their leaves in due course, but those who persuade themselves they are resting accordingly in very many instances err greatly. It is only a partial rest, and the ill effects of not according them an opportunity of resting thoroughly, if only for the space of one month, are apparent enough in numbers of vineries at the present time.

When the Vines break irregularly and weakly this is attributed to a variety of circumstances, the right cause, viz., an insufficient rest, generally being overlooked. Why Vines not given a thorough rest fail to break well I cannot exactly explain, but that this is the true cause in many cases I have not the slightest doubt. In no particular instance is the want of rest more apparent than in the manner in which the Muscat of Alexandria often breaks. I have met with several cases where the gardeners in charge of a number of Vines of this variety were greatly troubled about their appearance every March or April, the shoots when first produced having a sickly appearance, the bunches showing, also presenting a most unnatural appearance. Luckily, the Muscat of Alexandria possesses a remarkably good constitution, and seems better able to recover from the effects of bad treatment than most other varieties of Grapes. If, instead of keeping the houses considerably above freezing point, those in charge would occasionally, or even for weeks together, subject the Vines to severe frosts, there would be fewer complaints of faulty breaking. Not only do Vines that have been freely exposed to low temperatures, and therefore thoroughly rested, break more strongly, but they also break more evenly, and that, too, without much trouble in the way of giving sharp curves in order to cause the lower buds to push out. Even hotbeds of manure and leaves could be dispensed with, properly rested Vines breaking very satisfactorily without such extraneous aids. All I ever at-

tempt to store in the earliest vineries are old zonal Pelargonium plants, and these being kept very dry at the roots are not often injured by frosts. Sometimes they are brought together into heaps and protected with mats or blinds; at others a very little fire-heat is given, though this does not completely exclude severe frosts. During the past winter the whole of the glass was taken off the roofs of two vineries, and after being washed and the woodwork painted, it was returned to its original position. The houses being built in the older and more expensive style, the roof being composed of heavy rafters and sashes, several of the latter were taken off at one time and carried elsewhere to be re-glazed. This was taking place during the whole of the long and severe frost of last winter, and the Vines were, therefore, exposed to very low temperatures. Being perfectly dormant, not the slightest injury accrued to them, nor was I at all nervous about them, my former experience with Vines exposed to all weathers during the winter having convinced me that frosts, however severe, are harmless enough until the sap is on the move. As a matter of fact, many of the Vines actually commenced growth before the roof was finished and the house closed. Nothing could well be more satisfactory than the manner in which the Muscats have broken this season, the lower buds, pushing well, being also far too numerous.

In neither case are the Vines rooting in an inside border, the arrangement of the interior of these houses effectually preventing the formation of inside borders, even were I anxious to have them. It has been my contention for some years past that outside borders are far too closely covered up during the winter, exposure to a moderately sharp frost doing the soil, and therefore the Vines, more good than harm. Ours had a very slight covering of leaves and a few boards put on principally to save them from being made as hard as a road by the painters at work on the roofs of the houses. These did not prevent the frost from penetrating to a considerable depth, and in other winters there has been no covering of any kind on the borders. Exposing the borders to low temperatures is part of the resting process, and this destroys few, if any, roots, while it leaves the soil in a sweetened, fertile state. If our heavy clayey loam is heavily covered with leaves or manure, this when cleared off early in the summer leaves the surface in a cold, inert state, or the opposite of what the roots delight in, while cracking during dry weather is prevented with the greatest difficulty. It is a remarkable fact that root action is in some instances going on in the inside borders of houses where comparatively high temperatures are maintained throughout the winter. This in all probability takes place in far more cases than gardeners generally are aware of or are prepared to believe, and must be injurious to the Vines. In support of my theory as regards Vines breaking more quickly, evenly, and strongly after being exposed to low temperatures, I have only to direct attention to the present state of hardy fruit trees generally. After such a long spell of unusually severe weather we might reasonably have anticipated a later movement of the buds, but if there is any difference, it will be found that all kinds are actually starting earlier than usual. Nor do any of them, other than unprotected Figs, show any signs of injury from frosts, all the rest promising remarkably well. Some of our Apricots are at this date (March 10) in full bloom, and in all probability will have been damaged by the rough wintry weather experienced at that time. Pears also are very for-

ward, one tree in this neighbourhood being on the point of bursting into bloom. Deciduous flowering shrubs, Lily of the Valley, Spiræas, Seakale, and Rhubarb all force more readily after being subjected to a severe frost than they do if such a check is not given, and well frosted Peaches and Nectarines rarely, if ever drop their buds.

W. IGGULDEN.

COLOUR IN APPLES.

I AM deeply gratified in having been the instrument of drawing from Mr. Watkins such an admirable letter on the above topic as appeared at p. 158. It is worthy of note that both Mr. Bunyard and Mr. Watkins complain that for the production of colour in fruits we do not allow them to remain on the trees sufficiently long. Probably growers weigh the chances of heavy windfalls against the chances of securing rich colour, and prefer to pick early. Still with the knowledge that colour is such an important marketable commodity, some effort should be made to secure it. It is without doubt the fact that colour helps more than anything else to sell the American fruits in the English market. The American growers are alive to its value, and allow the fruits to hang sufficiently long to secure that desirable feature. As heavy wind storms present the chief difficulty at home, those who would plant orchards of standard trees of kinds which invariably give rich colour should seek for sites which are either naturally protected from strong westerly winds, or can have wind-breaks of Fir planted to secure the desired protection. Mr. Watkins is particularly right in suggesting that some of the so-called cider Apples should be worked and eventually put into commerce to be grown for market because of the admirable table quality and rich natural colour. That there are many such sorts which would command a ready sale there can be no doubt. I met with one such, a specially pretty, very rich coloured, and pleasant-eating fruit when in the county of Somerset last autumn. The fruits which arrested my attention and admiration were from an old stunted tree in a grass orchard, and it was very difficult indeed to find wood at all suitable for making grafts. That such a variety if got into our market-garden orchards would not only be very productive, but give a finer sample of fruit than a Somerset grass orchard gives I cannot doubt. Last autumn was unusually favourable to the production of colour, it is true, but then ordinarily plenty of colour is found on certain varieties every year. We must pick the best of the natural colour-producers, and also the best of those kinds of higher quality which also give a fair proportion of colour under favourable conditions. If orchard fruit growing is to be made profitable, it is certain that whilst every consideration must be given to site, equal attention must be bestowed upon sorts, as those which simply produce very large fruits or sorts lacking in colour will meet with but a poor price in the market as compared with the return where rich colour and handsome form are concerned. We have in entering into mercantile fruit culture to remember that the most profit is got from what the public demands, and not from what growers may think best. Consumers really dominate the market and will have only what they desire. Even the street urchin who purchases a pennyworth of Apples prefers rich colour to none at all.

A. D.

Greased bands for the winter moth.—As we are about to take off the greased bands from our fruit trees, the time has come for a note on their results. At Oakwood, where the winter moths have in past years been a real plague, we have this season caught a large number, but in the garden here and in our cottage garden near a very few. On Oct. 13 last all the fruit trees at Oakwood had their bands on. On the 30th of that month the first moth was found. On November 13 a few moths were observed. In the week beginning November 21 they came in hundreds; the frost then checked them, and but few have appeared since. The bands we used were made of the Willesden paper for canvas, d.d., extra brown. Some of the grease gets through these to the tree. As some object to this it may

be well to state that with a slip of Willesden waterproof brown paper, 2-ply, placed once round the tree before putting on the bands, the bark was clean on the tree on which this was tried. I have been told by an old Australian that in Tasmania orchards are visited by an inspector, and the owner fined if the trees are found unbanded. — GEORGE F. WILSON.

MEALY BUG ON VINES.

MEALY BUG on Vines in fruit houses is a terrible pest, and in many places it cannot be avoided, as the gardener is obliged to make his fruit houses plant houses also, and therefore run the risk of introducing it. So far, I have never been in a position to say that I had no bug. Though not troubled with it in the fruit houses, sometimes a plant is introduced that is slightly infested. "W. I." at p. 212 gave some capital advice how to act in clearing Vines of this pest, and pointed out the dangers of using petroleum in its ordinary state, as it will not mix readily with water. I am sure many Vines have been ruined by using petroleum in this way by inexperienced persons, as it penetrates the tender wood and does incalculable mischief. Having had Vines under my charge affected in the same way by bug, I found the winter dressing recommended a safe remedy, and much can be done at that date. It is almost impossible, however, to get rid of mealy bug at one dressing, however carefully done, as the bug gets into the woodwork and other crevices, and if only a stray one or so is left they multiply when the heat is applied to an alarming extent if not looked after every day or three or four times a week. Some persons dress their Vines with dangerous compounds in the resting season, and this eventually stops the swelling of the rods, and, of course, the Vines are short-lived. I have seen Vines in small gardens so covered, that I felt sure the dressing was much too strong and the Vines would suffer in the end, as they were scraped down to the wood much more than was necessary. A good plan with dirty Vines is, after removing the loose bark, to give them a thorough cleansing with warm water and pure soft soap. This latter is important, as some soaps contain too much alkali and often do much harm. I have used carbolic soft soap at the rate of 2 ozs. to a gallon of warm water for badly affected Vines, and it is very efficacious. I think too much trouble can scarcely be taken in the winter months to get rid of this troublesome pest, as a bunch of Grapes with bug in it is never fit to be seen after cleaning, no matter how carefully done. There is now more opportunity at the present day of getting suitable insecticides to destroy these pests. I would also advise the use of soluble petroleum oil as a safe dressing. If mixed with clay to the consistency of paint it will kill every bug it touches. This oil must not be confused with ordinary petroleum, as it can be mixed with water. When mixed with clay, it is one of the best remedies I know of. It may also be mixed with warm water for syringing the woodwork of dirty houses when cleaning the Vines. I find little trouble with bug will be given the following season if this preparation is used. I have also used it for scale and found it very effective, saving a lot of time. If the trees are thoroughly wetted with it, the bug soon disappears. G. WYTHES.

Nyon.

The Phylloxera scare in Guernsey.—A few years ago the Channel Islands passed a very strict ordinance to the effect that Vines, roots, and anything likely to be the means of introducing the Phylloxera, or Vine louse, must be rigorously excluded, heavy penalties following upon any contravention of this Act. Protection in what free traders might think its worst form is rigidly enforced, prohibition also being practised in respect to Vines. In spite, however, of these strict laws, the authorities have not succeeded in excluding either rooted Vines or cuttings, and it is a fortunate matter for some of the islanders that they have been enabled to evade the customs. At one time the Black Hamburgh was solely or principally grown for the pur-

pose of exporting, immense quantities of fruit, varying in quality, but chiefly somewhat inferior as regards colour, being annually consigned to the principal towns in England and Scotland. This had the effect of greatly lowering the prices all round, and before a stock of Alicante, Gros Colman, Gros Maroc, and Lady Downe's could be introduced, the Phylloxera scare set in, with the already-mentioned result. That these popular late Grapes have been smuggled on to the islands, large growers nearer the markets will soon discover to their cost; but it may be another two or three years before the quantities of fruit exported will be of sufficient bulk to materially lower the prices given for late supplies generally. Whether or not the Channel Islanders were and are still justified in making and enforcing such prohibitive measures I shall not attempt to determine. Quite recently M. de Garis, manager for M. Peter J. de Baugy, St. Martin's, Guernsey, was prosecuted for an infringement of the Act. In this case there were extenuating circumstances, or a much heavier fine would have been enforced. The defence was that the Vines had first been exported by the defendant and then brought back. This plea was accepted, a minimum fine of £10 and costs imposed, and the Vines destroyed in the presence of an official.—I. M. H.

RED SPIDER ON VINES.

KINDLY tell me whether it is safe to apply sulphur to pipes in a Peach house while the Peaches are in flower? If not, the best remedy; also whether Grapes in flower in another house with Peaches would be injured thereby? I have just discovered red spider in large numbers on the young leaves in the Peach house.—P.

* * Unless the pipes were made unbearably hot to the hand, or sufficiently so to generate strong fumes, the sulphur dressing would not injure the Peach blossoms and foliage. Yet unless this is done, it fails to be a remedy for red spider. I should advise "P." to run no such risks, or he may find the remedy worse than the disease, or rather insect pest. It is not often the red spider puts in such an early appearance, though probably enough it is frequently present some time before it is discovered. Anything in the shape of an insecticide, if used strong enough to destroy this tenacious and most harmful insect, would of a certainty destroy many or all of the fruits, the damage to their delicate skins causing them to scar and crack badly long before they are fully grown. As far as the Peaches are concerned, I think "P." need not despair of keeping down the red spider till the fruit is ripe and fairly checkmate it afterwards. Soft water forcibly applied with a syringe or garden engine twice daily, that is to say, early in the morning and again when the house is closed, ought to keep down the enemy, and will do so if the remedy is applied in no half-hearted manner up to the ripening period. The house ought to be ventilated carefully, a very high temperature, accompanied with a dry atmosphere, being avoided. All superfluous growths should be kept closely removed, and the syringe will then easily reach the foliage on the reserved shoots. After the fruit is gathered, mix a handful of flowers of sulphur with the syringing water twice or three times, and when the leaves are well coated with sulphur no further trouble need be taken. Sulphur on the pipes in the vinery might not injure the foliage, and, as before stated, would not keep down the spider, though most probably it would injure the delicate cuticle of the berries, causing them to scar badly. Much might also be done with the syringe in this case, and if perfectly clear soft water is obtainable, syringing might be recommended daily after the berries are set. In our case, were we to attempt syringing on a large scale after the Grapes were set, the berries would eventually become coated with a dirty sediment and be quite spoilt. There is too much lime in our water, and I should advise "P." not to syringe anywhere near the bunches unless he is certain about the condition of the water used. Apparently he only intended sulphuring the hot-water pipes as a precautionary measure, as nothing is said about red

spider being on the Vines. His best plan will be to watch closely for the first appearance of the pest on the foliage, and then to at once commence sponging the affected leaves and also any near them. Soapy water should be used, and the sponge be frequently dipped in flowers of sulphur. Both surfaces of the leaf being well coated with sulphur, the red spider soon ceases to prey on it; in fact, nothing else will long deter them. Vines in metal houses, or where the woodwork is light and the squares of glass large, are most subject to attacks from red spider, and in these cases a very thin shading of limewash applied with a syringe may be given with advantage.—W. I.

Insecticides.—In his reply to "Medicos" (p. 212) I think "W. I." is unfair to our old friend, Gishurst compound. I have used this on Vines and Peaches for several years, and have never found that it does either of them any injury, although used in quite as strong a solution as that mentioned by "Medicos." For Vines, indeed, I use it even stronger, as it is applied with the long-haired end of a scrubbing-brush, first dipped in hot water and then rubbed on a cake of Gishurst till it will lather on the brush. I never use any clay dressing, or, in fact, anything else besides Gishurst as a winter dressing for our Vines, and I think they will compare favourably with most others in freedom from insect pests. If there is any doubt about their cleanliness I have them washed over at pruning time, and again a week or two before they break. Of course, they are done while the buds are dormant, for if left till these are pushing out I should expect some such thing as has happened to "Medicos." For Peach trees I use six ounces to the gallon sprayed on with a garden engine, and the success I meet with encourages a continuance of its use, for among other things it keeps down mildew in a house that was peculiarly subject to it. For some years the trees in this house made bad unripened growth and the fruits were more or less spoiled by blotches, though large quantities of sulphur were used. I always find a little mildew, but have the trees looked over when the shoots are quite small, and any that show signs of it are heavily dusted with sulphur, and very rarely do we get any more trouble through the season. While on the matter of insecticides I should like to ask Mr. Wythes where the soluble paraffin which he recommends (p. 159) can be obtained. I have long looked on paraffin as the very best and cheapest insecticide we have, but such extreme care has to be used, as to make it rather tedious as well as dangerous in its application. Apparently as a soluble commodity it is far from well known, but should not be allowed to remain so.—CORNUBIAN.

Scandinavian stoves.—Your correspondent "E. G." (p. 252) asks to be recommended to a good stove for drawing-rooms, and requests information as to the Scandinavian stove. I have had one of these stoves in use for several seasons to move from bedroom to bedroom to keep these rooms aired in the winter. I find it most excellent and beyond anything I could have anticipated. The fuel used is anthracite coal broken small, and sold for the purpose under the name of anthracite nuts. With the smallest amount of attention these stoves will keep alight for a week or a fortnight; they are mounted on wheels, and are, therefore, easily moved from one place to another. They require a flue, but as they have a movable pipe to insert into the fire-place there is no trouble as to that.—W. H. CULLINGFORD, 198, Cromwell Road, S. W.

—In reply to "E. G. (p. 252), permit me to call attention to the Brevete stove for burning small anthracite coal. It can be adjusted to any fire-place, and being set on wheels can be removed from room to room when alight if required. A somewhat cheaper, yet useful article will be found in the Tortoise stove (Portway's patent), which is sold everywhere. The former of these stoves I have not seen in use, but have heard most glowing accounts of its usefulness for the purpose. Of the latter I have two in actual use in outhouses, where they give great satisfaction with attention morning and evening.—A. DOUGLAS.

TREES AND SHRUBS.

GARRYA ELLIPTICA.

THIS *Garrya* when in flower cannot for one moment be confounded with any other hardy shrub, as viewed from a little distance it appears like an evergreen bush veiled with delicate lace, this effect being caused by the long pendulous catkins which are often borne in even greater profusion than on the specimen here illustrated. It forms a free-growing, much-branched shrub, thickly clothed with leaves, which are on the upper surface of a dark shining green and somewhat hoary beneath. The feature of the plant is undoubtedly the long catkins, which in mild winters and under favour-

the southern counties. A walk ran for some distance by the side of a border of shrubs and then branched off abruptly, while in the angle thus formed was a very fine specimen of this *Garrya*, whose beauty struck one the more forcibly from the fact that a sudden turn in the walk brought it immediately into full view. It is a shrub that should not be pruned in any way unless absolutely necessary, as the more cutting is indulged in the less flowers there will be. The *Garrya* is not particular as to soil, but thrives best in a good fairly deep loam of not too heavy a nature. Of this the male and female flowers are borne on separate plants, the most showy and by far the more generally grown being the male or pollen-bearing plant. The female blossoms

genus *Garrya*, but as far as hardy shrubs are concerned, this is the only one that need be considered. The beautiful effect produced by the *Garrya* trained to a cottage (as here shown) reminds one of the great wealth of plants we possess for furnishing walls, as even in the depth of winter we have this, the winter Jasmine (*Jasminum nudiflorum*), and the deliciously scented *Chimonanthus fragrans*, in all of which the inflorescence forms the most attractive feature; while the bright-coloured berries of the *Pyracantha* and small evergreen *Cotoneaster* (*C. microphylla*) combine to form a pleasing winter feature. Before the *Garrya* loses its catkins, the flowering wall shrubs receive still further acquisitions, among which may be mentioned the bright golden coloured *Forsythia suspensa*, whose blossoms are borne in great profusion. T.



Garrya elliptica on a cottage wall.

able conditions are developed by December, and, unless the frost is very severe, they will retain their beauty for three months. It is a capital wall shrub, as so situated the wood is thoroughly ripened, and a good crop of flowers thereby ensured, added to which the protection of a wall will often preserve the blossoms from any injury which might befall them where fully exposed. Such protection is not, however, absolutely necessary to its well-doing, as in most, even if not in all, districts of England this *Garrya* may be considered perfectly hardy, and a beautiful evergreen shrub it forms where in the open ground. In this case it must not be crowded up in the shrubbery border or in any such a spot, but may occupy an isolated position. Some years since I was very much struck with a specimen in an old-fashioned garden in one of

are, where fertilised, succeeded by purplish-black berries about the size of Black Currants when ripe. Apart from their beauty when on the plant, if sprays are cut and placed in water the catkins retain their freshness for a long time in the dwelling-house, and form remarkably pretty objects for vase decoration during the winter. *Garrya elliptica* is not at all a difficult subject to propagate by means of cuttings, which should be formed of the current season's shoots taken off in July or August and inserted firmly in sandy soil in a cold frame. They will root during the ensuing spring, when they may be either planted out or potted if desired. The plant in question is a native of California, from whence it was introduced, I believe, by Douglas.

There are several other members of the

SHRUBS UNDER TREES.

By far the best plant to clothe the ground under a Cedar of Lebanon (*O. Orpet*, GARDEN, March 7, p. 229) is the Ivy, as that will not only hold its own, but even thrive in situations where but few things will exist. For such a place the more vigorous varieties of Ivy should be chosen, the Irish being one of the best for that purpose. The variegated-leaved kinds are rarely seen to advantage so treated, while the weak growing forms are at best unsatisfactory. Next to the selection of the subject is the planting of it, and that is a very important matter, for unless carefully done the attempt to obtain a good carpet of Ivy is likely to end in failure. The one great point to consider in planting Ivy under such conditions is to keep the roots as far as possible from the trunk of the tree underneath which it is wanted to grow, as if near the trunk of a large tree it will be simply starved, for even if a little of the old soil be taken out and some of a richer nature substituted in which to plant the Ivy, the roots of the tree itself will take possession of it before those of the Ivy. By far the most satisfactory way of carrying out this planting is to keep the roots of the Ivies outside the radius of branches where they will be clear of the drip from the tree, which is so detrimental to any living subject. The plants chosen must be good clean-grown stuff, and for each a hole should be dug sufficient to hold a barrow-load of good soil, into which the new roots will quickly push. The shoots should be pegged down firmly, most of them towards the centre of the tree, and if done as above detailed and the plants are vigorous, a good carpet of green will soon be formed. A thorough watering whenever necessary will be of service. If a variegated variety is especially required, the one I have found to do best under such conditions is *marmorata major*, a form with the leaves irregularly blotched with yellow. This is more vigorous than the silver-edged varieties. Another shrub that will grow in shady spots more or less under the drip of trees is the Butcher's Broom, which, though of slow growth in dry soils, will still retain its colour even where unfavourably situated. It is, indeed, for this reason a very useful plant, and so are some of the evergreen Barberries, or rather the different forms of the common *Berberis* or *Mahonia Aquifolium*, which will not only grow in shady spots, but also flower, and where springing from an Ivy carpet their beautiful golden blossoms are seen to very great advantage. The Periwinkles, too, are shade-loving plants that are not half enough grown, as they are very beautiful when covering a shady bank or in some such a spot. The common St. John's Wort will both grow and flower well under trees and always retain its dwarf character, and where not too dense the Spurge Laurel (*Daphne Laureola*) will prove satisfactory. The foliage of this is of a rich dark green, while the flowers, though not individually showy, are very pretty in a mass and agreeably scented. The variegated-leaved *Euonymus radicans* is seldom employed for carpeting the ground beneath trees, yet it will grow in such a position, and supplies a certain amount of variety. *Gaultheria Shallon* will both

grow, flower, and fruit in the shade, provided the roots are fairly moist, as it is soon injured by drought. This succeeds best where the soil is largely composed of decayed vegetable matter, as in this material the roots run rapidly and soon form a dense mass. Other Evergreens that may be mentioned as succeeding better than any others in shady spots are the Aucubas and Skimmias, both of which are more highly coloured where partially shaded than if fully exposed to the sunshine.—T.

Ivies are very suitable for such a situation, as they will grow on dry gravelly banks and old walls under the shade of trees, and give the spot a furnished appearance all the year round. The spots for the plants should be well broken up, and a little fresh soil should be mixed with the staple previous to planting. The plants should have good roots. In dry weather an occasional watering will prove beneficial until the plants take to the soil. I have likewise planted different sorts of Periwinkles in similar situations with success, and when a few stones or fragments of rock are placed on the surface here and there and the plants allowed to grow over them, they are very ornamental. One of the best plants for O. Orpet's purpose is the Spurge Laurel (*Daphne Laureola*). This shrub not only grows, but reproduces itself from self-sown seed on the top of a dry bank quite close to the stem of a Scotch Fir tree, and I think it might do equally well under a Cedar of Lebanon; at all events it would be worth trying. A few plants of the common *Daphne Mezereum* and its varieties might also be planted with success. Although they are not evergreen, yet they are very ornamental, and at the present time are in full flower below the drip of trees. *Gaultheria Shallon* and *G. procumbens* likewise grow with apparent freedom on dry banks under the shade and drip of trees. Butcher's Broom and Tree Box are both adapted for planting in shady places among trees, and as they are cheap they are worthy of a trial. I have tried many kinds of our hardy British Ferns, but cannot say with perfect success. When Ferns are planted in deep shade, the fronds in the course of a short time, I find, assume a yellowish, sickly colour, and I cannot recommend them.—J. B. WEBSTER.

INFLUENCE OF SOIL ON TREES.

I SHOULD think the progress of the Deodar Cedar mentioned in THE GARDEN, Feb. 21 (p. 171), must have been arrested at some period or there is something in the soil to account for the extraordinary development of bole in proportion to the present height of the tree. The Deodars here were planted about the same time as the specimen noted, and have done remarkably well. Half a dozen of the largest would probably average 60 feet in height, but in no case is the bole more than 7 feet in girth. This contrast is but another instance of the many that come under notice to show that soil and situation have a remarkable effect on the members of the Conifer family, and show that there is much for the planter to study before he commits the trees to the soil. Indeed, in cases where the formation of a pinetum either on a large or small scale is contemplated, it would be well to ascertain thoroughly the natural character of the soil and then be guided in the planting by practical experience of the special trees suitable for respective soils and sites. Without encroaching too much on your space I will instance a few examples from the collection here. *Abies canadensis*, a very ornamental tree in some places, is not a success. I see it is quoted as attaining a height of 60 feet in Canada, but here half that height seems likely to be its limit. Here the tree gets ragged with age; the foliage generally has a yellow sickly tinge with a tendency to die off at the points. It would appear that when the pleasure ground was altered and replanted, clumps of this Hemlock Spruce and the common Yew were used alternately at separate points to effect in their respective cases somewhat similar ends. The difference in their appearance is now very great, the advantage being altogether on the side of the Yew. I have before noted that the characteristics noticeable in the above Spruce are to be found with increasing age in *Abies Morinda*, and also perhaps

even more strongly in *Menziesii*. As a reverse side of the picture, *Sequoia sempervirens*, which does not appear altogether happy in some soils, is here quite at its best, and one specimen planted in low-lying ground near the lake bids fair to become the giant of the pleasure ground. It is close on 100 feet high, with, however, a very small trunk in proportion to its height, being but 11 feet in circumference just above the ground line; it is in vigorous health and well furnished to the base. I see 1843 is given as the date of the introduction of this tree into England, so it must do its work very quickly, given favourable soil and situation. The rapid rate of growth of *Cryptomeria japonica* in a young state has been previously noticed, and as in addition to this the older trees are well furnished and apparently in good health, I have wondered why they have not attained a greater height, but a closer inspection suggests the idea that rapidity of growth is checked immediately on the leader pushing above shelter line. It is annually twisted, contorted, and possibly nipped by the wind, and from that time proceeds (like the Cedar referred to at the commencement of these notes) to develop bole and lower branches at the expense of altitude. *Abies nobilis* and *brachyphylla* seem likely to make very big trees; they were well done at planting time, and are going away at a great pace. The Pines all do well on this soil, but were only sparingly planted in the pleasure ground proper, an omission doubtless suggested by the already sombre surroundings inseparable with extensive plantations of Scotch Fir. The only Pine admitted in any quantity was *Pinaster*, certainly one of the lightest and most feathery of the family. A mistake was made some few years ago by the introduction of a number of small-growing Conifers amongst a lot of giants on a big bold slope overlooking a large lawn. Out of place and character when rubbing shoulders with big Larches, Nordmann's and Douglas Firs, and Cedrus Libani and Deodara, these small subjects are by no means at home on the dry slope, so I have decided to remove them as time will permit, and leave a clear field for the big trees. The present unhealthy condition of these small Conifers recalls the heading of this note, as it is indisputable that all such things as *Retinosporas*, the smaller *Thujas*, *Cupressus*, *Cryptomeria elegans*, and others of a fibrous-rooted nature are far more at home in a fairly deep workable soil such as we find in the kitchen garden or shrubbery border than in a poor hungry compost. True, wide and deep excavations could be made and better soil substituted, but except for any very choice specimen the game is hardly worth the candle. E. BURELL.

Claremont.

SHORT NOTES.—TREES AND SHRUBS.

Catalpa bignonioides.—When reading the notes of "A. D. W." on this tree I thought it would interest him to know that we have a *Catalpa bignonioides* growing in the grounds at Claydon Park of the following dimensions: Height, 35 feet; branch spread, 51 feet; circumference of bole, 8 feet (3 feet from the ground). This tree was illustrated in THE GARDEN on page 239, Vol. XXXVI.—ISAAC MILSON, Claydon Gardens.

Rhododendrons.—Three *Rhododendron* bushes, one variety, for which I have failed to get a name, have been for the past month veritable masses of bloom, equally fine in that respect as if they were May—lovely pictures in pink and white. They annually commence flowering in November, but this winter's severity destroyed all the open blooms early; however, with milder weather they were soon in full bloom again. The frost on the morning of the 9th has again blackened them, and we cannot again this season expect so fine a display on them, for most of the buds were open.—J. R.

Seedling Rhododendrons.—I have forwarded by this post some seedling *Rhododendron* flowers which I have named as you advised. The leaves had been injured by the severe frost before the plants were taken up. They are all strong growers. I am taking more up now to get in for Easter.—ROBT. MILLER, Milton, Stoke-on-Trent.

* * The varieties sent were named R. Milleri, truss of medium size; flowers white flushed and spotted. R. Progress, flowers larger than those of the preceding, flushed lilac and spotted. R. Fair Maid, white spotted

in the inside. R. magniflora has the largest flowers and the spotting not so distinct. This we consider the best of the four varieties sent.—Ed.

THE WEEK'S WORK.

HARDY FRUIT GARDEN.

PEACHES AND NECTARINES.—Those not loosened from the walls last autumn or during the early part of winter are dangerously forward, the flower buds in some instances being already showing colour. Even those that were duly loosened are surprisingly active, and no good purpose will be served by any longer deferring the requisite pruning and nailing. It is a good practice to do what thinning out may be necessary in the autumn, otherwise it ought to be done now. Very little else besides this is necessary or advisable, it being a risky proceeding, in many instances, to attempt shortening other than the strongest well ripened shoots—these being well furnished with triple buds consisting of a central wood bud and two outer flower buds. It is of the greatest importance that each fruiting growth should have a young shoot or leaves at its extremity, or otherwise the fruit may set and then fail to swell. In the case of outside trees, it is not always possible to determine to which class the single buds belong, and even if the shoot is shortened to a wood bud, the young growth may fall a victim to one of the many evils to which they are liable. The best advice that can be given is to freely foreshorten the branches, so as to keep the centres of the trees well furnished with young growths, thinning out the reserved shoots and laying most of these in to their full length. It is a very simple matter to thin out the young shoots later on if too plentiful, and in this way there will be few or no naked branches to lament. Strong shoots well ripened may safely be lightly pruned, while gross wood might in many cases be cleanly cut out with advantage. Soft rank growth is objectionable, and this is engendered by hard pruning. Extra strong shoots should therefore be either cleanly cut out, or else laid in to near their full length. The work of refastening the trees to the walls ought to be done carefully, not, however, because the loss of a few buds much signifies, these being very numerous this season, but on account of the trees' liability to gumming. If nails and shreds are used, the former must not press against the bark, nor ought ties to chafe the same, undue pressure and friction inevitably causing gumming and the ultimate loss of the branch. It is not yet too late to well syringe the walls and trees with an insecticide of some kind, by way of a preventive of insect attack and disease.

YOUNG PEACH TREES.—These and Nectarines may yet be transplanted, good care being taken of as many roots as can be saved. Fresh turfy loam rather than rich soil is to be preferred, the former being substituted for the ordinary garden soil, or any in which fruit trees have been previously rooting in. Keep the roots near the surface, surrounding them with some of the finest and best soil, a little burnt garden rubbish not being thrown away on them, and mulch with straw litter. Maiden trees should be cut back to within 6 inches of the point of union of scion with the stock, four or six well-placed young shoots being eventually reserved and laid in, and the rest removed. Trained trees, also planted recently, or at any time during the planting season, ought to have their branches shortened to about two-thirds of their length, two or three young shoots being reserved and laid in from each of them during the coming summer. Young trees already well established must not be hard pruned, but it is advisable to lightly shorten all the leading shoots to well-placed wood buds, this tending to strengthen the lower branches and to prevent naked centres. The more weakly inner shoots will be strengthened by being rather freely shortened. Train all thinly, trusting to young shoots to fill in the spaces next summer. Trees that were planted two seasons ago and have done well ought to bear a light crop of fruit this summer.

FIGS.—Unprotected trees are much crippled by the frosts, many of the more sappy growths being cut down to the ground, while the greater portion

of the firmer shoots have their points destroyed. It is the latter that produce the fruit, but if the points are dead, there may yet be a few Figs pushed out from the back buds. Where the trees were detached from the walls, the branches bundled together, and all well covered with either mats, straw thatch, or Bracken, not much harm has been done by the frosts, and in all probability a heavy crop of fruit will eventually result. Sharp frosts may be experienced any time during March and even later, and it is not advisable, therefore, to return the branches to their original position till it can be done with greater safety. At the same time the coverings ought to be taken off and returned whenever severe frosts are imminent. Left on, they are calculated to promote an earlier movement of the buds than is desirable. In each and every case the pruning may well be deferred till late in April or till it is seen which branches or shoots are best furnished with fruit, the thinning out and shortening back being done accordingly. As Figs are usually kept in pots by nurserymen, they can be supplied and planted now or in April, the latter being a good time for planting. A chalky compost or a mixture of two parts fresh loam to one of old mortar rubbish suits them much better than a rich soil, the latter promoting a rank, unfruitful growth. Keep the roots out of the subsoil by means of a layer of chalk or lime rubbish placed between that and the surface soil. Select a hot and dry corner or position, and plant rather high and firmly. Brown Turkey, Brunswick, and White Marseilles are about the best that can be grown in the open, the first named being the most profitable.

FRUIT BLOSSOMS AND FROST.—Apricots are flowering early, and have in very many instances suffered for their precocity. On the morning of March 12 there were 17° of frost, and in spite of glass copings and blinds, all the fully expanded flowers were blackened and many of the more forward buds also injured, most probably beyond recovery. Luckily, there is a profusion of buds, and the more backward ones may yet escape. Trees in cooler positions are not so forward, and if these are protected with either blinds or trebled fish nets a moderately severe frost may not injure the blossom. Peaches and Nectarines, as before hinted, are also forward, and these, again, pay well for being protected. Blinds made of frigidomo afford the greatest protection, and there are other suitable materials, samples of which reach most gardeners. The cheapest material of all is scrim canvas, and this answers fairly well. It can be bought locally. Failing these, utilise all the fish nets there are on the place. These doubled and loosely suspended over either Pears, Plums, and Peaches might save much bloom and a valuable crop be obtained. Both blinds and nets must, however, be kept clear of the trees by the aid of poles or iron rods, or otherwise they may do more harm than good.

MANURING TREES AND BUSHES.—As a rule, well-established trees and bushes in full bearing do not get half enough manure. This is not always the fault of those in charge. If all the animal manure made on the place is wanted for the vegetable quarters, there is in many instances no help for it, unless the owners are prepared to devote money to the purchase of bone-meal, superphosphate of lime, guano, or other suitable manures. A liberal dressing of either of the kinds named applied now or early in April would soon improve the health and vigour of many prematurely exhausted trees and bushes, and the owners be more than compensated for their outlay. Mulchings of fresh juicy manure applied now or before dry weather sets in would answer the double purpose of fertilising the soil and also of enclosing moisture. If this is not spread over the ground much before the summer it is almost certain to cake badly, and, consequently, few or none of the juices will be washed by the rains down to the roots. Liquid manure from a mixed farm-yard is, perhaps, the best form of fertiliser that can be applied to fruit trees, and this is most effective if applied during wet weather in March or April. Later on it must be more freely diluted with water than is necessary or advisable at the present time. Give a few trees or bushes a thorough soak-

ing at one time rather than spread the liquid manure over a greater area, and thereby waste most of it. The drainings from piggeries may be safely and effectively used before fruit trees are in leaf. Afterwards it is unwise to apply it. W. I.

ORCHIDS.

It is needless to write of the changes of the weather and advise the treatment of the plants thereby. Scarcely had my last notes passed out of my hands than a rapid fall in the barometer prognosticated changes of an acute character, and a sudden turn of the wind brought a frost and terrific snow-storm. The air, such as it is, seems to be pure enough, and the snow has cleaned the outer surface of the glass roof for us, saving a week's work for two men. Many years of experience have taught me that Orchids can be repotted with safety and advantage either when they are in flower or when the flowering period is over. I have learned a good deal in this respect by frequently turning plants out of their pots of such things as Dendrobiums, Odontoglossums, Cattleyas, Masdevallias, &c., taking them to exhibitions and repotting them when they came home, or a month thereafter. Such plants invariably do well when carefully repotted. This week or next I intend to repot nearly the entire collection of plants of Cattleya Trianae. It is a more vigorous-growing species than C. Mendeli or C. Mossiae even, and may not so readily be overpotted. Still it is advisable to be careful in this respect.

Some of the plants of Cattleya Trianae have been three and four years in the same pots; the growths have pushed over the sides, and the roots are laced round and round the outer surface of the pots; the only way to get them out is to chip the pots they are growing in to pieces with smart blows of a hammer. Some persons would repot such by planting them without disturbing the roots or flower-pots in any way, but this is a clumsy method and requires the use of over-large pots. I only mention this to say that I disapprove of it. If the plant has been growing in a 9-inch pot, and has thriven so well as to have overgrown the rim, an 11-inch one will be required for it. The pots must be quite clean, and clean crocks must be used for drainage. Fill the pots half full of the drainage, leaving as much open space beneath as possible. The potting material is mainly composed of the best fibrous peat with a little Sphagnum added, also some clean drainage and a few bits of charcoal. The plants must be rather firmly potted and finished off on the surface in a rounded form, about the third part of a segment of a circle. The distinct-looking Cattleya Schrederae is also throwing up its flower-spikes now. This is readily known from the typical C. Trianae by the short stout bulbs and the sweet perfume of the flowers. When the plants have been repotted and placed in their positions, an important matter to be attended to is the watering of them. I do not care to have the water warmer than the temperature of the house, but it is always much colder if collected and retained in tanks below the ground level. We used at one time to take the water out of these tanks and place it near the pipes in water-pots. Instead of this rather temporary arrangement, I fixed over the pipes small iron tanks which are permanent, and always kept filled from the rain-water tanks underneath the stage. This warmed water is used to water Cattleyas and all other Orchids. It requires some experience before the cultivator can fairly well master the details of watering Cattleyas. The newly-potted plants certainly require more care than the established ones, as many roots are damaged, and to water them freely would spread decay amongst the damaged roots, and might permanently injure some of the plants. When Cattleyas once get into bad condition they do not soon recover. I carefully hold back the water-pot from them unless I can see active growth of the roots, when the danger of overwatering is not so great. *Lalæ elegans* and the slender-bulbed species *L. harpophylla* with Cattleya Leopoldi are not so readily injured with too much water, especially now and onwards. I advised the shading to be put up

in readiness for use whenever the sun shines out strongly. I am not too free with shading Cattleyas, but for the sake of retaining the flowers in good condition as long as possible we must shade, otherwise it is easy to tell when the sun is likely to injure the leaves by taking hold of one or two of those most exposed in the hand, they will be found to be very hot sometimes, and one can tell by the heat of the leaves if it is time to let down the shading.

The plants in the East India house are quite different; such an exposure to the sun's rays would play havoc in all directions, especially with Phalænopsids and the thin-leaved species of Angrecums, such as *A. citratum*, *A. Sanderianum*, *A. Ellisi*, &c. The shading must be run down as soon as the temperature rises to 85°. Of the numerous occupants of this house, I am not sure that any are more easily injured by the sun than the rather scarce *Cypripedium Charles Canham*; the leaves speedily lose their fresh green colour, becoming almost white with free exposure to the sun. In this respect it resembles one of its parents, *C. superbiens* (Veitchi). The deciduous *Dendrobiums* now making their growth require as much heat as we can give them with plenty of light. It is better if they can have a house to themselves where the afternoon temperature may run up to 90° or 95° by shutting the house up early in the afternoon. A word on ventilating may be useful at this season. The plants must have, as far as we can afford them, a constant change of air, but exposure to east winds may be fatal. I never open the side ventilators when cold east winds are blowing.

J. DOUGLAS.

THE KITCHEN GARDEN.

POTATO PLANTING.—In the majority of gardens Potato planting may now be fairly commenced, but with the earliest varieties it is as well not to be in too great a hurry. Excepting a breadth on a warm border, and such as may be protected if occasion requires, the first week in April is early enough to risk the bulk of the crop. If we could depend upon the weather, early planting has a deal to recommend it, as the ground could be cleared earlier if such should be required for a succeeding crop. The preparation of the seed tubers has a deal to do with the future prospects of the crop, and where these are laid out thinly and fully exposed to the light, the sprouts will be strong. With sets prepared as stated above there is not the least need to be in too great a hurry in planting. Each set should now be furnished with growths about an inch long and as thick as a small finger, and sets of this description are not very long in appearing above ground, and if fortunate enough not to receive a check, they grow away freely. With such well prepared sets as these it would be very unwise to plant the bulk out too early, for fear of being overtaken by late frosts. When such does happen the growth is put back quite three weeks, and instead of realising a good crop this is greatly reduced, and the tubers not of the best size. Seed Potatoes which have been huddled together in a mass, and consequently have so lost their first growths, are in a very weakened condition, and when planted are a long time in appearing above ground. Such as these could be planted earlier with advantage. Late Potatoes may well be planted now, for these invariably do well if got in towards the latter end of March, or as soon as the ground is in suitable condition for receiving the seed. Late Potatoes are always longer in appearing above ground than the earliest, and it is seldom these get cut off by frosts.

PLANTING FIRST EARLIES.—South borders should be selected for the earliest varieties. The rows should not be less than 2 feet apart, and the sets 1 foot in the rows. A greater distance between the rows may well be left with advantage if ground is not scarce. The length of the haulm of the variety about to be planted is the best criterion to go by. The soil should have been brought into a good friable condition, and also have been well manured. On heavy soils a dressing of lime or well-burned garden refuse may be applied with advantage. There are various modes of planting, but I do not

favour planting with a dibber. The best implement for the work that I have seen is the one generally adopted in the western counties. It is a kind of heavy hoe, about 7 inches or 8 inches in width and the same in depth, with a convenient sized handle. With an implement of this description a man can soon chop out the rows. On wet or heavy soils shallow planting is the best to adopt, and on soils of this description I have had excellent results by laying the sets almost on the level and drawing the soil on to them from the sides. With our earliest varieties I sprinkle in the ridges previous to planting a dressing of old Mushroom bed manure, and into this the tubers ramify amazingly. When planting the sets rub off all the smaller sprouts, one, or at the most two of the strongest being ample to leave. When all the sprouts that form are allowed to remain it causes a crowded growth with a multitude of small tubers.

SECOND EARLIES.—Thirty inches is a fair distance for the rows to be apart, but this will mainly depend upon the strength of the variety about to be planted. In those cases where the most has to be made of the ground, or where what is termed double cropping is resorted to, then the rows must not be less than 3 feet apart. I refer to the practice adopted in some gardens of planting winter greens between the rows. This practice certainly has little to recommend it, but where ground is scarce and a deal expected out of it, this system of double cropping must be adopted.

LATE POTATOES.—The planting of late Potatoes should be proceeded with as opportunity offers or when the ground is in suitable condition. The rows for these should certainly not be less than 3 feet apart, and during a wet time the advantage of giving ample room for the free development of the haulm is very apparent, as it is very noticeable that the disease soonest attacks those which are crowded together. It is now becoming a favourite practice to apply a dressing of artificial manure at the time of planting. There are various preparations in the market, but those in which potash and phosphates predominate should be adopted. Superphosphate of lime and muriate of potash or even kainit in conjunction with good stable manure, or, what is better, farmyard manure, would produce excellent results.

AFTER TREATMENT.—As soon as growth appears above ground the surface should be deeply stirred, both as an incentive to free growth and to keep down weeds. Mere surface-hoeing with a Dutch hoe is not sufficient. A three or four-pronged hoe is the best implement for the purpose. This deeply stirs the ground and brings it into a free working condition. The earliest breadths, or rather those planted early for early digging, will possibly require some kind of protection as they appear above ground if there should be any likelihood of frost. The least protection will oftentimes save the crop. Drawing a little dry soil over the tops when these are just appearing through the surface will oftentimes prove very advantageous, also lightly covering with dry litter or even with evergreen boughs.

PLANTING ASPARAGUS.—Where new beds are in course of preparation, the time will soon be at hand for planting. The ground ought to have been previously well prepared. When the plants have to be purchased and come from a distance it makes all the difference. When plants are prepared at home these can be lifted directly it is safe for planting to take place. Districts as well as the character of the season also control the time for planting, but as a rule the latter part of March or the early part of April is a safe time. Asparagus plants are rather precarious subjects to deal with, for if taken up too early or before growth has taken place they oftentimes fail to grow. It is also the same when the roots become unduly dry before being planted, and such is often the case where not carefully packed. When raised at home, carefully thinned out, and so prepared that each plant may be transferred at once to its future position, there is very little risk. When ready for planting do not huddle the roots together in a mass, but take out a hole sufficiently deep and wide enough for the roots to be laid out to their fullest extremity. The soil

must be pressed carefully and firmly about the roots, the crown being about an inch below the surface. Take particular care not to break or injure the roots in any way.

ASPARAGUS FROM SEED.—Sometimes the practice is adopted of sowing the seed of Asparagus on the beds where the plants are to remain, and the practice has a deal to recommend it, as there is afterwards no danger of the plants receiving a check in the operation of transplanting. The seeds may now be sown whenever the soil is in a good condition. The drills should be drawn an inch in depth, and instead of sowing the seed indiscriminately along the rows, two or three seeds should be dropped at intervals of 15 inches or thereabouts. As soon as the young plants have grown a few inches, single them out carefully to one plant. When sowing for future transplanting the plants may be thicker in the rows; the seeds, therefore, may be scattered very thinly along the rows, afterwards thinning out to 9 inches.

BROAD BEANS.—Main crop Broad Beans may now be sown, selecting a good stock of the Green Windsor for flavour with others of the Leviathan type for exhibition. Place the seeds in double rows 5 inches or 6 inches apart and the rows 30 inches asunder. The stiffest soil of the garden should be selected for this crop. Y.

PLANT HOUSES.

STOVE CLIMBERS.—Under this heading I more particularly allude to those sorts which are well suited to training upon the roofs of our stoves, and which can in many instances be planted out in prepared beds. There is no reason whatever why there should not be some few climbers at least upon the roofs. If the plants that are grown as bushes are such as to require the maximum amount of light, then I advise the rafters chiefly to be devoted to climbers trained in an upward direction. In this way but little light will be intercepted, yet the house, or that portion of it thus treated, will present a much better and more furnished appearance. Those plants which do best under a moderate amount of shade could have the glass above them covered with climbers as well as making use of the rafters. In advising this method of growing climbing plants it must be borne in mind that an excess of shade is detrimental and weakening to many plants; this can easily be obviated by judicious thinning and training to suit each case. By adopting climbing plants as a natural means of shading, there is less need of outside blinds; in this way some saving may be effected in blind material. Now is a good time of the year to plant out climbers, for in this way many do better than in pots. In doing this my plan has been to build up a space sufficiently large to suit the plants with bricks alone; these can then be easily removed when further root-extension is needed. This is better than providing for an excessive amount of soil at first, which must be conducive to an undue amount of growth. Good provision for drainage should be made, and the soil should be as rough as possible. For the majority of plants thus grown a mixture of peat and loam in about equal portions will be the best to choose. For planting out in stoves the following is a good selection, viz., *Stephanotis floribunda*, *Passiflora princeps*, *P. kermesina*, *Allamanda Hendersoni* and *nobilis* for large houses, *Aristolochia elegans*, *Bignonia venusta*, *Hoya carnosa*, or *Ficus repens* for a damp wall; *Jasminum gracilimum*, *Thunbergia laurifolia*, *Vanilla aromatica* for covering a partition; *Cissus discolor* and *Smilax ornata marmorea*, both for the value of their foliage. The following may be used as climbers in the same way, but will be safer if kept in pots, viz., *Allamanda grandiflora*, *Bougainvillea glabra* (it grows too strong if planted out, so does *Clerodendron Balfourianum*), *Dipladenias*, of which *D. boliviensis* should not be omitted; *Gloriosa superba*, *Hibiscus schizopetalus* for rafters, *Hoya imperialis*, *Ipomœa Horsfallii*, *Passiflora quadrangularis* and *Oxera pulchella*. In growing climbers upon roofs in this way one point is imperatively necessary, and that is to see that the plants are absolutely clean from mealy bug, other-

wise the plants under them will be spoiled by the filth deposited.

BLINDS FOR SHADING.—These have in most cases to be provided for, but need not be used so much when the previous remarks upon climbers as means to the same end are employed. Blinds in the hands of observant persons are most useful accessories in plant culture, but when they are employed in an indiscriminate manner they become more of a drawback to good cultivation than anything else; in fact, they are then an evil to be avoided. I have found nothing yet in the way of blind material to surpass or in any way equal No. 3 netting, the same as used as a means of protection from spring frosts. This admits a good amount of light, yet it sufficiently diverts the rays of the sun to prevent scalding. Whenever this is used there will not be found any need of complaint, even with the tenderest of exotics. It will last good for at least two seasons if well cared for, and always dries readily after rain. Roller blinds are preferable most decidedly to any permanent arrangement. Any continuous mode of shading is not calculated to give the best results under our somewhat unreliable conditions of the weather. For this reason I am a strong opponent to besmearing the glass of the roofs with whitening, or any other material to serve the same end, whenever and wherever it is practicable to fix roller blinds. Not only is it objectionable from a point of appearance alone, but it is also most detrimental during a protracted spell of cloudy weather, which in the summer season even is experienced at times. If this means has to be adopted, then I advise its application to be in the lightest possible manner; this can be better effected by boiling some size, then mixing it with the compound to be used. Blinds should now be got in readiness for use and fixed, not that they will really be required just yet, but it is always better to be in advance than to run any risk from scalding, when such might have been avoided by a little foresight. No permanent shading should be thought of much before the middle of April, but if a few bright days supervene it is an easy matter to apply a little whitening and water upon the roofs with a syringe. Lime should not on any account be used; it is at times difficult to remove, besides which it is destructive to the paint and putty also. In cases of emergency I have had some tanned garden netting, such as old fish nets, drawn over the roof. This will answer well as a temporary shading.

TEMPERATURES.—For stove plants now making a good start into growth, every advantage should be taken of bright sunny weather to raise the temperature by early closing after some little fresh air has been admitted each day. Ventilation does good in strengthening the growth, but must be given with caution for some time to come. Top ventilation must be chiefly relied upon. Side lights if opened will admit too much cold air. Sufficient egress will for the present be found through the laps of the glass in ordinary roofs and from ventilators in the brickwork, where the cold air strikes upon the pipes as it enters the house. The opening of the top lights a little way will set this means of egress into more active motion. If the temperature rises after an early closing to 85° or a little higher, no harm will be done; it affords a means of making free use of the syringe, which is better than too much root-watering yet awhile. The plants will absorb this moistening into their system readily and with good results also. A night temperature now of 65° during favourable weather will be sufficient for all ordinary requirements. A few degrees less, if the weather is cold and frosty with high winds blowing, will be better than heating the pipes excessively, a waste of fuel in itself, causing also a waste of the resources of the plants by producing a drier and uncongenial atmosphere. A rise during the day by fire-heat of 10° is sufficient; more than this is risky should the sun perchance appear at or near to midday, causing a rapid rise beyond reasonable limits. More atmospheric moisture will be needed during cold windy weather than if it is quiet and mild. In many instances a light syringing at nightfall will be found very beneficial as a corrective medium in cold weather.

The evaporating troughs should now be looked after closely, being filled up every day.

J. HUDSON.

FERNS.

CLIMBING FERNS.

(LYGODIUMS.)

I AM asked by W. Wheeler to say something about the climbing Ferns which he saw in the Botanic Gardens at Liverpool some years ago, and how to treat them. I suppose the genus

climbing habit; they have evergreen fronds, which continue to grow from year to year, and therefore should not be cut down unless the plant or plants have been neglected and got dry, when, of course, the pinnae will shrivel and turn brown. When in this condition it is much the best plan to cut the fronds off and have a new set. There are two sets of these plants—the one here mentioned (*Lygodium*) with fine forked veins, and another (*Lygodictyon*) with reticulated or netted veins, but the habit and general appearance are exactly similar, so that they may all be included amongst climbing

ever country, should be planted in well drained pots, and the soil should consist of half and half light turfy loam and peaty soil, made tolerably sandy. They require a large quantity of water to their roots, and during the summer-time sprinkling overhead will be found highly advantageous. These plants should be used to clothe pillars or rafters in the Fern house, and when so employed they display their beauties to the best advantage.

L. ARTICULATUM.—This species comes from New Zealand. The pinnules are from 2 inches to 3 inches long by about a quarter of an inch wide. This plant is said to grow to 100 feet in length, and to form dense matted screens in the forests. It is abundant throughout the Northern and Middle Island, and forms a handsome ornament in the cool house.

L. FLEXUOSUM is a very handsome large-flowering species, the pinnules being from 6 inches to a foot long, bright shining green on the upper side, paler beneath; the spores are arranged on spikelets which stand erect. It grows to an indefinite length.

L. JAPONICUM.—This form, which is found throughout the greater portion of the tropics, bears many names, but the plant that comes from Japan is very pretty for a cool house; the fronds are branched, the barren ones much contracted.

L. SCANDENS is another very elegant form which will clothe a rafter very finely. Its fronds are short and close, the fertile ones somewhat altered in form. It has a wide distribution, and will succeed in the cool house as well as the stove.

L. PALMATUM.—This species, here illustrated, is a native of Canada, and a few years ago I used to have a quantity annually from its native country. Its fronds, seldom exceeding 3 feet or 4 feet in length, are scandent, the barren frond being shortly divided into two palmate divisions, which are usually three to six-lobed and bright green, the top portion being contracted and fertile. It is a very handsome plant, which I used to plant at the base of the *Dicksonias* and *Cyatheas* from New Zealand in the cool house. I never tried it in the open fernery. Besides the above, other recognised species are *L. polystachyum*, a stove form from Malaya, *L. volubile* from Brazil, *L. Fosteri* from the Polynesian Islands, *L. heterodoxum*, *L. venustum* from the West Indies, and several others.

W. H. GOWER.

FERNS FOR HANGING BASKETS.

As permanent subjects for growing in this manner there is scarcely any family of plants which is better suited for the purpose. Selections may very easily be made that will grow in a satisfactory manner in either the stove or the greenhouse. Hanging baskets are very ornamental in any house where they can so hang as to be seen to the best advantage without obstructing the light from other plants. Perhaps in no place are they seen to better advantage than when suspended in conservatories. The larger the house the better will the baskets look when well furnished. Wherever they are used it is always the best plan to have them hanging over the pathway. They are thus far easier of access for watering and other necessary attention. The watering should if possible be performed early in the day; this will avoid any inconvenience later on. Wire baskets are better suited to Ferns than those made of teak or other wood, or those in ornamental earthenware. Small baskets are not advisable, as the soil in such an exposed position will soon become dry in hot weather. Baskets which hold less than two gallons of soil should not be used unless they are very convenient of access for watering. A very fine effect can be had where the baskets are large enough to hold about half-a-bushel of earth. Plain baskets are just as good as ornamental ones as far as cultivation goes. But when they are more particularly intended for conservatories of an ornamental character, then there is no objection to those of an ornamental design. Galvanised wire baskets will be found the most enduring, and should not be made of too light a gauge. Due precaution must be taken to see that



Lygodium palmatum.

Lygodium is what is meant. I remember well the last time I was in the Botanic Gardens at Liverpool that some species were growing up the roof glass and forming quite a shade for the plants below them. This is the way I have grown them, but it must be borne in mind that the house that these plants should be grown in for shade to other Ferns should not be exposed to the full sunlight. The plants belonging to the genus *Lygodium* are readily known by their

Ferns. Between forty and fifty species are described by some authors, but this, in my opinion, is far too many, and I will only include a few here which I consider distinct and worthy of attention. Those species which come from Japan and New Zealand thrive in a cool house, whilst we have one species that comes from North America, and is nearly or quite hardy. The most beautiful, however, are natives of tropical countries. These plants, from what-

the chains by which they are suspended are sufficiently strong. In large-sized baskets five chains are far better than depending upon three. Those who have not hitherto given much attention to Ferns for hanging baskets may advantageously do so to a considerable extent when they have the room at disposal. In lofty houses with a large quantity of roof room they are of particular value, and assist greatly in giving such structures a better furnished appearance. For such positions those with long pendent fronds are the better ones to choose. This period of the year is about the best time to make a start with basket Ferns or to overhaul those now in baskets. It is astonishing what rapid progress is made by Ferns when grown in baskets as compared with those in pots, and as regards the effect produced, in nearly every instance is it favourable to the basket mode of culture, particularly with those kinds which develop long arching fronds; these when the plants are in pots oftentimes get injured at the extremities of the fronds. The baskets should be carefully prepared with good soil of a rather rough, but fibrous character around the sides and upon the bottom. This I prefer to consist of peat and loam in about equal proportions, with some Sphagnum Moss. When too much peat is used, should it perchance get over-dry, there is a difficulty in thoroughly moistening it again without dipping the basket; the loam and Moss will have a corrective tendency in this respect. After the sides have been built up, then the plant or plants can be put into the centre; it is not advisable in any case to attempt to work any through the sides. Such as are disposed to grow there will find the spot of their own accord later on. A good amount of room is required for watering; the ball of the Fern should, therefore, be kept rather low. As growth proceeds, in the case of Davallias, the creeping rhizomes should be regulated evenly and pegged to the soil, and over the sides in course of time. Those Ferns which do not furnish the sides of the baskets eventually cause the latter to look rather bare; this can be overcome by pegging some pieces of Selaginella denticulata between the wires. When this work is first done, the baskets should for a few weeks be kept in a warmer house where more moisture abounds until well rooted. Such work as this needs to be done fresh every spring; it will then, with fair attention, last good through the season. Renovation of plants that have been in baskets for a few years is necessary at times. In some cases this is best effected by a fresh make up entirely, whilst in the case of others, such as those Maiden-hair Ferns which root out through the sides and form a dense mass of fronds, the central portion only is in need of renewal, leaving the sides intact. Top-dressing every spring is necessary, some of the surface soil being removed to better effect this operation. When this is done, all the cool house kinds will start away more freely with the assistance of a little heat and moisture. Compared with Ferns in pots, more attention is needed for those in baskets as to watering. Advice has been given to do this chiefly in the morning, but I have found it necessary also when the basket Ferns were carrying a dense mass of fronds to water later in the day. When this is needful it should be done in the evening and another watering given in the morning; there will not then be much fear of injury from drought. Syringing the sides once or twice a day is an assistance also in keeping them fresh.

There is an abundant choice of kinds amongst our exotic Ferns for this method of culture. Fortunately also we are rich in those varieties which are suited to temperate and cool houses, so that no one need go without a few such ornaments to their houses. The Adiantums supply us with several sorts which are adapted to each temperature. For the stove the best are *A. amabile*; this is without doubt one of the finest of all Adiantums for baskets; it grows quickly, and young plants soon appear around the sides, thus forming a dense mass of pale green fronds; it is safe also in a temperature of 50° in the winter. *A. caudatum* is one of the best for small or medium-sized baskets. *A. concinnum* is not nearly so much grown as it should be; its long arching fronds are most beautiful with

the roseate tint upon them. *A. farleyense* does well also in baskets. *Asplenium longissimum* when well grown will produce fronds more than 6 feet in length; this is one of the best of its class. *Cheilanthes hirta* *Ellisiana* is better grown in a basket than in a pot with less danger of injury to its fronds; this is a lovely Fern when seen in good condition. *Davallia bullata* is fine for medium-sized baskets. *D. fijiensis* and *D. f. major* are both good sorts. *D. Mooreana* makes a grand basket Fern, and so does *D. polyantha*, and of newer introductions *D. tenuifolia* *Veitchiana* is one of the most elegant kinds in cultivation. *Gymnogramma schizophylla gloriosa* is a splendid kind for basket culture, better even than for pots. For the temperate house, *A. amabile*, already mentioned, *A. assimile*, *A. cuneatum*, *A. gracillimum*, and *A. Williamsi* are all fine for baskets. *Cheilanthes elegans* I have often found to grow better in baskets in a rather dry atmosphere than in pots. *Davallia elegans* is one of the prettiest; *D. Tyermani*, quite distinct with its glaucous fronds; *D. tenuifolia*, and *D. pyxidata* are also good basket Ferns. *Goniophlebium sub-auriculatum* is one of the finest of all Ferns for large baskets. *Hypolepis distans* is seldom seen in cultivation, but it is, nevertheless, a beautiful kind for either baskets or pots. *Lygodium scandens* can be accommodated to baskets as it is to trailing upon trellises when in a pot. *Nephrolepis davallioides* *furcans* makes a fine plant for this purpose, so does *N. tuberosa*. *Platynerium alciorne* is an enduring Fern in any position. For a cool house there are *Adiantum Capillus-veneris magnificum*, *A. decorum*, and *A. venustum*, all three being capital kinds for the purpose. *Asplenium flaccidum* is a most hardy variety, and longer in the fronds than *A. bulbiferum*, which is also a good basket kind. *Davallia canariensis* I have seen far better in baskets than in pots. *D. Mariesi* is a beautiful small-growing kind, better suited for small baskets than most Ferns. *Nipholobolus lingua* is a good lasting Fern. With care most of the kinds suited to a temperate house will do in a greenhouse, especially during the summer months. It is not advisable in either case to let them be too much exposed to sunshine; some shading should be provided, otherwise there is greater risk of injury with more attention required for watering also. When well hardened off, small baskets of such as *Davallia Mariesi* could be suspended in a window for a few weeks during the summer season. I have found the fronds of *Adiantum cuneatum* when grown in baskets to be more enduring in a cut state than if taken from pot plants. This is no doubt caused by the additional exposure through the extra amount of air in circulation around the plant. J. H.

Labels.—The question of labels is constantly to the fore, and has never been satisfactorily solved; wooden labels soon perish, and those made of terra-cotta are also easily broken. The metal label with raised letters is capital for trees or large shrubs, but it would not be easy to make it of a size suitable for small border plants, and there are few things more grotesque than a number of gigantic labels some 4 inches or 6 inches square in front of tiny plants that one could cover with a 4-inch pot. Chandler's copper label leaves something to be desired in the way of improvement, as the thin oblong strips of metal tarnish on coming in contact with the air or damp, and if the surface is simply indented, as recommended, the letters are very difficult to read when the copper becomes, as it does, almost black. I do not know if it would be possible to surface the labels with a preparation to prevent this. At present I make the desired letters, and then touch them lightly with white paint, when they show fairly well against the tarnished metal. The best means of securing it in position is by means of a small iron peg. If the smith will flatten one end of this and punch a hole through it, the two thin strips of copper which form part of the label can be laced through the hole, and the label by this means fastened firmly to the peg, the top of the latter standing some 6

inches or 8 inches above the ground level.—E. BURRELL, *Claremont*.

STOVE AND GREENHOUSE.

SHADING PLANT HOUSES.

THE time has now arrived when it is necessary to get ready whatever is to be used in the way of shading material for plant houses, for though the nights are yet cold, the days towards the close of this month are often clear and the sun very powerful, and unless means are taken to break the solar rays, many plants will suffer. In fact, I have seen more harm done during the latter half of March, especially to such of the warm section of stove species as require shading, than has occurred during the whole of the rest of the year. But in making provision to prevent injury being done in this way, it is well to bear in mind that shading, except in the case of a very limited number of plants, can only be set down as a necessary evil. Since fine-foliaged plants came into general use more shading has been required. Soft-leaved things, like *Alocasias*, *Caladiums*, *Anthuriums*, and others of a like nature, lose a deal of the natural beauty of their colours if exposed to much sun; whilst things more enduring in their leaves assume a sickly yellow hue unless shaded. The loss of colour in the foliage by too much exposure to sun is quite apart from the absolute burning that often takes place through imperfections in the glass, even where the best British sheet is used, and still more so where foreign glass of inferior quality is employed.

The position of plant houses has a good deal to do with the extent to which shading is necessary. When the houses, whether they be lean-to, hip-roofed or span, stand ends east and west, with the side fully exposed to the whole force of the sun in the middle of the day, needless to say, the protection that would suffice with houses standing in the opposite direction will not be enough. It then becomes a question what is to be used in the way of shading. In the large nursery establishments and in those of the market growers, who now reckon their glass by the acre, little in the way of movable blinds is possible, as the cost of the material and labour involved in their use, excepting in the case of Orchids, would be too much; consequently resort is had to whitening, with which the glass is thinly smeared, or it is syringed on through a fine rose. But in the case of the trade growers, especially the market men, it is well to bear in mind that their houses are constructed in a way that admits of every ray of light possible reaching the plants. And in addition to this the health of the plants is studied much more than anything in the shape of effective arrangement within the houses, as they are almost invariably stood with their tops close to the roof, and therefore in a position to suffer less through the influence of fixed shading, which in the mornings and evenings and on cloudy days is harmful, yet not in their case to anything like the extent that it is to plants in the houses in private gardens, where the construction and position are too often the reverse of what they should and might be. Hence, with the limited quantity of plants in private gardens that require shading, it is much better to have movable blinds. The material used for blinds of this description is often not by any means what it should be. The coarse, thick, light-excluding canvas that frequently does duty in this way has nothing to recommend it. It darkens the houses wherever it is employed to an extent that induces to weak, soft growth, with long-jointed wood and thin leaves deficient in substance, that make the plants delicate and unable to bear without injury their ordinary use for decorative purposes in the way that fine-leaved subjects are now so generally employed. And in the case of those that are grown for their flowers, it tends to limit the amount of bloom that they produce. Another fault in thick blinds is that when wet they dry slowly, and, as a matter of course, do not last nearly so long as thin canvas. The cheapest and best material for blinds is canvas made wholly of flax without any jute or cotton in it, the threads of

both weft and warp being thin and well twisted. It should not be closely woven, as there is no necessity for this, the object being simply to break the sun's rays, not to exclude them. Blinds of this kind, though costing a little more in the material at first, are much the cheapest in the end, for they will last nearly double the time of those made of the coarse canvas I have spoken of. Blinds composed of thin strips of wood, such as used in some places on the Continent, are now and then recommended for shading plants in this country, but they have not made much way, neither do they deserve to. They are better adapted for use in Southern Europe than they are with us, as there the sun is much more continuous, with a brighter, clearer atmosphere. Beyond this, the greater portion of the plants cultivated abroad consists of Palms, Camellias, and a few other things that do not suffer from diminished light to the extent which the large number of flowering species grown in this country do. A higher standard of cultivation is likewise usually aimed at with us than satisfies the Continental growers.

Where anything in the shape of flour paste or whitening is employed for shading, it never should be laid on thicker than will suffice to break the force of the sun. Nothing is better for smearing the glass than flour or whitening mixed with skimmed milk and water, in the proportion of one third of the former to two of the latter. This laid on with a brush quite thinly early enough on a fine day to admit of its getting quite dry before the night dew comes on will last through the greater portion of the summer. The thin limewash that is applied with a syringe can be laid on quickly, but it is so soon washed off with the rain as to require the work to be done again, besides which it has an untidy appearance. It may be well to say that where paste composed of flour with a portion of milk in it, as described, is used, it should be kept off the woodwork, otherwise there is danger of its fetching more or less of the paint off. Amongst plants that require some shade, there is much difference in the extent to which it should be used. Camellias, for instance, whilst making their growth will do with considerably less light than Azaleas, and after the buds are set and the foliage fairly matured, no shading is necessary further than will prevent the defects in the glass from burning the leaves. Palms, again, will bear much more sun than soft-leaved stove plants. Amongst hard-wooded greenhouse subjects Heaths are much better without shading, as are also most of the New Holland and Cape species. Of the New Holland kinds, *Acrophyllum venosum*, a beautiful plant now rarely seen, and *Dracophyllum gracile* do not like full exposure to the sun; in fact the *Acrophyllum* rarely succeeds if much exposed to the solar rays. Whilst small, most of the hard-wooded species if located in very light houses are better with a little shade over them in the middle of the day during bright weather in spring and summer, as it prevents the small amount of soil contained in the little pots from drying up so quickly as to injure the roots.

So far as stove plants collectively are concerned, if the needful discrimination is brought to bear on their arrangement in the house—if all have to be accommodated in one structure—those that do not require shading, such as the *Allamandas*, *Dipladenias*, *Bougainvillea glabra*, the *Ixoras*, and *Gardenias*, when not in bloom should be put together at one end, reserving the other for the kinds that need protection, which, as a matter of course, should have blinds. By an arrangement of this kind the plants are benefited, and there is an appreciable saving effected in material.

Another matter of importance where movable blinds are used is that they should never be allowed to remain down when there is no occasion for them. They should not be let down in the mornings sooner than is necessary, nor let to stay on in the afternoons after the air is shut off, as where the atmosphere is sufficiently moist the vapour immediately condenses on the glass when the lights are closed to an extent that prevents the sun doing any harm.

T. B.

Begonia Gloire de Sceaux.—Among the *Begonias* of a shrubby character that bloom during

the winter and early spring months must be included this variety, which is quite distinct from any of the forms of *B. semperflorens*, *B. Carrieri*, *B. insignis*, and the other commonly grown kinds. *B. Gloire de Sceaux* is a bold vigorous growing plant that naturally assumes a somewhat pyramidal habit, and is well furnished with handsome foliage. The leaves are large, firm in texture, and of a dark metallic tint. The blossoms are larger than those of most of the winter flowering varieties and are of a pleasing shade of deep pink. Being borne in good sized clusters, a plant when in full flower is very attractive. It cannot be depended upon to flower in the depth of winter, but is at its best from February onward.—T.

Coccocypselum repens.—This plant with such a formidable generic name forms a very pretty feature in the stove by reason of the bright blue berries with which it is studded. It is of procumbent habit, the stems and leaves being thickly covered with hairs. The flowers, which are borne in little clusters in the axils of the leaves, are blue, but being small are by no means conspicuous. They are, however, succeeded by berries about the size of large peas, and whose bright blue colour renders them quite distinct from any of their associates. The plant in question is a very old one, having been introduced towards the end of the last century. It may be easily propagated either by cuttings or seeds, and grown in a hanging basket its ornamental features are seen to the best advantage. I have also seen the long shoots twisted around a few sticks, and in this way the plant acquires a more or less bushy shape, but it is less effective in this form than where suspended. It may also be used for draping large pots, the edges of stages, or similar purposes.—H. P.

Amaryllises not rooting.—Will any reader of THE GARDEN favour me with advice under the following circumstances? For many years I have been in the habit of growing in a small conservatory in London from thirty to forty *Amaryllises* (*Hippeastrum*) and with great success, so far as their flowering is concerned. I usually repot them about Christmas, place them near the hot-water pipes in cocoa-nut fibre, and in about two months the shoots appear and I bring them to the light, finding them thoroughly well rooted. This year, however, the shoots have appeared earlier than usual, but in hardly any case are the plants properly rooted. In this case should I return them to their warm and dark quarters with blanched leaves and flower shoots, or let them take their chance of rooting in the light?—G. R. A.

* * There are doubtless some reasons why the bulbs have not formed roots as freely as they have usually done. If they were potted at Christmas, this, I think, was rather early for them. It is better, I think, to repot them about three or four weeks later, unless they are required to be in flower about the middle of March. The reason the bulbs formed roots so freely in previous years was probably owing to a moist bottom-heat from plunging the pots in the cocoa fibre over the pipes. Roots are sure to form, other conditions being favourable, if the bottom-heat in which the flower-pots containing the bulbs are plunged is higher than the temperature of the house, and they ought certainly to form roots under those conditions in less than two months. It would be an error to place the plants back again into a dark place. With the development of the leaves and flower-scapes roots will form, but care must be taken not to give too much water, which might cause the bulbs to rot off in their present badly rooted condition. They ought to be in a rather warm temperature, and should not be too freely exposed to the light until the "blanched leaves" take a green tinge. I would also remark that as the bulbs get older roots are not so freely produced as they are on seedling bulbs of three or four years old. Of course, good cultivation makes some difference, but the culture in this case is not of the best, and I would be surprised if the vigour of the plants is long sustained under it. Some varieties are also of much more robust constitution than others, and would live and thrive where another type would die outright.

I grow some hundreds of bulbs, and have every facility for doing full justice to them, but I find that many varieties after the bulbs have attained to full maturity decline in vigour, and even the offsets taken from them when they are in a declining state also fall off in the same manner. The middle of January is a good time to repot the bulbs, and as they are repotted I plunge them into a tan bed, using the tan that has been out of the beds a month or more. I have also facilities for increasing the bottom-heat by the aid of hot-water pipes under the tan beds. This year I wanted to push on the plants to get the spikes rather early, and the bottom-heat has been up to 105°. But it is wise to turn off the hot water when the temperature of the bed gets up to 100°. One important point in the culture of these plants is to be very careful not to use the water-pot too freely at first. If they are plunged in a moist tan bed, no water will be needed for the first month. In fact it would most likely cause some of the bulbs to rot if water was given at first.—J. DOUGLAS.

Dalechampia Roezliana.—This euphorbiaceous plant is not seen nearly so much as it formerly was, for a very high opinion was formed of its merits when first introduced, now nearly twenty-five years ago. Although gone out of favour, it is still a pretty flowering plant, which at this time of the year is especially welcome. It is a small growing shrub, requiring the temperature of a stove, and succeeds well with ordinary treatment. Like many other members of the order to which it belongs (*Poinsettias*, for instance), the most attractive feature of the inflorescence is not the flowers themselves, but the large bright-coloured leaf-like bracts that surround them. In this *Dalechampia* they are of a bright rosy pink colour, but there is a variety (*alba*) in which they are white. This is, however, much less attractive a plant than the typical kind. Propagation is easily effected either by cuttings, which strike readily enough, or by seeds, as many will ripen, so that self-sown plants are frequently to be found.—T.

Bulbous plants for the greenhouse.—The *Gladioli* (*gandavensis* vars.) are well suited to pot culture for conservatory decoration, flowering at a season when good things are scarce. They are best suited to arrangements where a fair amount at least of foliage plants is interspersed with flowering plants, being also very useful for house decoration when any grouping has to be done. Those who have not hitherto grown any in pots are advised to do so, whilst many who may have grown some at least may very well add to their numbers. For pot culture fresh (imported or home-grown) bulbs are the best, and these should be of good strength for their kind. *Brenchleyensis* for all round purposes is still one of the best to grow in quantity; *Madonna*, pure white with carmine blotch; *Floribundus*, white, striped red; *President Carnot*, orange-red; *Eclipse*, sulphur-white; and *Wonder*, bright scarlet, are six good and cheap sorts for pot culture to flower during August and September. For earlier flowering, *Ne Plus Ultra* a hybrid of the *ramosus* type, red, flaked white, is a good kind to grow. There are also the smaller-growing varieties; these should receive more attention. The *Bride* and *Fairy Queen* have been previously alluded to for early use, but to these may be added *Rosy Gem* and *Delicatissimus*. These varieties may still be potted up for June and July blooming. The larger-growing kinds just alluded to should be potted either one strong bulb in a 6-inch pot, or three in an 8-inch one, leaving room in each instance for a good top-dressing when the shoots appear. The smaller ones should be planted more thickly; for these, 6-inch pots are usually large enough. Good friable loam with some decomposed manure will suit them very well. After potting they should be kept in a cold frame with a light covering of cocoa fibre to encourage root-action before top-growth commences. *Liliums* of the *lancifolium* type should now be potted for autumn flowering. In the case of fresh imported bulbs a succession is to be had to those grown on from the previous year, these latter generally flowering earlier by a week or fortnight. The fresh

bulbs can either be potted up singly in 6-inch or 7-inch pots (large pots the first season are not desirable), or placed three together in pots of proportionate size. I prefer the former plan myself. Those in hand from past seasons should be examined as to their condition at the roots; if these are healthy and active, as they should be, a size larger pot will be better than shaking them out; if otherwise, the latter course will be the best. *L. auratum* should also be potted up now, but avoid large pots the first season. Leave room in each instance for top-dressing later on. Light loam with leaf soil or peat in about equal parts and plenty of sand, particularly around the bulbs, will suit them well; afterwards treat as for *Gladioli*.—H. G.

Fog and zonal Pelargoniums.—It is evident that winter-blooming Pelargoniums have now a new enemy to contend with in the poisonous nature of some of our metropolitan fogs. I looked in upon a well-known firm of growers for market of zonal Pelargoniums recently, and was greatly distressed to find their thousands of plants literally denuded not only of bloom, but largely of leaves. The old plants in 4½-inch and 6-inch pots, grown on for the production of bloom during the winter, were in many cases quite bare of leaves. The pink varieties, especially the robust growing *Constance*, had suffered least, and young plants less than old ones. Still further, the best developed clusters of flower-buds were all destroyed, and where at this season there should have been literally a blaze of colour there was neither any flowers, nor a promise of any until entirely new growth was made. Of course the loss over such a big lot of plants is great indeed; it was carefully estimated at some £250, a big sum to lose through fog alone. Tomato plants also had suffered severely; in fact rendered quite worthless. So also were some late kept heads of *Chrysanthemums*. Ivy-leaved and ordinary show or French Pelargoniums had suffered little, these forms not blooming appreciably in the winter, whilst the foliage is thick and leathery. Outdoors General Jacquemint and La France Rose bushes had suffered little, the unpruned shoots breaking profusely. In the case of a large breadth of *Souvenir de la Malmaison*, the wood seemed to be killed to the ground. I advised in the case of this Rose that they be planted wider apart to allow ample protecting earthing being given in future winters.—A. D.

Gardenias to flower in February.—I should be obliged if you could give me a few practical hints in *Gardenia* growing to have them in flower in February.—J. T. S.

* To have *Gardenias* in flower during February, the "practical hints" to be observed are: first, to secure a good growth after the flowering of the previous year, then, after that growth has been completed, the plants should be rested in a cool house during the autumn season, or in favourable positions they might even be stood out of doors for a month or six weeks, being taken in before there is any danger of frost. As colder nights come on, see that the plants do not remain in a temperature below 50° at night. About the middle of November they should be re-introduced into the stove and be kept syringed. Indications of a movement in the swelling of the flower-buds will soon be apparent; see to it, then, that the plants do not suffer any check. It takes some time to develop the buds during the wintry season; some probably may be open during January by this method, but the main crop would turn in for February. This is, of course, assuming that an ordinary stove temperature is being maintained, taking 60° to 65° as a minimum, or a few degrees less during very cold weather. Do not attempt any fresh potting meanwhile. This work when needed should be seen to as soon as the flowering season is past. With a brisk heat top and bottom it is possible to have *Gardenias* under this mode of treatment by Christmas. Another plan for plants which are growing in pits planted out is to well expose them by free ventilation, and the removal of the lights during favourable weather when the growth has been completed and it is seen that the embryo buds are formed. During this treatment do not syringe at all, keeping a dry atmo-

sphere and moderately cool; then, when heat is applied about the time previously named, take to using the syringe again freely. The forwardest buds will soon push away under this treatment. Had the usual growing atmosphere been maintained instead of the cooler and more airy course, these buds would have opened in the late autumn in both pot plants and those turned out. The earliest blooms are thus obtained by what is really a retarding process. I struck some cuttings last May myself, grew them on freely all the summer in brisk heat with Melons, then removed them to a pit late in the autumn where they were cooler. Here they rested for a few weeks, being re-introduced into heat with pot Vines in work. These plants would have been in flower now had the earlier buds not have dropped during the intense fog of late. These young plants are now about 2 feet through, and will under favourable conditions make grand stuff for early blooming next season. This I merely mention to show that young plants can be quickly grown on when additional stock is needed.—H. G.

Staking and tying stove plants.—I am no advocate for any excessive amount of this work being done in any case, but in some instances it is needful to employ a moderate amount of sticks and ties; just sufficient to support the plant in an easy manner, with careful regulation of the shoots to equalise the growth in some instances for the better distribution of the plant's resources, and to prevent any overcrowding is all that is needed. Moderate sized sticks are the best; large ones look bad, especially if they are used in small plants. Those painted green or the dark-coloured Bamboo sticks are the best; white deal sticks are not to be tolerated. In fresh staking as much use as possible should be made of the holes out of which old sticks have been taken, additions being chiefly made in the fresh soil around the outer margin of the ball. In dealing with all permanent plants such as *Ixoras* be careful not to insert any fresh sticks within a reasonable distance of the stem. If this be done, the possibility is some of the roots will be injured just when their services are much needed to sustain the plants. Keep well away from the stem is my advice to all plant tiers; more particularly should this be observed by young beginners in the work, who are often inclined to make too free a use of sticks rather than rely so much upon slinging as a means of support.—G. H.

Darwinia tulipifera.—This is one of the most desirable members of a genus composed entirely of pretty greenhouse shrubs, all of which are natives of Australia. The species in question forms a somewhat upright growing bush, which is at most seldom seen more than a yard high, but will flower freely when much less. The leaves are small and of a dark green colour, while the flowers are borne in terminal heads on, as a rule, every shoot. The blooms are small and inconspicuous, the most attractive portion of the inflorescence being the involucre which surrounds them. This is composed of petal-like bracts, which together present the appearance of a campanulate-shaped bloom 1½ inches or thereabouts in length. It is of a straw colour, flaked and streaked with crimson, and retains its beauty for some time. This *Darwinia* requires much the same treatment as many of the greenhouse hard-wooded plants, viz., a free circulation of air whenever possible, and in potting, good fibrous peat with plenty of sand and, according to the ideas of the cultivator, a little loam. This last is by some employed to a limited extent for many subjects, and by others avoided altogether; but, of course, a good deal depends upon the quality not only of the loam itself, but also of the peat which forms the bulk of the potting compost. The pots must be well drained and the soil pressed down firmly, while at the same time care is taken that the ball of earth is not buried deeper in the soil than it was before. Overpotting should in the case of this *Darwinia* be especially guarded against, and during its earlier stages the shoots must be frequently stopped in order to ensure a good bushy specimen. This plant is also known by the name of *Darwinia macrostegia*, and is by some included

in the genus *Genetyllis*, and by others in that of *Hedaroma*, the specific names of *tulipifera* and *macrostegia* being in both cases occasionally used.—H. P.

GARDEN FLORA.

PLATE 797.

ALPINE ADONISES.

(WITH A COLOURED PLATE OF *A. VERNALIS*.)

A COMPARATIVELY small genus belonging to the Buttercup family, and comprising a few fine showy hardy perennials and many more annual and biennial species. The latter are well illustrated by the well-known *Flos-Adonis*, and, together with *A. flammea*, *autumnalis*, *dentata*, *persica*, and others, make up an extremely interesting group. The bright showy flowers of these annuals render them general favourites, especially in small gardens, where they make a pleasant change in the mixed border. Individually they cannot be said to be effective, but when grouped in their various colours and attended to as regards thinning out, &c., they are extremely effective, and assist materially to fill the cut-flower basket. They are what are termed hardy annuals or biennials, and the seed may be sown either in autumn or spring where the plants are to bloom. Some of the brighter-coloured kinds, such as *A. flammea*, *A. autumnalis*, and *A. æstivalis*, make very charming beds in the flower garden, and, notwithstanding their somewhat weedy habit, they are readily made neat and presentable. In the perennial species the flowers are all much larger and showier than those of the annual forms, and although there may be said to be a scarcity of variety in colouring, this is made up somewhat in their varied habits and different times of flowering.

For spring beds and borders the species of *Adonis* will be found an invaluable aid to the gardener, as they are, as a rule, extremely free flowering and comparatively easily managed. They delight in a rich moist soil, and with *A. pyrenaica* at least, which is perhaps the most difficult of all to manage, I have always succeeded best in a somewhat shady spot, and in a soil composed of peat, loam, and coarse gritty sand. They are said to be impatient of disturbance, and this I have found true only in the case of *A. pyrenaica*. It should never be disturbed when once fairly established, and some time and patience will be required before this is finally accomplished. Care in spring when the beds are being forked over is necessary, and although it will be much benefited by a dressing of leaf soil and old stable manure, it will be well to keep away from the roots of the plant.

A. VERNALIS, the value of which may be gleaned from the accompanying coloured plate, is, in my opinion, the best of this group. It is a very old favourite in gardens, and is readily distinguished from *A. pyrenaica* by the absence of root leaves and narrower and more numerous petals. The stems, which

* Drawn for THE GARDEN by Miss E. Lowe at Woodcote, Wimbledon. Lithographed and printed by Guillaume Severeys.



ALOUIN VERMILION

vary in height from 9 inches to 1 foot, are branched and well clothed with finely divided leaves. As a spring-bedding plant it deserves attention. It is easily grown, doing apparently as well in light sandy as in heavy soils, and in full sunshine or shade. The wealth of finely cut green foliage which clothes the stems and the large, brilliant yellow, Anemone-like flowers give it a character quite its own. If used as above indicated, the clumps will require careful handling when being removed from the reserve ground, and a good watering will be found very beneficial. It is rather remarkable how rarely one sees this charming plant in anything like good form; yet, where it is cared for, it is not unusual to see clumps a couple of feet in dia-



Adonis pyrenaica (natural size).

meter, and bearing a mass of their large, cup-shaped blossoms. *A. vernalis* is often bronzed or tinted brown on the outside of the petals. It may be propagated either by division or seeds. The latter method is much to be preferred, the seeds being sown as soon as gathered in shallow pans, and placed in a cold frame. When the seedlings are ready to handle the following spring, they may be pricked out in the open air in the reserve ground until they have attained the flowering stage. The variety *sibirica*, which I have never seen, is said to differ from the type only in having larger flowers. March and April. Native of the Alps of Europe.

A. DISTORTA, or *apennina*, as it is often called, is somewhat intermediate between *A. pyrenaica* (see illustration) and *vernalis*. It,

however, begins to flower as *A. vernalis* ceases, and is therefore desirable in prolonging the flowering season until *A. pyrenaica* begins. It grows from 9 inches to 1 foot in height, with large, bright yellow flowers. A charming plant for moist spots on the rockery. Alps.

A. VOLGENSIS may also be described as intermediate between *A. vernalis* and *A. pyrenaica*. The leaves are somewhat like those of the latter; the divisions are, however, broader, and the flowers, which are yellow, are larger. April and May. Transylvania, &c. *A. hybrida* is a synonym. *A. Walziana* is said to be a desirable plant, but I have not yet seen it in flower. D. K.

NOTES FROM GRASSE.

A FEW years ago Grasse was almost unknown to the English public. Visitors at Cannes and Nice used to go over there for the day, visit the perfumeries, taste the preserved fruits, and drive away. But during the next few weeks, Grasse, in name at least, will become familiar to all British subjects; so a few words about its scenery, gardens, and flowers can hardly fail to be of interest. I have spoken of the perfumeries as being well known, but still many people may not be aware of the quantities of essences of all sorts of flowers which come from Grasse. The perfumers of Bond Street are supplied from thence, and even eau de Cologne is chiefly made from *néroli*, the extract of Orange blossoms, which is exported in quantities from Grasse to Cologne. If flower-distilling and fruit-preserving are the principal industries of the town, the gardens which supply these must be the chief beauty of the country.

Grasse lies on the slope of the hills which join the Esterels range on one side and the higher Alpes Maritimes on the other, and enclose the undulating plain on which Cannes and Nice are situated. All over this plain are fields of Roses, Jessamine, Jonquils, and Tuberoses, while the terraces on the hills are covered with "Cassis," Oranges, and Olives, under whose shade one sees endless rows of the sweet-scented Parma Violets. Although Grasse has a somewhat colder climate, the gardens of the Grassois are as pretty as many of the larger and more showy ones of their neighbours at Nice and Cannes. The great clusters of Roses, Banksian and Tea, the trees of Mimosa, Acacia, and Magnolia, the bushes of *Spiræa*, *Deutzia* and *Marguerites*, grown in the quaint old Provencal style, look fresher and more picturesque than in the new trim villa gardens of its more modern rivals. For Grasse was a flourishing town while Cannes was still a tiny fishing village, unthought of as a gay winter resort. In one garden near Grasse grows a good specimen of a *Quercus pseudo-suber*, which differs in a striking way from the ordinary Cork (*Q. suber*). This latter grows freely on the hills within a short distance of Grasse, and forms another source of wealth to the dwellers in the Alpes Maritimes. But not only are the cultivated plants of Grasse an attraction, its wild flowers are more beautiful than in almost any other spot on the Riviera. The profusion of Anemones in the spring is gorgeous. Besides the sunset Anemone (*A. fulgens*) a less common variety, *A. lepida*, grows there. *A. stellata* abounds in every shade of white, pink, mauve, and red; also some rarer varieties of *A. coronaria*, named by

Ardoine in his "Flores des Alpes Maritimes" respectively *A. ventreana*, *Mouansi*, and *Rissoana*. I have found there both the pink and white varieties as well as the blue *Hepatica*. The Tulips *præcox* and *Clusiana* grow in quantities in the fields, and on the mountains I was fortunate in procuring a specimen of the rare little *T. australis*. The fields are carpeted, too, with *Gladioli*, *Narcissi* (of which I have found eight distinct varieties), *Scilla italica*, *Gagea arvensis*, *Linum narbonnense*, *Ornithogalum divergens*, which locally bears the pretty name of "Dames d'once heures"; *Hyacinthus orientalis*, *Iris*, *Orchids*, several varieties; three *Serapias*, *lingua*, *cordigera*, and *neglecta*; and of the pretty little *Ophrys* some eight or nine varieties. Also on the plain I was lucky in coming across the curious *Loroglossum hircinum*. The hillsides are not less rich in flowers than the fields. Among them four varieties of *Cistus*, many of the smaller *Helianthemums*, and the curious parasite of the *Cistus*, *Cytinus hypocistus*; three *Lavandulas* (*officinalis*, *Stœchas*, and *latifolia*), seven *Dianthus*, two *Asphodels*, *Genista hispanica*, *Jasminum fruticans*, the bright blue *Aphyllanthes monspeliensis*, and large and small bushes of *Erica arborea*, from which latter are made the *bruyère* or *Brier pipes*. I have seen as many as twenty varieties of *Euphorbia*; their golden and green foliage and flowers give a most distinct colouring to some of the hills. But it would take too long to enumerate all the flowers, both common and rare, which are to be found near Grasse, the Arums, *Primulas*, *Fritillarias*, &c. Of Ferns, too, Grasse has its full share; all those which grow everywhere along the Riviera, and some of the less common kinds found only here and there; among them I may mention *Cheilanthes odora*.

I was only there in the spring time, but during my stay I collected some 250 flowers, and had not nearly exhausted the floral treasures of plain and hill. I had scarcely penetrated to the higher mountains or discovered half the beautiful spots within a walk of Grasse itself, such as the Olive yards of the Sabrane and Malbosc, the Anemone-starred meadows of Le Plan, the plateau Napoleon with its soft turf, so rare in the south of France, and tall Cypressess, or the green amphitheatre on the hillside where for many generations the Grassois have fought their duels under the shade of the tall *Alizier* trees. There is much in this charming neighbourhood to attract the collector and botanist, but now that Grasse has come prominently into notice, and railways and roads have brought it within easier reach of tourists, one cannot help dreading the ruthless destruction of some of its botanical rarities, though at the same time one ought to rejoice that its pleasures may now be enjoyed by the many instead of the few. A. M. T. A.

Seasonable floral arrangements. — For bouquets just now and onwards for some weeks to come, the scarlet Windflower (*Anemone fulgens*) and Lilies of the Valley can be usefully employed. These would not look at all amiss if used in the same bouquet, but it is not in that way I would recommend them, but each by itself. Take the Lily of the Valley, for instance, of which fine examples can now be obtained; these can be arranged a few spikes together with their own foliage. When sufficient of these small arrangements have been made, then the bouquet can be built up, making use of Maiden-hair Fern fronds between each. The Anemone also makes up well by itself, but to take off any appearance of formality, some Mignonette might most advantageously be employed with Fern also. The Fern in both instances should not be elevated to produce effect, but rather be kept be-

tween the flowers, more in the way of an undergrowth. A conical or pyramidal shape should be aimed at in the making-up; this can easily be accomplished with such flowers. A further suggestion might be made just now of another flower to arrange with the Lily of the Valley; it is the Glory of the Snow (*Chionodoxa Luciliae*); these go well together; failing the latter, and where *Iris reticulata* can be had, that might be used instead. Not only could these beautiful spring flowers be used in the way suggested, but for rustic basket or vase arrangements in a small way they would be most attractive. Tulips in two colours that do not clash with each other can also be used in the foregoing methods; when these are chosen avoid the double kinds by all means. These flowers when required in cut arrangements should be taken before there is any indication of the flowers expanding; they will thus last some few days longer and look better also. Judicious use should also be made of their own foliage; nothing is more appropriate. Crocuses in two colours make very useful material in a cut state for dwarf baskets of a rustic character. With these a few sprays of the smaller-growing *Ivies* might be suitably employed. For such flowers sand well moistened is better than water; the arrangements can then be made to look more natural. Fresh green Moss where it can be got should not be overlooked; it might be frequently used to the saving of choicer material. Sufficient value is not so often placed upon this humble member of the plant world as should be the case. Feeling the want of it oftentimes causes it to be more appreciated.—J. H.

ORCHIDS.

DENDROBIUM DEVONIANUM.

THIS, the most graceful and beautiful, I think, of all the species of this now numerous genus, has been sent me by Mr. King, with a spike or growth about 1 yard long, and 2 feet of this laden with large and beautifully fringed flowers. Mr. King says, "This plant was sent me three years ago from Upper Burmah, and it grew well with my other Dendrobies, and this year it has bloomed finely, and I think it a very good variety." It is a good form of the species, and it has bloomed superbly; indeed with such a quantity of flowers upon the stem one does not notice that the plant is deciduous, and the leaves are never thought of. The plant has been known in our gardens between fifty and sixty years, having been discovered by Mr. Gibson, who sent it to Chatsworth, where it first flowered in 1840. It used to be a great favourite and was much sought after, but latterly it has been far too much neglected, the reason being that its flowers last such a short time. This, I think, is the only fault that can be brought against it. I imported a great quantity of it from Assam in 1875, in which the growths were over 3 feet in length, and it appeared to me to be in the wild state, as I had always known it at home to be a peculiarly graceful variety. These plants grew well and produced some good varieties, but nothing in comparison to the flowers now beside me either in size or colour; indeed the Burmese form appears to beat the Assam form and all the plants I have seen from Northern India in both respects (not like the *Wardianum* from Assam, which is superior in colour, but wanting the size of the Burmese plant). The flowers now before me each measure quite 3 inches across. The largest I have hitherto seen never exceeded $2\frac{1}{4}$ inches; the sepals and petals are white, heavily tipped with deep rosy-purple, the beautiful cup-shaped lip deeply fringed, with a broad tip at the point coloured like the petals, whilst at the base are two rich, deep orange-coloured blotches. I have never been able to keep flowers of this in beauty more than eight

or nine days, or for a fortnight at the most, although I have tried all the plans I know. The plant has been said to be difficult to grow, but I have never found this to be the case, provided it is kept in a very moist atmosphere. This plant if kept at all dry is sure to be attacked by red spider, which soon destroys it, the leaves being, like the flowers, thin in texture. It should be planted in a well-drained basket in peat and Sphagnum Moss, and be hung up near the roof glass, as I have found it likes light and air. The atmosphere must be kept moist and the plants syringed two or three times a day in the summer season. After growth is completed this Orchid may be removed from the hothouse where it has been growing to one of a lower temperature, but not kept dry enough to shrivel the bulbs. Its usual time of flowering is quite a month later, but I have no doubt the greater amount of fire-heat necessary through the past severe winter has brought this plant along faster than usual. There is a white variety having no colour but the orange-coloured blotches at the base of the lip, which no doubt is very beautiful. *D. Devonianum* would seem to have a wide geographical range, having been first found by Gibson on the Khasia Hills, at between 4000 feet and 5000 feet elevation, also in Burmah and China, Siam and Assam.

W. H. GOWER.

Masdevallia Shuttleworthi.—This beautiful plant is not so scarce as it was a few years ago. A very pretty variety is now flowering in the second collection formed by Mr. Buchan at Southampton. The plant is about 6 inches high. The peduncle, erect, one-flowered, about equals the leaves in height. The flowers are furnished on each sepal with an orange-yellow tail nearly 3 inches in length; the upper sepal is somewhat cucullate, the ground colour yellowish-red, veined with vinous-red, dotted with rosy-red; lateral sepals purplish-mauve, freckled with white and red. It is a free-growing plant and an abundant bloomer, provided that it is kept cool and moist. It was found by Mr. Shuttleworth, whose name it bears, in New Grenada when collecting plants for Mr. Wm. Bull, of Chelsea.—G.

Phajus tuberosus.—This pretty and still somewhat rare plant is flowering freely with Messrs. Seeger and Tropp at Dulwich, and I recently noted a fine variety there with large flowers and a very richly coloured lip, being deep orange-yellow, spotted and blotched with large marks of reddish-crimson. It appears to have been known many years ago, although comparatively only recently introduced to cultivation. It was known by Lindley and others. It comes from Madagascar, and therefore requires to be kept very warm and moist all the year round. It must be shaded from the burning rays of the sun, but it likes light.—G.

Orchid flowers from Arddarroch.—Mr. Brown sends me a few flowers of exceptional merit. He says (March 9) that there are 16° of frost, which is the maximum this season, as previously they had not had more than 10° or 12° . The first flower that meets my eye on opening the box is *Maxillaria Sanderiana*, measuring upwards of 3 inches across, the colour being an exact counterpart of the figure in *THE GARDEN* (July 23, 1887, p. 60), saying that the lip has a frilled edge of a cream colour. A fine spray of five flowers of *Celogyne hololeuca* from a plant with thirty spikes, each averaging four flowers; a magnificent flower of *Dendrobium nobile nobiliss* of extra size and colour, well contrasted with a light form of the species; and a wonderful form of *Odontoglossum Halli*, with very dark sepals and petals tipped with yellow, the basal part streaked and marked with the same colour, the yellow fringed lip beautifully spotted and blotched with bright chestnut, were also included.—G.

Masdevallia triangularis.—I am very pleased to hear that more inquiries are being made after *Masdevallias* than for a long time past, and

I think growers have made a mistake in not cultivating them more; a north house kept moist is all that is wanted for their accommodation, whilst the colours yielded by such plants as *M. ignea*, *M. Harryana*, *M. rosea*, *M. Veitchi*, *M. Lindenii*, and many others cannot be equalled by any other plants in cultivation. *Masdevallia triangularis* is now flowering very freely in Messrs. Williams and Son's nursery, Upper Holloway. The flowers, produced singly on erect peduncles, are triangular, tawny yellow, freckled and spotted with dull purple, each sepal being furnished with a slender thread-like tail of a brownish hue some $2\frac{1}{2}$ inches long. The plant was one of *M. Linden's*, of Brussels, discovered about 1812, but it was not introduced in a living state for forty years afterwards.—G.

Cyrtopodium punctatum.—G. Stirling sends me a fine spur from a spike of this plant for a name. It is astonishing how these old plants get lost and become unknown. The flowers are each more than 2 inches across, an immense number being produced on a spike. The sepals have a ground colour of rich yellow, transversely streaked with brown; petals yellow, but slightly spotted with brown; the front lobe of the lip golden yellow, having intramarginal rows of bright crimson spots; the large side lobes erect, incurved, bright crimson. Besides the flowers, at every ramification it has a large bract, which in colour is somewhat like the sepals, but the yellow ground is here yellowish-green. It frequently bears 150 flowers on a spike. This fine old plant was known to Linnaeus, who named it *Epidendrum punctatum*.—G.

Barkeria elegans.—T. Orchard sends flowers of this species and says, "Shall I be obliged to call this beautiful flower an *Epidendrum*?" There is no compulsion in the matter at all; there are more than yourself who object to this lumping of genera together, although there is very little to separate *Barkeria* from *Epidendrum*, the chief difference being that the lip in *Barkeria* is joined to the column at its foot only. The flowers which I have received are each about $2\frac{1}{2}$ inches across. Outside they are rose colour, but within delicate blush; the lip has an oblong spot of bright magenta, round which is a white border, the basal part dotted with crimson. These plants succeed best upon bare blocks of wood. In 1856 I had some fine masses of this in the collection of Messrs. Jackson and Sons grown in the full sun, but they were wintered cool.—W. H. G.

Odontoglossum blandum (J. Jones).—This is the name of your plant, and not *O. nevium*, as you suppose. This, one of the most lovely species, is found near the town of Ocana, in the United States of Colombia, at about 6000 feet elevation, growing on the mossy stems of small trees, and almost always thoroughly moist. In its native home it is said to flower nearly all the year through, but under cultivation it appears to bloom at this season. The plant was nearly exterminated in its native home, and it became very scarce in this country. I recently saw in flower a nice lot in Mr. Sander's nursery at St. Albans, and at Messrs. Seeger and Tropp's nursery at Dulwich, where it appears to thrive well and flower profusely. It is grown in company with *O. Alexandræ* and treated in a similar way. This plant is a favourite with Mr. Buchan, of Southampton, and it was recently flowering well with him at Wilton House. It produces a somewhat nodding raceme of thickly set flowers, which are white—a creamy white, more or less spotted with reddish purple. The lip is also white, blotched and spotted like the petals, and stained at the base with yellow. It is similar in general appearance to *O. nevium*, yet thoroughly distinct from that species.—G.

SHORT NOTES.—ORCHIDS.

Cymbidium Lowianum is very showy in the Holloway Nursery just now, and some of the varieties are very bright in colour. This plant lasts a very long time in flower, but the spikes should be cut off before they impoverish the plant too much.—W. H. G.

Celogyne laetea.—A beautiful flower-spike has just been received from Mr. Moss, of Winter's Bridge, Hampshire, of a *Celogyne*, and of which I

can make nothing but a very large-flowered form of *C. lactea*. The pseudo-bulb is about 3 inches high, ovate, and corrugated; the spike bears eight flowers, each nearly 2 inches across; sepals and petals nearly equal, pure white; lip of the same colour with a stain of lemon-yellow just in front of the side lobes.—G.

Cœlogyne odoratissima (G. T.).—This is the name of the flower sent, and I am very pleased to see it again. It was introduced to the Kew collection when under my charge, and it first flowered in the country with me in 1863 or 1864; I cannot now remember which. Your flowers are, like mine, however, scentless. Each flower is slightly over an inch across, white, with a soft yellow stain on the lip. The plant must be grown cool.—W. H. G.

ROSE GARDEN.

THE BEST NEW ROSES OF RECENT INTRODUCTION.

ONE of, if not the greatest drawback to the amateur purchaser of new Roses is the fact of their being invariably described in the raiser's catalogue in grand and superlative terms. Every fresh introduction is, according to him, thoroughly distinct from existing kinds, or a great improvement on older varieties. Purchasers get tired of these misleading descriptions, and when it comes to paying from 4s. to 12s. for so-called new or improved varieties, only to discover them to be far inferior to many they already possess, it is no wonder there is not nearly the same eagerness to buy new Roses as was the case a few years back. Most growers prefer to wait and see which really are the sterling sorts. As a specialist among these beautiful flowers, it has been necessary for me to purchase the new Roses more extensively than many can afford to do. My object in this paper is to give my readers the benefit of dearly-bought knowledge by naming the best for the years 1884 to 1889. On reference to the books I see I have purchased over 350 varieties during the six years named above, and the following list is the cream of the lot. I have marked the best eighteen Teas and Noisettes, also the best twelve Hybrid Perpetuals thus *, and these may be considered as really first-class, and can be recommended with confidence:—

ALPHONSE SOUFFERT (H.P.).—Bright rose, a free bloomer and very large; vigorous grower.

***AUGUSTINE GUINOISSEAU (H.P.).**—Undoubtedly one of the very best Roses, and truly described as an "almost white *La France*." It is one of the finest pot Roses we have, very sweet and free blooming, if anything finer than *La France*.

ADELE DE BELLAIRE (T.).—Peach colour, the base of the petals shaded with very warm yellow, reverse of petals pale rose; good free habit.

ABBE THOMASSON (T.).—Coppery yellow is a good description for this; it is lighter on the edge of the petals, not very large, but a splendid climber and free flowering.

ARCHIDUCESSE MARIE IMMACULATA (T.).—Flowers standing well above the foliage on a short stem, are very globular, and in colour favour those of *Mme. Lambard*, but far sweeter scented, almost rivaling those of *Sacres*.

BENOIT COMTE (H.P.).—Bright red, slightly tinged with vermillion, large and globular. Very strong grower and a good late Rose.

BUNNERT FRIDOLIN (T.).—One of the darkest carmine Roses in this class, deeper in centre, and slightly tinged with orange on the edges. Fair form and a good climber.

CAROLINE D'ARDEN (H.P.).—Soft rosy pink, large, fragrant and of excellent habit, but sometimes comes rather coarse.

CLARA COCHET (H.P.).—Clear satiny rose, large, and very vigorous grower.

COLONEL FELIX BRETON (H.P.).—Deep velvety red, shaded with claret; a distinctly new colour and very vigorous.

COMTE DE PARIS (H.P.).—Shaded crimson, tinged with purple and vermillion, good shape.

***COMTE HENRI RIGNON (H.T.).**—Coppery yellow, tinted with salmon, growing lighter as it opens, fair size and shape; very free blooming, and will make a good pot Rose. Thoroughly distinct. A cross between *Ma Capucine* and *Baroness Rothschild*.

***CLEOPATRA (T.).**—Pink, edged with light rose; the buds are very long and pointed, opening into a

grand and large-petalled flower; one of the prettiest introductions for a long time and most distinct.

CHATEAU DES BERGERIES (T.).—In the way of *Isabella Sprunt*, but fuller and more globular.

***CLIMBING NIPHETOS (T.).**—This is a climbing variety of that beautiful white Rose *Niphetos*, growing quite as strong as *Maréchal Niel*. It is equally as free as the old variety, much more so than *Maréchal Niel*, and will prove our best white climber, especially under glass, where it is always good.

CLAUDINE PERREAU (T.).—A very bright-coloured *Souvenir d'un Ami*, very sweet, and a fairly good new Rose.

CANNES LA COQUETTE (H.T.).—Salmony fawn colour, a very free bloomer and of vigorous growth.

***DUCHESS OF ALBANY (H.P.).**—An intensely bright *La France*, having all the good qualities of this grand Rose.

DOLCE BELLA (T.).—Coppery colour with a rosy-blush tint, good bloomer and grower.

DUCHESS DE BRAGANCE (H.P.).—Delicate satiny rose with brighter shadings, fair size and full.

DUCHESS DE BRAGANCE (T.).—Centre a bright canary-yellow, paler on the edges; too small for exhibition, but a pretty Rose. Like the *Chrysanthemums*, Roses are too often named alike; this renders it very difficult for the amateur to know which Rose is being spoken of.

***DUCHESS OF LEEDS (H.P.).**—A highly coloured *La France*, quite distinct from *Duchess of Albany*; petals very thick and shell-like, a good garden Rose, and lasts a long time when cut. A free bloomer with very handsome foliage.

DR. GRILL (T.).—Pale rose with bronzy shadings, back of petals clear rosy colour; a most distinct and pleasing Rose.

***DUCHESS D'AUERSTADT (T.).**—This is pale yellow in the bud, but turns to a nankin colour as it opens; quite a new colour and likely to prove one of our best and most useful Teas. A good climber.

ECLAIR (H.P.).—Vivid red, good size, full, and a splendid Rose.

ELLA GORDON (H.P.).—Bright cherry colour, large.

***EARL OF DUFFERIN (H.P.).**—Brilliant crimson shaded with velvet, very large, of most perfect shape, a vigorous grower with large and handsome foliage; really first-class.

***ERNEST METZ (T.).**—Light rosy-carmine, centre deeper with the petals brighter underneath, carries its flowers erect, an excellent grower, and one of the best show Teas.

EDOUARD GAUTIER (T.).—Very pale yellow, outer petals white and slightly rose-tinted, good shape, but a wretchedly bad grower.

***ETHEL BROWNLOW (T.).**—Bright salmon-pink with sometimes a shade of yellow at the base of the petals, which are large and grandly built up, of most exquisite shape, after *Catherine Mermet*. This Rose, although only introduced in 1887, has already won its way to the top list of Teas; if thinned out it forms a splendid exhibition Rose. Like *Mme. Lambard*, it varies much in its ground colour.

***GLOIRE DE MARGOTTIN (H.P.).**—Intense scarlet, exceptionally free blooming, not large, but of a beautiful pointed shape, and not liable to fly open in the sun; one of the best either for the garden or indoors; a splendid grower, but rather rambling.

GLOIRE LAONNAISE (H.P.).—Very pale lemon-yellow, good size, and pretty for button-holes in the bud state. This is almost an evergreen Rose and very vigorous; the only yellow Hybrid Perpetual.

GRACE DARLING (H.T.).—Creamy-white, tinted and shaded with peach, full and globular, very free-flowering, both early and late, quite distinct.

GLOIRE DE POLYANTHA (Polyantha).—Deep rose, white at base of petals; very pretty and charming.

GOLDEN FAIRY (Polyantha).—Bright fawn-yellow for ground colour, lighter at the edges of petals.

GRAND MOGUL (H.P.).—A very dark rose; same shape as *A. K. Williams*, but distinct and much darker, shaded with deep velvety purple; very vigorous.

GERMAINE CAILLOT (H.P.).—Rosy-flesh, centre tinted with salmon; large, full, and good shape, with long buds, but a bad grower.

***GUSTAVE PIGANEAU (H.P.).**—Carmine-lake, very brilliant; one of the largest Roses grown, full, good shape and habit; sure to become a popular Rose.

HER MAJESTY (H.P.).—Clear bright satiny-rose, immense in size; opens well during fine weather, and flowers freely when well established. It is the strongest and stoutest grower we have, with very handsome foliage, but much liable to mildew.

***HENRIETTE DE BEAUVEAU (T.).**—Bright clear yellow, sweet-scented; very free-blooming, and one of the best yellow climbers.

J. D. PAWLE (H.P.).—Rich velvety crimson, with darker base tinges; the darkest of any Hybrid Perpetual.

JOSEPH METRAL (T.).—Dark magenta, changing to purplish-cerise; opens well and is of good size.

***KAISERIN FRIEDRICH (T.).**—A clear yellow, coming brighter or deeper coloured according to situation; the petals are tinged with clear carmine; very pretty, and a grand climber.

***LADY ARTHUR HILL (H.P.).**—Quite a new colour in Roses, being a beautiful rosy-lilac; large, full, and of perfect form; free-flowering, and one of the best new Roses.

LADY HELEN STEWART (H.P.).—Bright cerise, shaded with scarlet; sweetly scented; a good grower and bloomer; quite distinct.

***L'IDEALE (N.).**—Yellow, splashed with beautiful metallic tints of copper and gold; if thinned comes to a good size; very beautiful and distinct; grand for cut flowers.

LITTLE DOT (Polyantha).—White, centre pale salmon-pink.

***LUCIOLE (T.).**—Bright carmine-rose, splashed with saffron-yellow; the base of the petals has a coppery tint. It is free-flowering, bears very long buds, and is a most charming Rose.

MME. HENRY PERIERE (H.P.).—Bright red, with deep crimson shadings; full and large.

MME. JOSEPH DESBOIS (H.P.).—Fleshy-white, with rosy-salmon centre; extra large.

***MME. HOSTE (T.).**—Yellowish-white, base of petals a deeper yellow; large and fairly full; most perfect form; free, and a good grower. This variety is superb.

***MME. DE WATTEVILLE (T.).**—Salmon-white, each petal bordered with pretty rosy-pink; a most prolific bloomer; thoroughly distinct, and one of the best Tea Roses.

MME. HONORE DESFERESNE (T.).—Dark yellow; reverse of petals coppery.

***MME. ETIENNE (T.).**—Edges of petals rosy-pink, pure white in centre; a bold and full flower of perfect shape.

***MME. PIERRE GUILLOT (T.).**—Pale yellow, with orange tints; edges of petals a rosy crimson; quite distinct; partaking of both *Mme. de Watteville* and *Wm. Allen Richardson* in colour; large, and free-flowering.

MME. SCIPION COCHET (T.).—Pale yellow, deeper in centre; very sweetly scented; large, and a good grower.

***MRS. JOHN LAING (H.P.).**—Colours of satiny pink, most perfect shape, lasting a long time, blooms early and late, is sweet scented, and always opens good; without doubt the best Hybrid Perpetual Rose sent out for many years. This new Rose obtained the gold medal as being the best Hybrid Perpetual Rose in the whole exhibition of the National Rose Society last year.

***MRS. JAMES WILSON (T.).**—Pale lemon-yellow, with rosy margins when grown in the sun; in shape, size, and growth this is identical with the grand *Catherine Mermet*, and is extra good.

MRS. JOSEPH GODIER (T.).—Rosy carmine, with slight metallic shading, large and well formed, one of the sweetest scented Roses grown.

MR. JAMES BROWNLOW (H.P.).—A new shade of bright carmine, very sweet, large, good form, grand for exhibition.

MME. DE LA SEIGLIERE (H.P.).—Silvery rose; a very delicate, large, and full flower.

MARY BENNETT (H.P.).—Rosy cerise, bright fine form, and free flowering.

MADAM DE LA MISE (H.P.).—A white sport from *Lady M. Fitzwilliam*, not quite so full as its parent.

MONSIEUR TRIEVOZ (H.P.).—Bright rose, shaded with carmine, of fine form, and a very vigorous grower.

***PRINCESS BEATRICE (T.).**—Outer petals rosy yellow, centre rich golden yellow, long buds, opening into a well-shaped flower; free blooming, and a good pot Rose.

PRINCESSE L. D'ORLEANS (H.P.).—Fresh satiny rose with silvery edges; very pretty.

***QUEEN OF QUEENS (H.P.).**—Pink, with light blush edges, large, very free; a splendid habited Rose, and quite distinct.

QUEEN OF AUTUMN (H.P.).—Crimson, tinted with rosy lilac, free, nicely shaped; a good Rose late in the season.

SILVER QUEEN (H.P.).—Silvery blush, rosy in the centre, fair size and shape; a good grower.

SIR ROWLAND HILL (H.P.).—Deep port wine colour, shaded with deep crimson, changing to a ruby-claret shade; a very beautiful Rose in dull weather, large, full, and a vigorous grower.

SOUVENIR DE JOSEPH PERIERE (H.P.).—Velvety red, with deep crimson edges, large, good form, free, and a fairly good grower.

***SOUVENIR DE S. A. PRINCE (T.).**—A sport from *Souvenir d'un Ami*, exactly like that variety except in colour, which is pure white.

SUNSET (T.).—Very deep apricot, fair size, beautiful in bud, coming best in autumn; a good pot Rose.

***SOUVENIR DE ROSIERISTE GONOD (H.P.).**—Cherry red, full, free, and of fine form; a splendid grower.

***THE QUEEN (T.).**—Pure white, same size, shape, and growth as *Souvenir d'un Ami*, very sweetly scented, and a splendid Rose; one of the best for pot culture.

***THE BRIDE (T.).**—White, most purely so when fully expanded; large, good shape, free bloomer.

THE PURITAN (H.P.).—Slightly yellow when first opening, turning to pure white as it ages, very large, and too double for outdoor use; has a magnificent Magnolia-like scent.

WHITE PERLE (T.).—A pure white sport from *Perle des Jardins*, with strong upright stems and very handsome foliage.

RIDGEWOOD.

FLOWER GARDEN.

SNOWDROPS.

THE Royal Horticultural Society has held meetings and conferences devoted to many of our most popular garden flowers, and it is pleasant to think that even the modest Snowdrop has not been forgotten. It is only comparatively a few years ago since the common single Snowdrop



Galanthus Elwesii globosus.

(*G. nivalis*) and its double-flowered variety represented the genus *Galanthus* (Milk Flowers) in most of our gardens. Now and then one might perchance come across a tuft or two of the Crimean Snowdrop (*G. plicatus*), with its broad plaited leaves and larger flowers, but even so its existence here and there only seemed to make the preponderance of *G. nivalis* the more evident in our gardens.

Now-a-days, however, while the central fact remains that our possibly native Snowdrop is by far the most abundant, forming often a "milky way" in our gardens, orchards, paddocks, and woods in early spring, yet we have now many other species and varieties of the Snowdrop of other lands to keep it company. One of the first amateurs to collect and to take up the culture of Snowdrops was the late Rev.

H. Harpur Crewe, of Drayton-Beauchamp, near Tring, who brought together many kinds. He cultivated them with much success, and often wrote of his treasures to this and other of the horticultural journals. The late Mr. Atkins, of Painswick; Mr. Geo. Wheeler, of Warminster; and Mr. Backhouse, of York, also helped to increase the cultivation of the Snowdrop. At the present time we have Mr. Allen ("Jay Aye"), who is probably the greatest living authority on the garden varieties of Snowdrops; Mr. W. Boyd, of Melrose, N.B.; Professor M. Foster, of Shelford; Herr Max Leichtlin, of Baden-Baden; Mr. T. Smith, of Newry; Mr. F. W. Burbidge, of the University (Trin. Coll.) Gardens, Dublin, and many others who take an



Galanthus Melvillei and *Elwesii*.

interest in and collect all known variations of these modest flowers. Whereas fifty years ago only *G. nivalis* and *G. plicatus* were known in English gardens, we can now boast of no less than eight species and their varietal forms, and six out of these eight species are fairly established in cultivation as well as in books.

Before proceeding to enumerate the species, I should like to say that all the Snowdrops are sweet-scented in a warm room, even the common *G. nivalis*, but *G. Fosteri* is perhaps the most grateful of all in that way. We may enumerate the Snowdrops as follows:—

G. NIVALIS.—A variable plant, found all over Central and Eastern Europe, from the Pyrenees to

the Caucasus. It has two sub-species, viz., *G. Imperati* of Naples and Genoa, which Matthioli is said to have illustrated as early as 1575, or a year earlier than Matthias de L'Obel illustrated the common *G. nivalis* in his "Historia," published at Antwerp in 1576. The second sub-species is *G. caucasicus*, which, while somewhat resembling *G. Imperati* in flower, has bolder leafage, not quite so tall, and it comes into flower, as a rule, a month later.

G. PLICATUS, which is far less variable than *G. nivalis*, and easily distinguished from all known species by its broad plaited leaves, their margins being bent underneath or re-duplicated in a marked and peculiar manner. It is from the Crimea and the Caucasus.

G. GRÆCUS.—This is one of Orphanides' species, and is said to be similar to *G. Elwesii*, but it is not in cultivation, I believe, and is rare in herbaria.

G. ELWESII.—A very distinct Snowdrop, first found by Balansa in 1854 on mountains in Asia Minor, and introduced by Mr. H. J. Elwes in 1878. As seen at its best this is very large and of purest whiteness, the three cylindrically arranged petals being heavily marked with green at their base as well as at their apices. It does not increase freely, and on some soils dies away altogether.

G. OLGÆ (= *G. Olgæ Regine*, Hort.).—This is another species named by Orphanides, and, like *G. græcus*, is of Greek origin, but is, so far as we know, not at present in cultivation. It has been thought by Herr Max Leichtlin and others to be that early blooming form of *G. nivalis* named *octobrensis*, but Mr. Baker maintains it is a distinct species, not having green spots or markings on the petals.

G. LATIFOLIUS.—One of the most distinct of all the species, and introduced to gardens a few years ago under the erroneous name of *G. Redoutei*. It has glossy bright green leaves and small white flowers. A larger form of this plant introduced from Austria, and distributed by Mr. Allen as *G. latifolius major*, has glaucous leafage and larger flowers, and has recently been named *G. Alleni* by Mr. J. G. Baker, of Kew. *G. latifolius* is found at 6000 feet to 8000 feet on the Caucasus.

G. FOSTERI.—This is a distinct plant from Amasia, in Central Asia. It has the foliage of *G. latifolius* and flowers very similar to those of *G. Elwesii*; hence it has by several cultivators been supposed to be a native hybrid between those two species. When well established the flowers are very large, the internal green markings being rather paler in hue than those of *G. Elwesii*. It is, perhaps, the most fragrant of all the Snowdrops, although *G. nivalis* is also very sweet-scented in a warm room.

G. ALLENI, as stated above, has quite recently been named by Mr. Baker in compliment to Mr. James Allen, of Park House, Shepton Mallet, a gentleman who has raised several hybrids and many fine seedling Snowdrops in his garden. My own view, and that of other growers, is that it is merely a very fine variety of *G. latifolius*, having glaucous leaves instead of green ones.

Apart, however, from the botanical species of *Galanthus*, there are many wild as well as cultivated varieties which interest the cultivator as much on the one hand as the species interest the botanist on the other. Thus in *G. nivalis* we find forms, especially from the Greek mountains, which flower in autumn or during the winter months instead of in spring. The varieties that do this are *G. octobrensis*, *G. coreyrensis* (= *G. præcox*), *G. Olgæ*, *G. Rachelæ*, *G. Elseæ*. They all appear to vary slightly from each other in leafage or blossom, as well as in time of flowering, but are doubtless nothing more than climatic forms of the common Snowdrop. There are two yellowish Snowdrops, both found in English gardens, viz., *G. lutescens* (Allen) and *G. flavescens* (Boyd). These have yellow ovaries and yellow markings on the inner petals instead of green ones, and flower in spring along with the ordinary kinds. A few

years ago a pink or rosy lined Snowdrop was sent to the editor of this paper, but on subsequent inquiry it is believed that the blooms had been experimented upon by watering the roots with a solution of cochineal.

G. virescens is a greenish Snowdrop, and *G. Scharloki* is a wild Austrian form, having a much divided leafy spathe. Of *G. plicatus*, there are larger and smaller forms, such as *Boydi*, *Chapeli*, *major* and *maximus*, and there is at least one variety having the inner segments entirely green except their margins. In this matter of size all the species vary, and I once saw in the College Gardens, Dublin, a scape of *G. Elwesi* bearing four flowers and buds.

Wherever Snowdrops like the soil and climate they generally seed freely, and among the seedlings which occur at Dunrobin, N.B., considerable variety is observable, and by carefully searching among seedling Snowdrops, very interesting forms may now and again be secured. At the present time there are at least fifty or more

this particular Snowdrop, and is stark, staring mad. I think I might meet with Mr. Boyd, for he has strong inclinations about it which are very similar to my own. Mr. Burbidge seems to be in some peril from what he says, and other names might be given of the admirers of this particular flower in an uncommon degree. But there is one thing in Mr. Gumbleton's letter which I cannot help noticing. He harks back at once to the point of view of a nurseryman, and it is there that I part company with him altogether.

With Mr. Allen, of Shepton Mallet, to whom some of your correspondents have referred, the case is very different indeed. I should like to sit at his feet and imbibe the Snowdrop lore which he knows so well how to impart. Either from a scientific point of view or about the matter of Snowdrop culture his word is final at once. I am deeply indebted to him. Just now nearly thirty of his extremely beautiful seedlings have been in my hands, and

knight who braves the storm. The former came out when the sun was shining, and might have stared *Narcissus cyclamineus* in the face, or nodded to *Muscari lingulatum*, or wept over the departing loveliness of *Iris Bakeriana*; the latter stood almost alone in my garden in dark and dreary days, the undisputed harbinger of spring. I admire the courtiers very much indeed, but I cannot help confessing that I have a great drawing towards the knight. And this leads me again to Dr. Forbes Watson's essay upon Snowdrops, from which my inspiration has been very greatly derived. I beg those who think I have been writing nonsense to ponder on the following words: "A Snowdrop is not to me merely such a figure as a painter might give me by copying the flower when placed so that its loveliness shall be best apparent, but a curious mental combination or selection from the figures which the flower may present when placed in every possible position and in every aspect which it has worn from birth to grave, and coloured by all the associations which have chanced to cling around it."

I can only read that as giving me a different and a better standard of judgment than that which commonly obtains. If a painter were to come to me and say, "I want to copy the most beautiful Snowdrops which can be found in the wide world," I should send him off to Shepton Mallet at once; but if Dr. Forbes Watson were to revisit this earth and to ask if any Snowdrop has appeared in these latter days which markedly complies with the ideal he has given to us himself, I should turn to some one of the natural species which are grown in my garden and I should without any hesitation fix on *Galanthus Fosteri* as being the nearest approach to it. The words I used the other day were that "it fulfils its mission entirely," and to them I adhere, for it seems to me most singular to note how Dr. Watson's language has been illustrated by this Snowdrop more than by any other I know of. He had prophetic glimpses of it at every turn, I am sure. His ideal Snowdrop is to appear "at the end of January when the winter is closed, or at least its main strength broken. The snow is thawing, the sky overcast, not a single cheering sunbeam is visible, yet one single Snowdrop has ventured forth, and there it stands alone in its purity," &c. My little protégé was decidedly "the flower that first in the sweet garden smiled." Its "snowy bells" were ringing when not a sound was heard from any of its companions and friends save one. I never can forget that it broke the spell of the most horrid winter I ever remember to have endured.

The shape which Dr. Watson requires has been given before, and Mr. Smith hits off this quite accurately in your last impression when he speaks of the "elongated perianth segments," for it is just these which make the falling dewdrop look and which are so different from being globose, and are therefore so pretty to look on. Another of Dr. Watson's characteristics is, oddly enough, the green beak at the end of the leaves, and certainly no Snowdrop in my garden is so well beaked as this one. But I did not mean to be drawn on at this length. Exactly at the time when I had been for a long while watching *Galanthus Fosteri* day by day, and I might almost say hour by hour, Mr. Smith's first letter in your columns appeared, and the drift of it was to imply that it was an over-praised and over-valued little plant. The conclusions to which he came were the exact opposite of those which others had arrived at, and sheer gratitude which I felt towards the flower led me to reassert the estimate to which Max Leichtlin had come in the first



Galanthus plicatus major.



Galanthus Elwesi major.

varieties in existence in English gardens, as against the two or three known fifty years ago.

It may not be generally known that the Snowdrop forms a considerable industry in some parts of Lincolnshire, where smaller or larger breadths of the bulbs are grown by cottagers, farmers, and others for sale—regular dealers driving about at certain seasons in order to purchase the bulbs. The deep black fen soil seems in general well suited to the growth and increase of the bulbs, which are dug every two years, the large roots being sold and the smaller replanted for a future crop.—*GALANTHUS.*

— If it is not too late for it, may I say a word more about *Galanthus Fosteri*? Your correspondent Mr. Gumbleton would, I fear, consign me to a lunatic asylum because I like it so much (*vide* his letter in your impression of March 7), but I have some consolation in the thought that I should meet with quite a pleasant little horticultural coterie in that undesirable retreat. Herr Max Leichtlin would of a certainty be there if the above authority is right in his ideas. It is clear that he has gone quite off his head about

I have had them blossoming here. One of the greatest of my gardening responsibilities is in the fact that I have some two or three bulbs to take care of for him of which no duplicate exists. I do not know that there ever has been such a flutter about a thing of that sort among the ladies of this part of the world as Mr. Allen's Snowdrops called forth. I verily believe that some of my neighbours would have walked a mile and a half into Ryde if they could have purchased them in the High Street as a matter of course, and they would have planted them in their gardens with their own hands, which have been quite contrary to all their usages and ways. Alas! only that disillusion came upon them completely and suddenly.

But how then can *Galanthus Fosteri* be even mentioned in such splendid company as this? My answer is that it stands upon quite a different plane, and two different things should not be muddled together. If I may make a very queer comparison indeed, I should liken Mr. Allen's seedlings to the well-dressed courtiers of a drawing room, and *Galanthus Fosteri* to a

instance with regard to it, though perhaps upon rather different grounds. I can quite understand what he means when he looks forward with certainty to its improvement in the future. I saw with my own eyes such magnificent dried leaves on the Continent, so very much larger than anything which I have ever seen in the way of Snowdrop foliage in England, that I can believe anything of it, and I have thought and said as much during the last winter. We must treat it empirically for the next two or three years, and this little bulb will respond to the attention, I am sure. It is to be admitted, of course, that some time must pass before this particular Snowdrop is seen at its best, but that does not in the least preclude a very confident forecast about it from what we have now before our eyes, and the letter of Mr. George Paul in your last number might settle the question altogether. He notices the length of the petals which I admire so greatly, and he also says that some left-behind bulbs in an old border are already simply wonderful. With regard to the fresh green colour of the leaves, I find there is a strange difference of opinion. Unfortunately, Mr. Allen does not like it at all, while others are much taken with it. It exactly resembles the fresh green colour of the leaves of *Galanthus latifolius*. But then this Snowdrop, if I may say so, is out of the running altogether, because it does not at present do its duty in England in point of earliness. It is certain that *Galanthus Fosteri* varies a good deal. Mr. Boyd says to me in his letter about it (and there are few, if any, better Snowdrop growers than he), "I quite agree with you in thinking *G. Fosteri* a valuable variety; in the first place, it flowers very early, which is a great thing, and there seems to be a very great variation in the shape of the flowers; some are very good indeed, and I think will improve by cultivation." The markings also differ very much. I have a bulb from Mr. Allen of which the spots in the flower were unlike anything else I have seen. Peradventure this may explain the assertion of "K.," for at first I thought we were not referring to the same things at all.

I have just now had a letter from Max Leichtlin dated March 9, in which *inter alia* he says, "*Galanthus Fosteri* has nothing to do with *Elwesi* or *Elwesi globosus*, and I do not think it is a hybrid between *latifolius* and *Elwesi*. I think it is a *latifolius* transformed by evolution, adapted to a different soil and character." I can understand that, though it is a little singular perhaps that evolution should have taken in hand one of the latest of all Snowdrops and transformed it into one of the earliest. Let me only say if I have seemed to compare one Snowdrop with another, the last thing I ever meant was to depreciate any of them. How much I am beholden to each and all of them I cannot say; and if it is true that comparisons are odious, they certainly are so where flowers are concerned; but assuredly if anybody has ever known what it is to pine and languish for some ray of consolation during the dark dead season of the year, and for eight or ten weeks almost to have had to get on without bud or blossom of any sort, he will welcome *Galanthus Fosteri* as a star of hope amidst the gloom of winter, and attach a value to it for its own great intrinsic merit in the first place, and in the second for the circumstances under which it sees fit to gladden us.—H. EWBANK.

— So prevalent is the idea that size is necessarily an element of beauty in a flower, that the first view of *Galanthus Fosteri* is a disappointment. Herr Max Leichtlin considers this the king of Snowdrops, and thinks that under cultivation it will prove the finest of the family. The fine bulbs

with which I was favoured last autumn were collected ones, and, of course, do not do the variety justice, but from present appearances they must improve very materially before they produce flowers to equal those of *G. Elwesi* in mere size. However, this is a beautiful variety of *G. latifolius*, with firm Scilla-like foliage, and sepals which seem scarcely as broad as those of good specimens of *G. Elwesi*. The perianth-segments are pure white, with a slight line of green under the notched edges and a dot of green at the base of each petal—a most charming interior.—J. N. GERARD, in *Garden and Forest*.

— It is surely an error to say that *Galanthus nivalis*, *G. plicatus*, and *G. latifolius* form the backbone of the genus *Galanthus*, and that all the other kinds are seedlings. *G. Elwesi*, I should think, is as distinct from *G. plicatus* as the latter is from *G. nivalis*. *G. plicatus* is a well-known form, differing from all other Snowdrops in its folded leaves and bulbs. *G. latifolius* differs from all other Snowdrops not only in its broad, bright green leaves, but also in the anthers being ovate or blunt. In *G. Elwesi*, for which I claim specific rank, the anthers are not only apiculate, but the filaments are fixed dorsally and in all the others, so far as I know at present, with the exception of *G. Fosteri* and, may be, *Alleni*, the filaments are basi-fixed.

SELECTIONS AND COLLECTIONS OF PLANTS.

THERE is a deal of truth in the simple remark made by Mr. Elward Fison in THE GARDEN, February 21 (p. 163), where, in a note upon *Primula rosea*, he admits that it is a mistake to aim at a great collection of plants, but wise to be content with fewer things, and these of the best, and grown in quantity. The collection is all very well for the botanic garden or for the specialist, but to those who have and maintain gardens for the beauty and pleasure they may have from them, who seek to make them bright and beautiful with seasonable flowers, the collection of plants comprising all and sundry of varied merit and usefulness is a great mistake. It debars the creation of finer, nobler floral features, it involves a lot of time, and even when at its best, beauty is obscured in complexity, its scattered units have no harmony of relationship or association. It would appear that generally even hardy plant culture in our gardens has been more with a view of forming collections more or less complete; hence the absence of new, novel, or striking features in this department of the garden. The great fault of the bedding system was its exclusiveness. There were but few things amenable as it used to be carried out; consequently everybody grew them; and if there were slightly varying methods of arrangement, the same plants were present in all or most cases, and a standing proof to the charge of similarity and monotony brought against gardens of this type. Similarly in many gardens there are mixed borders of hardy plants filled in much the same manner. The plants may be the best of their kind, but they are in units, and give but a faint idea of their capabilities when well and extensively grown. I do not wish to disparage the collection. It is interesting in its place as a kind of reserve garden or a minor feature. Its weakness is apparent when we see it in a prominent position, where many who do not know better regard it as a full embodiment of all that is interesting and pretty among hardy plants, an example of how they should be grown. If then it is to be a minor feature, it follows that it must be of secondary consideration. The first and most important matter should be to make a wise and judicious selection of the things that are to be the more prominent features of the garden, guided by soil, situation, and aspect. We know that among things which are hardy selections can be made, whether the position be in the valley and by the water-side, or on the hill-top. These mark the two extremes, and these as well as the medium positions have their distinctive types of suitable characteristic vegetation.

Soils, too, must be taken into consideration when these are of an extreme nature. I cannot see the wisdom of attempting to grow *Rhododendrons* and *Azaleas* upon a soil that contains and rests upon

chalk. It is attempting the impossible and courting failure, and yet there are those who will take great trouble and incur much expense in preparing beds of peaty soil wherein to grow these shrubs, and if they succeed it is only for a time, whilst all through they are keeping out more suitable subjects. This is obviously a case of unwise choice, and so is that which chooses for the hillside or top the trees and shrubs that only succeed in the deep alluvial soils of the sheltered valleys. Looking at our plantations of trees and shrubs first because they are the most prominent features, and having regard to the varied tree and shrub life suitable for planting, it is hardly the collection that is in fault, because the acres of Box, Laurel, Privet, and Snowberry that smother some of our large places represent some of the worst aspects of gardens, and if they were cleared it would be easy to make a selection of fine flowering evergreen and deciduous trees and shrubs that would fill the space and have some interest and beauty above and beyond their use in providing shade, shelter, &c. But whatever is done with trees and shrubs, the principle of selection should be strongly brought to bear upon the creation of the floral features of our gardens. The old notion of a set flower garden upon one side of the house has been wholly or in part given up, and instead of congregating gaudy flowers in one place, we have learned the wisdom of utilising special spots or aspects, sunny or shady, moist or dry, in and about our gardens by growing the plants that we know will thrive there. There is considerable variety of aspect in some places, and it is a charming garden indeed where this is made the most of, as it admits of many special, but variable selections of plants being grown. On the other hand, there are gardens where opposite conditions prevail, where few families of plants are really at home, and yet how beautiful they are when the most is made of them. The advantages derived from making special features with plants particularly adapted to prevailing natural conditions are great. If more was done in this way our gardens would have a marked individuality, and we should not see the plants which love the moisture of the valleys languishing on the hill-tops. One such garden occurs to me that has three special seasonable features in spring, summer, and autumn. The spot is on a hillside and the soil is heavy. Pansies of the tufted section are the great spring feature, filling beds and borders, covering them with clouds of soft and lovely colours in association with Tea Roses and Carnations, which are extensively planted after being proved and selected. These two flowers are the great summer feature, and they last through the autumn, which sees the Starworts by the thousand, filling all the thin and newly-planted shrubberies, growing freely and without more support than they obtain from the shrubs upon which they rest their slender shoots, and covering them with cushions of blossom. It is a charming sight to see these shrubs covered thickly by a graceful waving mass of Starworts of soft and lovely hues so clear and pretty in the subdued light of an autumn day. As in this garden, so in many more the most might be made of opportunities, and less time wasted over the fleeting things that last for the season only. A. H.

Choice double Primroses.—I read with great interest the article signed "A. D." in THE GARDEN of the 28th ult. on the subject of the double crimson Primrose (*Pompador*). He says it would be interesting to know where this beautiful plant can be found even by the score in Ireland or Scotland. I was in a rectory garden last week at Blackrock (about four miles from Dublin) where the gardener has the *Pompador* Primrose actually by the hundred. I saw them last April when in full bloom, and it was a sight not to be soon forgotten, and even last week some of the blooms had fully expanded; they are planted in long lines in a rather shady border sheltered by a Privet hedge. The gardener worked up this large stock from a few plants, and he disposes of them at the price of 18s. a dozen. For my own part I succeed far better with the *Pompador* Primrose than with any other

double varieties. I can never succeed with Cloth of Gold; it dwindles away into nothing. It would be interesting to know through the columns of THE GARDEN if any readers ever come across the old double tortoiseshell-coloured Primrose. I do not mean the Polyanthus of that colour, which is comparatively common in Ireland, but I allude to the old-fashioned double Primrose in two shades of brown. I often hear old people speak of a double coral-coloured Primrose of their childhood, but I have never come across it.—W. A. G., Rathgar, Ireland.

Cordylone australis.—The engraving of the grand specimen of the above in a recent issue of THE GARDEN has undoubtedly filled many of us with admiration, perhaps with envy, for exceptionally fortunate must be the possessor of such a gem after such a winter. I hope it will assist in stimulating and encouraging us, even after our losses and disappointments, to again plant it, selecting with extra care positions sheltered from cutting winds, &c. Probably it will not be the lot of some of us to behold again such specimens as the past winter has so ruthlessly destroyed; still that probability should not cause us to relax our efforts in planting such distinct and noble subjects, as should they survive they will beautify the landscape for coming generations and prove a source of pleasure and admiration to our successors. I for one am not quite disheartened, though fine specimens here have been killed to the ground, if not outright. I intend to plant in the most suitable positions and as free from exposure to the cutting east winds as I can select, and hope others in mild districts will do likewise.—J. R., Merioneth.

Cheiranthus alpinus.—In "E. J.'s" interesting article (p. 225) on "Alpines for Masses," he speaks of *Cheiranthus alpinus* as "not easily rooted from cuttings by everyone." I find it very free indeed to strike if cuttings or slips are taken off just when the flowers are getting past their best and put in ordinary garden soil (light) under a north wall, with a handlight placed over them and kept close for a time. I put in several cuttings in this way last year and did not lose one; some of the best of them are now neat little cushions about 9 inches in diameter. A group of about a dozen such plants is a very striking object when in flower, and it never fails to elicit admiration and not a few inquiries as to what it is, for it appears to be far from well known. It certainly should be largely grown in places where it will succeed, for in addition to its value for grouping in the mixed border or in a nook to itself, it is perfect as a carpet to many other spring-flowering plants with which its soft yellow flowers will associate; while, directly flowering is over, its propagation might be carried out and the old stools taken away or left as desired, for its small proportions prevent its becoming a nuisance and choking other things. Two things I find it likes are a sunny position and a light soil that is not too rich.—J. C. TALLACK, *Livermere*.

Root propagation of perennials.—The article upon the above by "E. J." in THE GARDEN of February 21 (p. 162) is both interesting and instructive, and imparts valuable information to those who have been at a loss how to increase their stock of such plants as *Stokesia*, *Senecio*, *Statice*, &c. Several years ago I tried some experiments with different kinds of roots, and amongst the most successful were *Senecio pulcher* and *Aralia papyrifera*. *Nicotiana affinis*, too, is easily propagated in this way; in fact, during mild winters when frost does not penetrate deeply the roots live in the ground and grow and flower the following season. In the course of my experiments with root cuttings I did not stand them up, as advised by "E. J.," but laid them flat upon the surface of shallow pans of soil and slightly covered them. I think, however, for obvious reasons that "E. J.'s" plan is a better one, having advantages when the roots are afterwards potted or boxed off, as the growth of both root and shoot is perpendicular. I was not aware that the white Japan *Anemone* and the *Helenium* were amenable to this method of increase until, having once removed some groups of each and divided and transplanted the plants elsewhere, I found a quantity of

young plants appeared where the old ones had been, and in the case of the *Helenium* they grew so freely that they came into flower early in the autumn when the older plants were past their best, and kept on till severe frost came. This was the dwarf *H. pumilum*, a plant of great value. So far as I have tried, the best roots for the purpose have been those of medium size. It is possible to have them too thin, and also too thick. When I tried *Nicotiana affinis*, *N. tabacum* was also tried, but failed, I believe, because the roots were too large and woody. It is certainly well to know what plants we can propagate in this way, because in some cases the practice becomes of particular value and assistance, and it is a valuable aid even in the case of plants that can be divided when a large stock has to be quickly worked up. In dividing or even in lifting the plants a lot of roots must of necessity be sacrificed so far as the plant is concerned, but if it is a subject that will succeed from root cuttings, then they can be used for the purpose.—A. H.

CARNATIONS IN THE OPEN AIR.

THE past winter was severe enough to test the hardiness of any plant, and it is, therefore, doubly satisfactory to receive such good accounts of the healthy state of Carnations wintered in the open ground. I never remember to have seen them look better at this time of the year, a period generally when they look their worst, because no fresh growth has been made to compensate for any loss of foliage the plants may have sustained during the cold. There has been, as Mr. Tallack stated in THE GARDEN of February 28, very little upheaval of the ground by successional frosts and thaws, because the frost was a prolonged one. And the fact that the plants have suffered no material root disturbance contributes towards their present healthy appearance. Even upheaval does not kill them if they are reformed; in fact, the Carnation seems to have a great tenacity of life, and it commences to make new growth much earlier in the year than many plants. Already ours have made visible progress above ground, and probably a greater amount below. I believe damp is a greater enemy than cold, since it appears that a well-rooted layer or seedling plant will withstand frosts, but prolonged dampness, if it does not kill outright, engenders disease, especially among the Cloves, of which we have not one left, the dreadful spot having carried them all off long ago. It would be a great gain if we could only find out some simple means of checking or eradicating this pest as easily as we combat the mildew among the Roses.

I am pleased to see, by "J. C. C.'s" remarks at p. 223 in THE GARDEN of March 7, that he has had much better results without coddling. If memory serves me rightly, about a year ago "J. C. C." complained of the terrible loss he had sustained among Carnations during the winter, and it now appears that these were coddled plants. The majority of our plants, close upon 2000, were planted out during September and October last year, and although 2 or 3 per cent. have failed they were in all cases weakly or ill-rooted plants. Some of them went through a very trying ordeal. During one of the premature thaws a lot of snow-water drained on to a bed that was a little lower than the gravel walk, but owing to the hard frozen state of the soil the water stood upon the surface 1 inch in depth. At night severe frost again came on, the water was still there, and by morning the Carnations and also some Tea Roses were encased in ice, and remained so for a fortnight longer, more snow falling in the meantime. Ultimately they were liberated, and now it would be quite impossible to tell that they had passed through any unusual trial. Concerning the production of seed, "J. C. C.'s" experience is the opposite of mine, for I never had a better lot, although it must be admitted that it was mostly from two or three kinds, a white one, a French self being the most noteworthy for its free-seeding qualities. It is important to select the early pods, as "J. C. C." is no doubt quite aware of, and doubtless, he, like myself, has found out the need of having a watchful eye for earwigs which

will secrete themselves in the calyx, cut away the base of the seed-pod, and eat every seed it contains. A. H.

SEASONABLE NOTES ON HARDY FLOWERS.

THE RANUNCULUS.—A week or two ago I wrote of the garden *Anemone*, at page 226. The *Ranunculus* flowers later, and is equally deserving of more attention. I have gradually changed the period for planting the tubers, and find after many years of practical experience that March is the best month. If the tubers are planted earlier, cold rains, frost, and snow check their development, and if the work is delayed later they become somewhat exhausted, and the growth is sensibly diminished. I took the chance of fine weather to plant them out last week, the ground being quite dry as deep as the tubers, and the sparrows took advantage of the dry sandy loam, we placed on the surface to make dust-baths over the entire beds, in some instances scratching down to the tubers. Talk of "our feathered friends." If we do, the persistent sparrow must not be included. They leave the *Ranunculus* beds to eat the blossoms of the choice *Polyanthuses* and *Primroses*, or at least to peck the flowers to pieces and drop the petals on the ground. Our soil seems to suit both the *Ranunculus* and the *Anemone* much better than the lighter sandy soil with a gravel subsoil, such as we had in our last garden. Here the soil is naturally heavy with a very stiff clay subsoil, but with frequent trenching and digging, mixing with it mortar rubbish, and manuring with horse manure from stables where peat litter is used, the ground has been worked into a free and open condition. We now merely place some sandy soil (siftings from the potting shed) on the surface, and plant the very small tubers into it to the depth of 2 inches. I find that when there are 2 inches of soil over the crowns of the tubers, and all of them as nearly as possible planted to a uniform depth, the plants seem to grow and develop their flowers better.

THE GARDEN PINK.—Lovely, sweetly-perfumed flowers are these, and hardy enough to grow out of doors anywhere. There seems to be quite a mania for wintering Pinks as well as Carnations in pots under glass in these days. I saw a large collection this week, hundreds of fine plants all in pots under glass frames. The old florists would never have thought of growing their Pinks in that way. The laced Pink has a reddish or maroon-purple centre; between this and the margin of the same colour there is the clear white ground, and beyond the lacing a narrow margin of white. I have proved often that plants grown in pots during the winter and planted out in the spring have this marginal colour much broken up or entirely wanting. The right treatment of the Pink is to strike the cuttings (pipings, as they are technically termed by the florists) about the end of June. They are usually inserted under glass-lights. The Pink was one of the flowers I cultivated well when I was yet a schoolboy, and I propagated my plants in a shady part of the garden quite in the open air. If they become well established plants in August or September, plant them out at once where they are to flower; they thus are able to withstand the winter's frosts. The appearance of the plants would suggest that the roots do not travel far from their base, and yet they succeed much better when planted in deeply trenched and well manured soil, producing larger flowers, well and evenly laced. I place a layer of manure at the bottom of an 18-inch trench, and another good layer at half this depth, and trench the ground well up some time previous to planting. The plants, of course, are set out when the ground is in good condition. The forcing Pinks are now repaying the cultivator for all the care he can bestow upon them, or has done during the previous summer and autumn. They can be forced well when the conditions are favourable to them, that is a position near the roof glass of some house with a temperature at night of not over 50° to start with; 45° is better if we start our plants at midwinter. Cuttings should be taken now from the plants coming into flower in the forcing house; they strike very

freely in a little bottom-heat in a forcing house if covered with glass, or in a hotbed without any extra coverings at all except the glass lights. The cuttings form roots freely if planted in 5-inch pots or pans, and as soon as they are well rooted plant them out in shallow boxes about 3 inches asunder; when well established in these boxes and inured to the open air, they may be planted in a border of rich soil 1 foot or 15 inches apart. By the end of the season each plant will grow to a large clump, which may in September or early in October be potted up and placed in cold frames in preparation for forcing. J. DOUGLAS.

SPRING CULTURE OF GLADIOLI.

THERE are no instructions that can be given upon any subject but must be modified by circumstances, for in our changeable climate, where one season differs from another to so great an extent, it is not possible to give cultural directions which will be suitable for all. For instance, this year how utterly impossible it would be to begin planting, as I have advised, in the first week in March. We have

These varieties are the result of a cross between the species *G. aureo-purpuratus* and some of the *gandavensis* section. I have not seen those of the last year or two, but I am told that in such flowers as *Venus de Milo* and *Dugueslin* we have a great advance, and as Messrs. Souillard and Brunelet have taken them in hand, we may expect to see an advance in their form and colouring. Having a few from each of these raisers, I managed to secure a few fine days last week, and to get the ground in sufficiently good order for planting. They were planted in a border where there was no need for standing upon it, and as the soil was light, it was comparatively easy, but I have had no day since on which I could have done it. It is not easy to say when I shall be able to proceed with the planting of my beds of *gandavensis* hybrids, but here, as in the other case, I must be on the watch and seize the first opportunity.

It will now be necessary to look through one's stock of bulbs to see what have gone off during the winter, for they will do this in a very unaccountable way. A bulb that has looked apparently sound

which is injurious to them. In planting, the rows should be about 12 inches apart, and it is best to draw a drill, where any number are to be planted, about 6 inches deep, so that when planted the bulbs may be about 4 inches from the surface. Some coarse grit or pounded charcoal may be placed round each bulb, the drill then covered in, and the next drill made. The bulbs should be planted about 6 inches apart in the rows, although if space be a consideration, they will do well at 4 inches apart. When the bed or beds are all planted, they will require very little looking after until the time comes for staking them; the bed must, however, be kept clear of weeds, and an occasional turning of the surface soil will do no harm.

There are both French and English raisers of this section of *Gladiolus*, and it is somewhat remarkable that in each country but one raiser stands out prominently—Souchet in France and Kelway in England. Berger and others have raised a few seedlings which have appeared in the French lists, but their flowers have made no mark. Mr. Burrell and a few others have in the same manner raised flowers in this country. Some of Mr. Burrell's flowers are of very high quality, but he has not as yet catalogued any. I grow almost exclusively the French varieties, and I feel satisfied that they can hold their own with any others. The following will be found a tolerably good list of the new and more highly prized varieties:—

White.—Amalthée, Belladonna, Enchantresse, Ondine, Shakespeare, Albion. *White striped with rose and carmine*, &c.—Nereide, Mabel, Baroness Burdett Coutts, Carnation, La France, Sylphide, Archiduchesse Marie Christine. *Rose*.—Abricoté, Bicolore, Dalila, Adolphe Brongniart, Corinne, Opalé, Pasteur, Psyche, Murillo, Daphnis. *Lilac*.—Atlas, Camille, Leandre, L'Unique. *Violet*.—Caprice, Cervantes, Crepuscule. *Red*.—Grand Rouge, Meyerbeer, Dr. Bully, Flamingo, Mount Etna, Le Vésuve, Hercule, Phœbus, Pollux. *Yellow*.—Pactole, Nestor, Rayon d'Or, Feu Follet. *Miscellaneous colours*.—Conquerant, Ovide, Stanley, Lacépède, Anna, Colorado. *Very dark red*.—African, Jupiter, Tamerlane.

I have not included amongst these new or high-priced varieties. These will give variety, good flowers and beautiful colours, and I should be glad if more amateurs would take to this lovely and useful autumn flower. DELTA.

THE AURICULA IN MARCH.

DESPITE the severe and lingering frost, and what might be supposed to have been a great check to plants in pots in unheated structures—seeing they were frost-bound for a period of two months—Auriculas, and especially the alpine varieties, are making rapid progress. There has been but little solar warmth to help them on their way to bloom. My own plants are in a lean-to house on a north aspect, and but little sun falls directly upon the plants until the beginning of April is reached. But when the sun does shine, solar heat is experienced in the house, and the plants answering to the force exerted upon them make a generous growth. The alpine are earlier, and some of the plants show a promise of fine bloom. As soon as the thaw came advantage was taken of the first fine day to go over the plants, take from them all decayed and decaying foliage, stir the surface-soil, and top-dress such as needed it, and then they at once began to grow, leaping into new life and vigour with a rapidity I scarcely ever before noticed. With the advent of cold northerly winds a check has come, and with it a lowness of temperature that seems to almost arrest development. The progress the plants will make depends upon the character of the month; if it remains cold and dull it will be difficult to have the plants in flower by the third week in April. Those who can give their plants fire-heat have a great advantage over those who grow wholly in unheated structures.

Watering is a matter of the first importance, and the supply must be regulated by the weather. If cold and sunless but little will be needed; at the same time it is not wise to allow the plants to become too dry, or a decided check is administered. On the other hand, excessive



Galanthus Elwesii. (See p. 272.)



Galanthus nivalis var. *virescens*.

had here (in Kent) a great deal of snow, which is, it is true, now disappearing, but it will leave the ground so saturated with moisture that one's culture has to be modified.

The hybrids of *gandavensis* are those which are mostly cultivated for gardens and for exhibition. The early-flowering sections of *nanus* and *ramosus*, while grown in some favoured places in the open, are more generally cultivated in pots for greenhouse culture, where the purity of *The Bride* and the attractive colouring of some of the rose and scarlet varieties find an appropriate place. Of late years another division has come into notice, and although it has not as yet attained the popularity of the *gandavensis* section, yet it has one strong recommendation, viz., that it is perfectly hardy. It owes its origin to M. Lemoine, of Nancy, who has been bringing out since 1880 a series of new varieties each year. There was a harshness in the colouring of some of the earlier varieties that was not pleasing, while the shape of the flower being more cupped and less expanded than that of the *gandavensis* section lessened their attraction.

is found to be all hard and shrivelled up, and most probably the outer skin has hidden the decay beneath, and there may have been incipient disease before the bulbs were stored away in their winter quarters. It is not worth while to trouble about bulbs in this condition. It is much better to throw the bulbs away and supply their places with new ones. This loss of roots is unavoidable, and formerly, when *Gladioli* were more high-priced, it was a serious affair; but now they are to be had at so low a price, that this is not a matter of so much consequence.

I suppose the ground has been prepared in autumn, for all good gardeners, I think, manage to have all their waste ground dug and, where necessary, trenched in autumn; but should this not have been done, the place where *Gladioli* are to be planted should be well dug over. Although it will be very unadvisable to put any fresh manure on to it, this should be laid underneath about 9 inches deep, so that the roots may make their way into it, while the bulbs themselves are preserved from contact with the manure,

moisture induces rot, and it is perhaps at this period of the year that it manifests itself more than at any other. It must not be supposed it is wholly the result of unskilful treatment, for the most successful growers have to bear losses through it. A plant, apparently in the most robust health, shows signs of the leaves flagging, and those unaccustomed to its appearance among Auriculas may imagine the plant is suffering from want of water. But it is not so. Rot has seized upon the main root, and is surely travelling upwards to the heart. Attention should be given at once to it, turning the plant out of the pot, shaking the soil from the roots, examining them, cutting away the affected parts and repotting. If taken in hand at once, it is possible to have a portion of the main root sound, with some roots adhering to it, and then the chances of saving the plants are hopeful. I make it a practice to repot in a small pot, placing the plant at the side of it, after dusting the cut part with powdered charcoal, and then putting the plant in a cool place and keeping it close for a few days. If the rot should extend above the roots before its presence is discovered, the chances of saving it are small, and great care is needed to maintain it alive, induce it to root, and make a plant of it. If anyone will cut across a root affected with rot, it will be seen that decay passes up the centre of the stem before it spreads to the outside, and this is an additional reason for looking closely after the plants, so as to detect the insidious enemy ere it can work much mischief.

R. D.

SHORT NOTES.—FLOWER.

Spirea Aruncus.—Referring to the note on herbaceous *Spireas* (p. 185), when making an excursion on the Schneeberg (Alps of Lower Austria) last summer I passed forests of *Abies pectinata*, the outskirts of which were the home of *Spirea Aruncus* associated with *Lilium Martagon*.—LOUIS KROPATSCH.

Alum Root (*Heuchera Richardsoni*).—If we except one solitary member, the *Heucheras* have no value or beauty as flowering plants, and yet the above-named kind is at present one of the prettiest subjects in the garden. Its beauty lies in its foliage, and the plant is well worth cultivating for this alone. We do not notice it when flowers are abundant, but when the best of our hardy plants are resting and the ground is bare, this *Heuchera* retains its wealth of leafage, which in summer is of a deep dark green colour, but as winter comes on the leaves become veined with a brownish red hue, and this colour spreads through the greater part of the leaf.—A. H.

The pink Snowdrop.—I imagine that there is no harm in my saying that the pink Snowdrop, which my friend the late Mr. W. Threlfall hoped to secure, grew in a garden in the neighbourhood of, or at least not far from, Norwich. I rather think that it was in some gentleman's garden, and that he knew of it from the gardener, not from the owner himself. I believe he once told me the name, but I have quite forgotten it. I have also a dim remembrance of his having told me at some later date either that the Snowdrop had been lost or that it had turned out not to be so "very pink" after all. In any case he had, I think, given it up.—M. FOSTER.

—That this will turn up again some day I feel pretty confident. I have seen and possessed more than one specimen.—A. D. WEBSTER.

Gaillardias.—There can be no question as to the hardiness of the perennial *Gaillardias*, on light soils at least, for they have come through the past severe winter quite safely, many of the late shoots formed in autumn being quite green and unharmed. It is, however, far better to lift all that are required some time in winter or early spring than to let them take their chance and come up as they will. By so doing nice plants may be had by propagation from root or late crown cuttings. These will flower much earlier than they would if left to themselves to come up naturally, as they are amongst the latest of plants to appear, and as they flower away until checked by severe autumn frosts, we do not lose at one end of the season what we gain at the other. *Gaillardias* are so showy and so useful for cutting, that they should be included in any collection of

hardy plants, however small it may be. Increase is quite easy by seed or by root cuttings, the former method being more satisfactory than is the case with many plants, for there will be but a very small percentage of really poor flowers amongst them. If it is intended to raise plants for flowering this year, no time should be lost in sowing the seed, for the sooner the plants become large the better they will bloom. A position in full sun should be given them.—J. C. TALLACK, *Livermere*.

PUBLIC GARDENS.

Opening of Waterlow Park.—The Prince of Wales has accepted the invitation of the London County Council to open Waterlow Park. The *County Council Times* adds: There must be some delay, as the roads and paths are only in progress, and cannot be completed till about June; this is the first application the Council has made to his Royal Highness, and his acceptance of it will be very much appreciated.

A welcome improvement.—The St. Giles's Board of Works is about to transform into ornamental spaces two pieces of vacant land in Shaftesbury Avenue, which have for a considerable time served the purpose of receptacles for dead animals and rubbish, and consequently have been an eyesore to the neighbourhood. On one will be constructed underground conveniences for men and women, similar to those to be found in the City and elsewhere, with a surface level of shrubs, &c. The other piece of land is proposed to be asphalted over, and trees and garden seats are to be placed at intervals. At one point a drinking-fountain, given by a member of the Board, will be built.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Lord Dorchester, vice-chairman, in the chair, the Earl of Meath as chairman, and Earl Fortescue as a vice-chairman were nominated as the delegates of the association at the forthcoming Congress on Hygiene and Demography. It was announced that trees had been planted in the Plumstead Road, S.E., Mount Pleasant, Holborn, W.C., and Shoreditch, E.; that trees and seats had been offered for the Tower Promenade, E., and the Custom House Quay, E.C.; and that the London County Council had agreed to acquire and maintain Victoria Park Cemetery, E., as a public recreation ground, and had accepted the offer of the association to lay it out, made on these conditions. It was hoped the association would be allowed to commence work forthwith, as the bulk of the £3000 required had been collected. Earl Fortescue undertook to head a deputation to the Corporation for a grant in aid of the funds. It was decided to oppose the South Kensington and Paddington Subway Bill, which would make a railway through Kensington Gardens, and the Alexandra Palace and Grounds Bill, which seeks to free over 100 acres, forming the park, from restriction against using it as a building site, originally imposed by Parliament in the interests of the public. It was agreed to offer assistance to the local authorities in the laying out of recreation grounds in Fulham Palace Road, S.W., and Bow Road, Bromley, E.; to place seats in Old Street, E.C.; to communicate with the owner and the council regarding Holland Park, W.; to take steps for laying out St. Botolph's Churchyard, Aldgate, E.; and for the continued maintenance of St. Botolph's Gardens, Aldersgate Street, E.C., the parish having been deprived by the scheme of the Charity Commissioners of the parochial funds hitherto used for the upkeep of this much frequented and picturesque City churchyard.

The gardeners and labourers at Kew.—Mr. Plunket, First Commissioner of Works, received a deputation, consisting of Sir J. Whittaker Ellis, M.P., Mayor of Richmond, and aldermen and councillors of that borough, who brought under his notice the grievances of the labourers, gardeners, and constables of Kew Gardens in regard to wages and hours of labour. It was stated that many of the labourers received only 18s. a week for 66 hours, being less than 3½d. an hour, and the only superannuation was £1 a year after 15 years' service. The constables were paid 20s. a week for seven days, and desired to have more Sundays off. Mr. Plun-

ket, in reply, said that he had the greatest sympathy with men who were underpaid and were justly discontented, and the Government especially should be very careful that no accusation could be fairly brought against them of dealing hardly with those in their employ. He had received no complaint from the Kew employes since the wages were increased last year. The labourers' hours really ranged from 60½ in summer to 46 in winter, and they were employed as patrols on Sundays for which they got 2s. extra. After 3 years they got half-pay in sickness, and after 10 years three-quarters pay. These men were not gardeners in the true sense of the word, and their work was very easy. The superannuation was all that the Act allowed. The park and gate keepers ranged from 20s. to 27s., and their hours were 68½ in summer, and 43½ in winter, and they had a uniform. Very careful inquiries were made as to the rate of wages in the neighbourhood when the present scale was fixed; but he would go into the matter again and consider the cases of individual hardship which had been mentioned, and also the Sunday question. His personal tendency was rather to go to Kew than to get away from it. It was the taxpayers' money he was dealing with, and he could not be generous at their expense beyond doing what was fair and right. Sir J. Whittaker Ellis thanked Mr. Plunket for his exhaustive reply, and the deputation withdrew.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC.

MARCH 18.

THIS, the first spring exhibition at these gardens, was a most comprehensive one, and one of the largest displays ever seen there in March. Being favoured with a finer afternoon than for some time past, there was a very good assemblage of visitors. The long corridor was filled its entire length on each side with a brilliant display of early spring flowers, whilst a considerable quantity were accommodated in the conservatory. For six greenhouse Azaleas, Mr. Eason, gardener to Mr. B. Noakes, Hope Cottage, Highgate, was placed first with medium-sized bushes, well-flowered, three of the best being Jeanne Vervaene, Model, and Stella. Mr. Scott, gardener to Miss Foster, The Holme, Regent's Park, was a close second with smaller plants carrying finer flowers. Helen Carmichael, an excellent white, was here conspicuous; also Duc de Nassau. In the nurserymen's class the competition was poor, and calls for no further comment. Mr. Douglas, gardener to Mrs. Whitbourne, Great Gearies, Ilford, staged six good plants of *Deutzia gracilis* of bush shape and almost devoid of training, being in profuse bloom. Mr. Eason taking second place with very good plants. In the class for six forced Roses Messrs. Paul and Son, Cheshunt, staged some excellent plants, profusely flowered, and carrying very fine blooms; Celine Forestier and Souvenir de S. A. Prince were two splendid examples; Henri Schultheis and Ulrich Brunner, both good, with others. Messrs. Paul and Son were also awarded the first prize for a capital collection of herbaceous plants, staging the *Hepaticas* in fine form; *Saxifraga oppositifolia*, *Anemone Pulsatilla*, *Leucojum vernum*, *Cyclamen coum zonale* (Atkins' variety), *Galanthus Elwesi*, *Megasea Stracheyi*, and other good things. For Chinese Primulas Messrs. H. Williams and Sons, nurserymen, Fortis Green, Finchley, were first with compact plants. With twelve pots of *Cyclamens* in the open class, Mr. Phillips, gardener at Langley Broom, Slough, was an easy first with well-flowered plants, Mr. Odell, nurseryman, Hillingdon, being second. Mr. Phillips again took the first prize in the amateurs' class. For Lily of the Valley Mr. W. B. Morle, the Grand Floral Depot, 283, Regent Street, was awarded the first prize. Two other good collections were shown. For twelve Hyacinths Mr. Douglas was first, the plants carrying dense spikes, Mr. Eason being second with smaller examples. In the trade class for Hyacinths Messrs. H. Williams and Sons were placed first, the plants having compact spikes. They

also took the same place in the corresponding class for Tulips, among which Hector, Fabiola, Proserpine, and Keizer Kroon were the best. Mr. Douglas was also first for twelve pots of Tulips with superior plants. Mr. Douglas was placed first for twelve pots of Narcissus in an open class. Messrs. H. Williams and Sons were a close second. Mr. Scott showed some excellent pots of Crocus, well flowered and in good variety; Mr. Douglas was second in this class. Messrs. Paul and Son staged some very superior plants in excellent variety of Amaryllis, both named kinds and seedlings; Mr. G. F. Wilson, a brilliant crimson variety, with extra large blooms upon a strong spike was conspicuous. Other good kinds were Rembrandt, two spikes, very strong; a light-coloured variety; Colonel Burnaby, Thackeray, and Charles Kingsley. Mr. Douglas was placed second, Empress of India here being in fine condition. For twelve pots of bulbous plants not named in schedule, Mr. Ware, of Tottenham, was first, having fine examples of *Chionodoxa sardensis*, darker than the well-known *C. Luciliae*, which he also staged, and *Iris reticulata*.

Miscellaneous groups of plants formed a most conspicuous feature, several well-known trade growers contributing. The most extensive one, which was in every way excellent, was staged by Messrs. B. S. Williams and Son, Upper Holloway, this consisting of about 150 Hyacinths in excellent variety, being also well grown. Obelisque was noticeable as a fine yellow kind; King of the Blues and Pieneman were fine types of blues. Next the Hyacinths was an excellent assortment of Tulips of the best kinds. Some splendid pots of Lily of the Valley were likewise staged; these were the best in the show. A good collection of Narcissus (*Polyanthus* vars.) and Daffodils was to be seen here; amongst the latter bicolor Horsfieldi was conspicuous. Some dwarf plants, full of flower, of Lilacs were also shown; next these were some plants of *Rhododendron Williamsi*, a beautiful white variety with large trusses. This group was finished up by a splendid collection of *Clivias*, some forty spikes upon nearly as many plants of the best varieties, the spikes being of large size. Messrs. B. S. Williams and Son also showed several flowers of *Sarracenia* in a cut state. A silver medal was deservedly awarded to this meritorious exhibit. Next this group were staged Messrs. Paul and Son's prize Roses and several more in addition, amongst which were standards with splendid blooms of *Souvenir de S. A. Prince*, *Mme. Hoste*, *Hybrid Perpetuals Puritan* and *Duchess of Albany* being also shown. Those little gems of the *Polyantha* class were represented by profusely flowered dwarf plants of *Mignonette* and *Paquerette*. A silver medal was awarded. Messrs. J. Laing and Sons, nurserymen, Forest Hill, staged a meritorious collection of miscellaneous flowering plants, relieved at the back with Palms, &c. *Clivias* both in flower and fruit were shown with several good examples of Orchids, *Dendrobium Wardianum*, and others with some profusely-flowered small plants of *Acacia cordifolia*, a fine pale yellow kind (silver medal). Mr. Phippen, nurseryman, Reading, had a large miscellaneous collection of bulbous plants, consisting of Hyacinths, Tulips, Crocuses, the two latter being shown in pans in large masses. *Muscari botryoides* was here to be seen in first-rate order, also *Scilla sibirica* and *Lilies of the Valley* (silver medal). Messrs. H. Low and Co., Clapton Nurseries, staged an exceedingly fine lot of *Phalenopsis Schilleriana*, among which were some extra strong plants with fine spikes. *P. amabilis* was also shown, as well as several *Angræcum citratum*, a lovely small-growing kind. *Dendrobium crassinode* and *Devonianum* were here in good flower. The same firm showed several varieties of early-blooming greenhouse plants, consisting of *Acacias*, *Boronia*s, *Epacris*s, *Ericas*, *Grevilleas*, and *Cytisus* with some well-bloomed small plants of *Azalea roseiflora*, making altogether an instructive exhibit (silver medal). Messrs. Cutbush and Sons, Highgate Nurseries, had some very fine examples of *Epacris*, notably of *Her Majesty*, a fine white, and *Diadem*, a bright pink. Other good ones were *The Premier*, *Rose Perfection*, *Lady Panmure*, and *Princess Beatrice*. They

also staged some superior dwarf plants of *Ericas* *Cavendishi* and *Wilmorea* both in profuse bloom, and some bushy plants of *Mignonette* resembling the *Machet* type (bronze medal). *Cinerarias* were represented by dwarf plants with extra fine blooms in great variety of colour, from Messrs. James and Son, Farnham Royal, Slough, whose strain is so well known (bronze medal). Messrs. W. Paul and Son, Waltham Cross, showed twelve boxes of very fine blooms in excellent variety of *Camellias* (bronze medal). Extensive collections of *Cyclamens* came from Mr. Odell and the St. George's Nursery Co., Hanwell, the former being the best, but both had well grown, compact plants in good variety of colour. A bronze medal was given in each case. Cut blooms of *Narcissi* and *Daffodils* were sent by Messrs. Barr and Son and Mr. Ware. The former had among others *spurius*, *Golden Spur*, *Leedsii*, *rugilobus*, *princeps* and *bicolor Horsfieldi* (both fine), *incomparabilis Leedsii*, *obvallaris* and *incomparabilis Cynosure*; these were all very bright and fresh (bronze medal). Mr. Ware's consisted of *incomparabilis sulphureus fl.-pl.*, and *i. Leedsii*, *Telamonius fl.-pl.*, *princeps*, and *bicolor Horsfieldi*. With these Mr. Ware also staged several bunches of cut blooms of *Freesia Leichtlini* major and plants of *Primula floribunda*, a beautiful yellow kind, very dwarf, and *P. rosea*; *Chionodoxa grandiflora*, a fine form, and *Hepatica triloba fl.-pl.* were also shown (bronze medal). An attractive box of cut blooms of Orchids was put up by Mr. B. Phillips, gardener to Mr. F. A. Bevan, New Barnet; these consisted of fine spikes of *Cymbidium eburneum*, *Dendrobium Wardianum*, and others, with *Pilumna fragrans* and *Odontoglossum Rossi* var. Messrs. H. Williams and Sons, Fortis Green, Finchley, staged a large group of *Azaleas*, Tulips, and Hyacinths, and were awarded a silver medal. Messrs. G. Bunyard and Co., Maidstone, had a large collection of Apples in a remarkably fine state of preservation, the best being *Bismarck*, *Calville Malinre*, *Dutch Mignonne*, *Reinette du Canada* (extra fine) and others, in all nearly seventy dishes (bronze medal).

A full prize list will be found in our advertising columns.

The United Horticultural Benefit and Provident Society.—A meeting was held on Monday, March 9, at 8 p.m., in the Caledonian Hotel, Adelphi, when eleven members were duly elected and several others nominated. It was announced that one member had died—namely, Mr. Vine, of Tralee, and a cheque for the amount standing in his name—some £13—was drawn to be forwarded to the widow. Mr. Vine had drawn no sick pay, and as it was understood the widow is in necessitous circumstances, the secretary was instructed to investigate the case. A balance-sheet showing the liabilities and assets of the society was presented by the treasurer, Mr. Hudson, and proved a highly satisfactory document. It was resolved to invite members in distant districts to act as corresponding honorary secretaries, with a view to extending a knowledge of the society and the advantages it offers to members.

Church decorations.—Your correspondent "H." in his interesting remarks on "Church Decorations," does not allude to the bouquets which are now so frequently used in various churches on the communion table. I am sure more change is required in the way these are arranged than in any other floral decorations in churches. These bouquets, as usually made, are the stiffest, most formal, and inartistic things imaginable, being quite flat, and composed of flowers placed as closely together as possible, and if more than one flower is used the colours are arranged in patterns. The bouquet is formed on a flat upright piece of tin, from which project a number of small tubes to hold the flowers. One would think it was impossible that anyone should consider such things to be in any way ornamental. I see no reason why the table in God's house should not be decorated with flowers as well as our own; indeed, I see every reason why it should. But then the bouquets should be made in good taste, instead of the formal things which no

one would dream of using as ornaments in his own rooms. I know there are churches where really artistic bouquets are used, but they are in a very small minority. On "going over" Gloucester Cathedral last autumn, I was delighted to see two very well arranged vases of *Gladioli* on the altar. They looked exceedingly well, and attracted one's attention immediately. A few kinds were placed naturally in each vase, as far as I could judge, without supports or holders of any kind. The brass vases in which the flowers, or rather the holders, are placed are generally very good in form and well suited for holding flowers.—G. S. S.

NOTES OF THE WEEK.

Spring flowers in Kent.—Violets, Snowdrops, and other early flowers were in full bloom around Canterbury, when on Sunday the wave of cold inclemency from the northern districts reached Kent, snow falling in small quantities in the evening. This was followed on Monday by one of the most sudden and continuous snowfalls experienced for a long time past.

Gardeners' Royal Benevolent Institution.—We have much pleasure in announcing that at the annual dinner of this institution, to be held on the 8th of July next at the Hotel Metropole, Whitehall, the Right Hon. Joseph Chamberlain, M.P., who was prevented through illness from occupying the position in 1888, has very kindly consented to take the chair.

Primrose Harbinger.—Verily this is well named, for it has been in full bloom since the middle of February. Masses of it on a wooded slope having a south aspect are so full of bloom as to be easily mistaken at a distance for clumps of Snowdrops. It is here always the first to flower, and I may safely say the finest. It is well worthy of a place even in the select flower border, but is better, seeming more homely and natural, among trees and shrubs.—J. R.

Orchids from St. Albans.—We herewith have the pleasure of submitting some blooms of *Dendrobium nobile* vars., viz., *D. n. Cooksoni*, *D. n. burfordiense*, *D. n. ampliatum* and some others unnamed. Also flowers of *Phaius Cooksoni* and *Cattleya Trianae virginalis*—this has a slight flush in the lip; also *C. Trianae alba* without any flush.—F. SANDER & CO.

* * A very beautiful gathering, noteworthy being the variety of *Cattleya Trianae alba*, which is certainly pure white, without the least shade of colour.—ED.

Garrya elliptica at Brighton.—We have here some fine plants of *Garrya elliptica* growing against a south wall. They are now nicely in flower, and one specimen measuring 13 feet by 12 feet is quite a picture, being covered with bloom similar to sample herewith. Although the *Euonymus*, and more especially the golden variety which is growing close to it, is partially destroyed by frosts, the *Garrya* remains quite untouched.—W. BALCHIN AND SONS, Brighton.

* * Remarkably fine examples, some of the catkins measuring over 11 inches in length.—ED.

Shortia galacifolia.—This very pretty plant is now flowering very freely in the nursery of Messrs. Pitcher and Manda at Hextable, they having introduced it in quantity from their establishment in America, of which country it is a native. It is an elegant little plant with roundish cordate leaves of a rich deep green, and bears single-flowered scapes, the blooms being of the purest white. The genus *Shortia* is very closely allied to *Pyrola*, and is deserving the attention of hardy plant growers. The plants in question are growing in pots in a cool house.—W. H. G.

Notes from Weybridge.—Mr. Wolley Dod's note in THE GARDEN, March 14 (p. 234), on *Hepaticas*, *Primroses* and climate suggests a few further words. I have had the pleasure of several times visiting his most instructive garden, and learning the more from it that its conditions are so utterly unlike those of our Oakwood garden, and that many of the plants which he grows easily are difficult with us, and *vice versa*. As to the plants mentioned in his note, *Primula denticulata* we never divide; it is quite happy without division, and makes very large plants with grand blooms. A very large old plant we had of the double red *Hepatica* had small flowers and did not look flourishing, so we cut it up into fourteen. The upper parts of the roots were so hard that it was like cutting wood; we have now fourteen plants. The first year after dividing, little growth was made. I think it was Mr. Wolley Dod

who first suggested to me cutting up *Primula rosea* hard. This is certainly the right treatment. We have left one large plant undivided to show the difference in blooming. Till this year we had no soil approaching in stiffness to that at Edge Hall; but taking advantage of slack work in the long frost, we hauled up about 130 loads of the stiff loam deposited on our river side by the water, and have made beds of this sufficient to take a large number of plants, and we have now the chance of contrasting growth under one more condition.—G. F. WILSON.

Lenten Roses.—We are often asked by our correspondents about the value of Hellebores of the caucasicus type (Lenten Roses) as cut flowers. We are told the reason of their rarity in market gardens is that they will not stand after being cut more than a day or so. An enterprising grower proposed growing them in a little heat, and in this way they certainly keep longer, but even then not long enough to pay for the trouble. The best and, we believe, the only way of keeping Lenten Roses any length of time in a cut state is to cut the stalks short and dibble the flowers into saucers of moist Sphagnum or sand. In this way they keep longer than they do in any other way we have tried.

Primula verticillata if properly cared for would make a most charming group in the greenhouse just now, where its sweetly-scented flowers would assuredly be welcome. It is not, of course, hardy, though it will pass the winter very well in a cold frame. It should, however, be kept in a house or pit where the temperature is not allowed to fall below 40° Fahr. Repotted about the end of November and placed in a warmer house, the flowers will appear soon after Christmas, when the plants may be removed to the show house. Their interesting mealy white foliage and golden yellow sweetly-scented flowers are very effective in a group. They also last a considerable time in bloom, which enhances their value for greenhouse work.

Saxifraga Burseriana.—I must again refer to *Saxifraga Burseriana*, not only on account of its variability, but also on the great abundance with which the flowers have been produced this season. I have never seen anything to equal the tufts in beauty and profusion of bloom this spring, and if the recent hard winter has had any share in it we could almost, were it not for other things, wish for an annual repetition. My treatment, however, may have had something to do with it; instead of hitherto growing the plants in sunny spots I have had them all planted in shady places, and at such an angle that no moisture could rest about the neck or crowns of the plant. Some of the tufts 4 inches in diameter are now carrying over fifty blossoms, and together with the red stems and buds make charming little pictures. There are a great many forms, some few of my own seedlings, promising to be of much stronger growth.—K.

Rhododendron formosum.—In one of the beds of the temperate house at Kew a large specimen of this beautiful *Rhododendron* is now flowering profusely. This plant, which measures 6 feet in height and as much in diameter, is probably one of the oldest and largest in cultivation. In style of growth and general appearance the species is very like an *Azalea* of the indica type, the pale green leaves being only 2 inches or 3 inches long and narrow and pointed. The flowers, which are produced in pairs or triplets, are of a delicate white, sometimes quite pure, but occasionally tinged with rose; there is always a patch of pale yellow on the upper segment of the corolla. The corolla is widely funnel-shaped and about 3 inches across the mouth. It is rather curious that the flowers from the time they push from the bud almost to the expanding of the petals are deep pink, thus giving a very pretty effect to a plant with blooms in different stages. It was originally discovered in 1815 on the mountains bordering Sylhet, in Eastern Himalaya. It appears to have flowered simultaneously at Kew and Syon House in 1849. Some confusion has existed between this plant and *R. Gibsoni*, especially with respect to a variety of it with leaves broader and more rounded than on the plant here noticed. *R. Gibsoni* is, however, of less compact growth and its

leaves differ in shape from those of any variety of *R. formosum*.

The recent acquisitions in new hybrids of the *Helleborus colchicus* type have greatly enhanced the value of this group of plants in the spring garden. *H. guttatus* and *colchicus* seem to have been the species generally hybridised, and the beauty of the combination is nothing less than wonderful. To add to all this the fact of their being so easily cultivated lends additional charm. It is true that there is always danger from the late spring frosts injuring the forward blooms, but this is chiefly where the plants are grown in exposed situations, and consequently more advanced than they would naturally be when grown in cool shady spots. *H. abschasicus* always suffers most with us; indeed, in slight frosts it is the only one that does suffer, and we have at last resolved to discard it altogether from the collection.

Scilla bifolia and the vernal Snowflake (*Leucojum vernum*).—A small bed of these two plants is very charming and effective as we saw it the other day in the Kew rockery. They seem to have been mixed and planted without method. Here you get a patch of Squills with a few Snowflakes among them, and there a bright tuft of the Snowflake with both the green and yellow tips. This distinction and the fact of the yellow one occasionally carrying two flowers on a stem seem to constitute it a species under the name of *carpathicum*. We are told that the green-tipped also occasionally bears two flowers on a stem, and in buying one you invariably get a good percentage of the other mixed with it. The double form, of which there is undoubted evidence, has apparently been lost.

Saxifraga oppositifolia and its varieties are certainly among the prettiest and most useful of early spring flowers. In their native habitats, wherever the snow has left a bare patch of crumbling rocks, *S. oppositifolia* is found in full flower. This year in our own garden we were reminded very forcibly of this on seeing the bright rose-purple blooms peeping through a thin crust of snow, and when all had melted the flowers were as bright and fresh as if nothing had happened. We have tried various ways and soils in establishing this alpine, and have found nothing to suit it so well as peat, a little leaf soil, and about one-third cocoa-nut fibre. In the fibre the plants root with the greatest freedom, and have never failed to flower abundantly. This is the medium we always use for propagating *S. oppositifolia* and its varieties, and we rarely miss a single cutting. The variety *alba* does well, and always looks charming with its white petals and pretty pink anthers.

Hoteia (Spirea) japonica grandiflora.—This is a decided improvement on the typical form, and it appears to force equally well. Plants now coming into flower have fine panicles of bloom, the individual flowers being much larger than those of the type; they are also closer together, thus forming dense masses of feathery white. The variegated variety (*reticulata*) somewhat resembles this improved variety, but the plant is not so vigorous and the flower-spikes are smaller. When *grandiflora* becomes well known it will entirely supersede the older form, which has long been one of the most popular of all plants for early spring flowering. I remember when it was first grown it was not difficult to make 3s. 6d. each of good plants, but since that time it has been grown in such quantities that the markets have been frequently overstocked, and this beautiful plant has been hawked about the streets at prices which certainly could not return any profit to the growers.—F. H.

Dendrobium lituiflorum.—With the exception of some of the finest varieties of *Dendrobium nobile*, like *Sanderianum* and *nobilis*, there is no *Dendrobium* belonging to the purple-flowered group whose colour surpasses in richness and brilliancy the best forms of *D. lituiflorum*. It has slender pendulous stems about 1½ feet long, on the greater length of which the flowers are clustered at the joints in twos and threes and occasionally more. The sepals and the broader more oblong petals are of a bright amethyst-purple, becoming paler

towards the centre of the flower. The lip is somewhat trumpet shaped and deep maroon-purple on the disc, surrounding which is a zone of white, the margin of the lip being purple. The diameter of the whole flower is about 2½ inches. What is generally known in gardens as *D. Freemani* was placed by Reichenbach as a variety under this species. It is very distinct in habit, having short, stiff, erect stems, but in the flower the main difference consists in the bands surrounding the disc of the lip being sulphur-yellow instead of white. Several plants of a good form of the type are in flower at Kew. The species is widely distributed in Eastern tropical Asia, having been imported from Assam, Upper Burmah, and as far south as Tenasserim. It flowered for the first time in this country about 1856.

OBITUARY.

James Murray Garden.—By the recent death at the age of forty-six of Mr. Jas. Murray Garden (of the firm of Messrs. Davidson and Garden, Advocates, Aberdeen), horticulture in the north of Scotland has lost a warm supporter and steadfast friend. Some years ago when the Royal Horticultural Society of Aberdeen was in difficulties, Mr. Garden became president. His love for gardening and business capacity reinvigorated it and it still continues to flourish, thanks in large measure to his personal influence and happy tact, which were specially marked when differences of opinion arose in connection with the society's work. By his death Aberdeen has lost a good citizen, who had done it good service in many ways, and for whom a career of yet higher and more extensive usefulness had been generally anticipated. The position he had taken in the estimation of his fellow citizens was proved by the fact that he had been on more than one occasion approached with a view to his undertaking the responsibilities of the Lord Provostship of the city. That honour has seldom been thought of in connection with one so young.

BOOKS RECEIVED.

"New South Wales: Its History and Resources." Special Edition of the Year-Book of New South Wales for 1891.

"Mushrooms, and how to grow them." By Luke Ellis. W. Cutbush and Son, Highgate, London, N.

"A Year in a Lancashire Garden." By H. A. Bright. London: Macmillan & Co.

"Journal of the Bath and West of England and Southern Counties Association." Fourth Series, Vol. I.

Black fly on Peach trees (*A Subscriber*).—The best remedy is to smoke with tobacco paper.

Names of plants.—*J. B.*—1, *Cattleya Trianae* delicata; 2, *Cymbidium eburneum*, poor variety; 3, *Phajus grandifolius*; 4, *Odontoglossum hastilabium*.—*J. Jones*.—1, *Adiantum Willisianum*; 2, *Selliguea caudiformis*; 3, *Doryopteris nobilis*; 4, *Arthropteris oblitterata* (Lindsaei Lowi of gardens).—*K. W. D.*—Cannot name from specimens sent.—*Mrs. Carpenter*.—*Cælogyne ocellata*.—*W.*—A very fine light form of *C. Trianae*.—*J. B.*—Should think it was the Chatsworth variety, but sent in such a way it is difficult to say correctly.—*C. H.*—*Dendrobium nobile*; cannot value from such material.—*R. T.*—*Odontoglossum maculatum*, the lip beautifully marked; it is a very variable plant.—*J. M.*—*Veronica parviflora*.—*Mrs. Haggerston*.—The yellow and white *Snowdrop* is *Galanthus nivalis* var. *lutescens*; the other is *G. nivalis*.—*B. W.*—1, *Vanda cœrulescens*; 2, *Lælia cinabarina*; 3, *Brassavola glauca*; 4, *Cattleya Walkeriana*.—*J. F. W.*—It looks like *Pancreatum illyricum*; *Cattleya Trianae*, a very fair colour, but small.—*J. W. S.*—A good-shaped and large flower of *Dendrobium Wardianum*, and a goodly number of flowers upon the two growths.—*D. W. D.*—1, *Clethra arborea*; 2, *Lachenalia tricolor*; 3, *Aerides odoratum*; 4, *Sarcanthus paniculatus*; 5, *Cælogyne ocellata*; 6, *Apelandra Roezlii*.—*J. B. W.*—1, *Bletia verrucunda*; 2, *Phajus grandifolius*; 3, *Calanthe veratrifolia*.—*W. Bell*.—A good form of *Odontoglossum Rossi*.—*E. B. D.*—Very much like *Acacia dealbata*.—*H. Norman Paine*.—*Cattleya Trianae*.—*M.*—*Tænites blechnoides*.—*C. D. C.*—*Coniogramma javanicum*.

WOODS AND FORESTS.

THE HEMLOCK SPRUCE.

(ABIES CANADENSIS.)

FOR richness of foliage and beauty of outline no evergreen tree or shrub can surpass this Conifer. An erroneous opinion is, however, fast gaining ground that the pretty Hemlock Spruce is not, generally speaking, suited to the climate of these isles, for a veteran American arboriculturist not long ago said that English nurserymen have followed Loudon and Michaux by regarding the tree in a rather unfavourable light. That we have no such specimens as are to be seen in the "far west" is clear enough, but when treated in a rational and common-sense way, this handsome Conifer thrives well enough in almost every part of England, as may be proved by paying a visit to some of the more favoured estates. There are just as handsome and healthy trees of the Hemlock in the north of Ireland as could be found anywhere in Canada or the New England States. I do not say they will ever grow as big, for the climates of the two places are widely different, but that in a young state they look quite as flourishing I feel quite convinced. Too many persons plant trees without any knowledge whatever of their individual requirements, the result being disappointment and vexation, and too often, unfortunately, there is a hankering and vague idea left in the person's mind that such and such trees are not suited to the climate of this country; whereas, the truth is the person is not suited, from his want of arboricultural knowledge, for the work he has taken in hand. Heavy soils, light, poor, sandy soils, and calcareous formations will not do for the Hemlock Spruce; it wants a rich, damp, vegetable loam, a sheltered situation, and plenty of room.

Well pulverised peaty soil—that specific for miffy Conifers generally—suits well the requirements of this Conifer—at least in such I have found it growing with great freedom and wearing as rich a garb as could well be desired. The trees were just over 5 feet high when planted, and soon taking to the favourable soil and locality, are now fine, bushy, far-branched specimens of between 20 feet and 25 feet in height. The branch tips weep most gracefully, thus imparting to the trees a decided character that is as pleasing as it is ornamental, and pointing out that they are growing under very favourable conditions.

Round about are tall growing trees, principally Larches, with scrub Beech, a few Scotch and Bracken as high as a man's head, these sheltering the clump of Hemlocks—decidedly what the tree stands in need of, if only to prevent its lithe and cord-like spray from being injured by harsh blowing winds. Under such conditions one of the handsomest Spruces that have yet found their way to this country flourishes, and although on a lawn it might be difficult to imitate the surroundings just described, still by trying we can always do more than we would have dared to imagine. It is an uncommon, but most desirable and natural way of growing our rarer Firs and Pines this cutting out of breadths of the ordinary forest trees here and there along the woodland drives and planting not one, but clumps of the various kinds of desirable Conifers, or hardwoods, if you like. By coming upon these at unlikely places and where one is not thinking of such, their value in such a way is greatly enhanced.

Driving along the main carriage road on an estate in Ireland, one is first confronted by a big gap in the woodland planted with a number of specimens of the tree in question—the Hemlock Spruce; next comes a little further on a differently shaped mass of Prince Albert's Fir (*Abies Albertiana*), then, perhaps, a set of the white Cedars (*Chamaecyparis*), and so on for almost the full length of the road. In a quiet nook the Umbrella Pine (*Sciadopitys verticillata*) does well, and just as well the Lace-bark Pine (*Pinus Bungeana*) seems to grow and increase in height.

But this is diverging somewhat from our subject, although showing the circumstances under which the Hemlock has been found to do well. That

this is a tree of great beauty everyone who has seen even a 10-feet high specimen will at once admit, and when we know that it has been got to do well under described conditions, the best thing lovers of the tree can do is to follow the example given, and in nine cases out of ten success will crown their efforts.

A. D. WEBSTER.

IVY ON TREES.

EVERY now and then the question, Is Ivy injurious to forest trees? turns up in the pages of the horticultural press, and though a great deal has been written and said on the subject, we do not seem to be much nearer a solution of the vexed problem than we were in the days of Repton. Somewhat affirm that Ivy is very injurious to trees generally speaking, while there are others who consider that it does little or no harm. For my own part I am of opinion that Ivy is not nearly so hurtful to trees as is generally supposed, although I would never go so far as to say that it does not injure, yea, even kill some particular kinds, but the latter, bear in mind, is the exception, not the rule. I could point out not one, but numbers of trees that, owing to their spreading heads and heavy shade, have turned the tables on the Ivy and almost killed it outright. Ivy will not succeed at all well on either the Beech or the Sycamore, or in fact on any healthy far-spreading and thickly-leaved tree, the sparse-branched specimen being its favourite, and which if naturally weakly or dying gradually out will hasten in its destruction. That the Ivy relishes such weakly trees is plentifully evident, and I have no doubt that in numbers of cases the death of the tree for which the Ivy is blamed is purely and simply a natural result. By all means rid young Larch woods of Ivy; it will not attack the Scotch Firs unless they be in a miserably poor condition, for that it does much evil I have abundant proof.

There is a curious and noteworthy plantation of Larches about 70 feet high in a park I know well, and in certain parts of the plantation the Ivy has completely mastered the Larches, great columns of the Ivy from 3 feet to 6 feet in diameter and high as the trees being visible—a pretty sight too. But the Larches on which the Ivy is growing show only here and there a decaying branch tip through the columns of green, and mayhap in a case or two a leafless top of some 6 feet or 7 feet, thus showing that vitality is almost gone. Now most persons on viewing this particular plantation from a certain point exclaim, "How the Ivy is killing the Larches!" and pass on quite convinced of what they have but very casually observed. The fact is, however, that all the Larches in the wood are fast giving way, even such as have no trace of Ivy on or around them. True one or two of the trees on which the climber has mounted too near the top have given way, but that is solely to be accounted for by the great weight of a column of verdure and branches 70 feet high and 4 feet in diameter bearing and dragging down the already enfeebled trunk. I give this instance just to point out how careful a person should be before arriving at a definite conclusion. A tree on which Ivy is may die, but can it be proved that the Ivy killed it, or that it would not have succumbed had not a particle of the creeper been near it? For six years I had a man and half a dozen boys constantly employed removing this creeper from trees, and the lesson I thus learnt has brought me to the conclusion that, unless in young plantations, Ivy is not detrimental to the health of trees to any appreciable extent.—A. D. W.

— Now the pros and cons of the injury done to trees by Ivy have been fully discussed in THE GARDEN, and when it is admitted by all that the damage done by it to matured trees is very small, if any, it is to be hoped that no enthusiast will make a wholesale slaughter and deprive the winter landscape of much of its cheerfulness and beauty by cutting down the Ivy from all trees irrespective of their age. I would myself be sorry to see every tree in grounds and parks clad and festooned with it. However pretty, it would be monotonous. A few good specimens here and there,

clothed even up to the tips of the main branches, are lovely objects on a wintry day, but trees like the Beech, with its handsome mottled bark; Silver Birch, its shreds of silvery bark curled and glistening in the early spring sunshine; gnarled Oaks and Chestnuts, and other trees with quaint trunks and colouring, would be deprived of the greater part of their subtle and chaste beauty by being clad with the "Ivy green." If by chance it has got a foothold on such as the above, and probably overrun every tree on the place, instead of making a clean sweep of the whole I would advise the Beech, Birch, &c., to be denuded first, leaving it on other trunks of trees of less beauty.—J. R.

The best forest trees to plant (*T. Canning*).

—No doubt Ash and Sycamore timber, when clean grown and of a fair size, generally meets a ready sale and a fair price, but the planter must likewise take into account the productive quality of his soil and situation in order to form a correct estimate as to the best trees to plant, as well as the demand in his locality. When timber has to be sent a long way to market, the cost of transit often runs away with the profit. The Ash and Sycamore both delight in a sound loamy soil, naturally a little damp, but not wet. The finest timber which I have ever cut of both kinds of trees was produced on the above class of ground at the base of a hill and along the banks of a mountain stream, where the ground was cool and moist. Both trees, however, will grow and attain a profitable size on a poorer class of soil than that specified, as well as on a more exposed situation. Poor heather ground should be planted with Larch, Scotch Fir, and Birch. Stiff clay soil should be planted with Oak and Alder as the principal crop. Damp boggy ground that cannot be easily drained should be planted with a variety of Poplars, Willows, and Alders; and calcareous soils are suitable for the Beech and others.

—J. B. WEBSTER.

Elm and Birch seed.—In Mr. J. B. Webster's remarks on "Seasonable Work," he says, in reference to the sowing of Birch and Scotch Elm seed, that seeds of these trees may be now sown. What I want to point out is that the best result is always obtained by sowing these seeds at the time they are collected. If this is done, the vitality of the seed is not impaired in the least, but if kept for any time—no matter how carefully—there will be a very great percentage of bad seed. The germinating quality in both the Elm and Birch seed is easily destroyed. The Scotch Elm ripens its seed from the middle to the end of June, and if sown when gathered in a fine friable soil the seeds will germinate freely, and at the end of the growing season the seedlings will be from 2 inches to 6 inches long. That surely is a decided advantage to keeping the seed all the winter and sowing it at this time of the year. The Birch ripens its seed in October, and should be sown, too, when gathered on a well-prepared bed, and either be trodden well in or be rolled in. Birch seed, like that of Elm, yields the best results when sown as soon as gathered.—J. F.

Horse Chestnuts decaying.—In an avenue of Horse Chestnuts, one of the trees has lately developed a black mark on the bark, apparently rising from the roots and gradually extending in size. It has a charred appearance with a fringe of rusty colour. When the sap rises it is of a sticky, bleeding nature. How can I stop its extending? I have lost one tree some 50 yards distant after a similar sickly condition lasting five years.—ANXIOUS.

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No. 1010. SATURDAY, March 28, 1891. Vol. XXXIX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWER GARDEN.

FLOWERS OF SPRING.

BLUSTERING March is still cold betimes, but for all that the winter is past, and we feel that the cold now is only the coolness of a young hand instead of the chilliness of an old one. Every green thing, even thus early, seems conscious that rosy spring-time is here, laden with her seasonable treasures. The budding hedges and the mysterious welling up of sap bespeak the coming leafage and blossoming of a thousand trees and flowers, many of which have grown old in our gardens and were old even when Shakespeare was a boy. And yet these are ever dear to us, fraught as they are with many pleasant memories. This Rose tree now budding by the porch came from "hungry Grafton," a village by the silvery Avon, and these purple Crocuses from the greensward of an old garden in Rome. Snowdrops from the Crimea flower side by side with the lovely netted Iris of richest purple and gold from the Caucasus, and with sweet Violets, both purple and white, and with Primroses from an English hedgebank, now richly perfume the garden with their odour. Here, by the old sun-dial, are Daffodils in all their "braverie," both single and double, in great variety, and we look on them as the heralds of many other lovely flowers of spring. They come with the song of the blackbirds and thrushes in our dear old sheltered garden, and at the time when the rooks are disputing over their nest-building high up in the tall Elm trees. Just now no other flower is more welcome than are these nodding Daffodils in even the best of gardens. The other day I came across a well-preserved old folio volume in a dusty little book-shop, and was glad to buy it for a few shillings as a great prize. This work is Parkinson's "Paradisus Terrestris; or, a Garden of Pleasant Flowers," published in 1629, and valuable as showing exactly what flowers were cultivated in English gardens during and immediately after the time of Shakespeare. The book is written in the quaint language of the time, and amongst other things contains many rude woodcut illustrations and descriptions of no less than ninety-six species and varieties of the Narcissus, or Daffodils, so popular at the present time. In a word, this tome of the early 17th century is full of interest and information anent the old-fashioned flowers—the Lilies, Irises, Roses, Pæonies, Auriculas, Primroses, Sunflowers, Cyclamens, Crown Imperials, and other blossoms grown "all for delight"—in English gardens of the golden Elizabethan age. But it is not with books so much as the flowers themselves with which we have to do, and just now when "golden Crocus crowns the green" it seems most

timely and seasonable to speak of spring blossoms. A gnarled Almond tree trained on a sunny bit of old grey wall is now most lovely, the buds gleaming like garnets and the flowers of a soft flesh pink, suggestive in colour of that rosy goddess who rose from the "salt sea foam." A plant of the Japanese Forsythia has its last year's spray covered with thousands of golden bells, and its beauty indeed may be likened to "a swarm of golden bees," as its flowers daintily flutter in the sunshine of a warm March morning. The Snowdrops have indeed faded, but the spring Snowflake is at its best, and the bells of the Rush Lily, both purple and white, dangle and sway on their slender stalks in a very pretty way. Seedling Primroses and Polyanthus are fully in bloom, and the shades of colour are infinite in variety, but the most gorgeous of all the early blossoms are the Anemones from Pau and Nice, as well as from Greece and Palestine. The Grecian kind has a pure scarlet star-like flower, much finer than the one from the sunny vine fields near Pau, but the forms from the Holy Land are most varied in colouring. Canon Tristram is of opinion that these last named most probably represent the "Lilies of the Field," so abundantly do they enamel the ground in Palestine in early spring. The lovely little blue Squills and the Grape Hyacinth are pushing up their flower stalks everywhere in sheltered nooks and corners, and the large thick-leaved Saxifrage has Grape-like clusters of soft pink flowers and buds nestling cosily among its bronzy foliage. We were sorry to see the last of the pure white Christmas Roses which are so pretty in water indoors along with the great Russian or Czar Violets and dark bronzy Ivy leaves, but the Lenten Roses now take their place.

These last are the numerous kinds of Hellebores having white, purple, green, purple-spotted or mouse-coloured flowers, and are always welcome with the great deep yellow Daffodils, both single and double. A favourite ornament just now in a little garden house wherein we keep books and drawings is an old brown jug full of graceful Willow wands, each thickly set with soft silvery buds or "pussies," the same which children gather on Palm Sunday as our northern substitute for the Palms of Bordighera and elsewhere in the sunny south of Europe. Enjoyable as are the mild sunny days we now and then have in March, we get sharp frosts sometimes in the early mornings, and the breath of the icy east wind is so keen, that one longs for the warm nooks along the Riviera, and actually envies the robin redbreast which has thus early made its nest in a hole in a greenhouse wall, quite near to the hot-water pipes which yield warmth to our Tulips, Hyacinths, Azaleas, and other indoor flowers. There is a richer tint on the Grass, the Flag Iris and white Lilies are growing apace, and the old bush of the Japanese Pyrus by the hall door is thickly set with its coral buds with here and there a stray blossom. Every afternoon a dappled thrush sings in the Azarole Haw-

thorn on the lawn, and we ourselves, despite all the vagaries of our climate, can at least enjoy the cropping up and vigorous blossoming of the spring flowers and the melody of the birds. When we look carefully through a good garden at this season, it becomes noticeable that a large proportion of the most showy flowers are those having bulbous roots, and no plants are more easily cultivated than are these. In September you take a few shrivelled roots looking almost like rough nodules of baked earth, and you plant them in a rich deeply-dug flower-bed, and in the following spring you have Anemone flowers in profusion. Or you take the brown fibrous-coated corms of the Crocus, the smooth-skinned Hyacinth, the glossy brown bulbs of any of the 500 Narcissi now known in gardens, or the prettily netted Iris roots, all different, all with varied potentialities of beauty concealed under their rough brown coats or glossy skins. These you plant carefully on a warm sunny border, surrounding each root not with manure, but with clean dry sand, and the result is floral beauty long ere one dare plant tender or half hardy bedding plants in the open air. This brings us to the great central fact in connection with our flowers of spring, namely, their extreme hardiness and the perfect freshness of their beauty. One of the most noticeable of all the movements taking place in our gardens is the care and skill now being lavished on those old-fashioned and fragrant flowers which our great grandmothers grew near the cosy old country houses long ago. In a word, a floral renaissance has taken place, and not only are all the old flowers now cultivated with tender care, but the cold and temperate parts of Northern Asia, Europe and America are now being searched for beautiful new kinds of the hardy flowers which are now so popular. In the culture of these flowers one is free from the labour and heavy coal bills which the growth of hothouse plants renders necessary, since if hardy bulbs are once well planted in sand on a well-drained soil, they require but little attention afterwards, and that little may be afforded them by any intelligent amateur.

Notes from Oakwood.—We have just dug up a bed of seedling Gladioli about 10 feet by 5 feet. The seed was given me by my old friend the late Mr. McIntosh a good many years ago. The label is illegible, so I cannot tell how many. The plants have never been touched since the time when the seed was sown. Many have bloomed well with good flowers. The bulbs were much crowded and some of them had two of the hard formations under the bulbs. We took up 378 bulbs of different sizes, leaving many quite small ones behind. This would seem to show that Gladioli may be grown in suitable soil with very little trouble. At Oakwood we are finding some rather unexpected survivals. *Arnebia echioides* is pushing up very strongly; *Narcissus cyclamineus* has many buds; *Hypericum aureum* has stood much better than *H. oblongifolium*, which in many parts of the garden, though not in all, is killed. *Veronica Traversi* is still a puzzle; a great bush is killed while others are hardly touched. There is no obvious reason for this; so the dead plant shall be left standing in hopes that some of my scientific friends may solve the difficulty. Among the best of the early spring

flowers which are blooming with me for the first time are *Leucojum carpathicum*, much larger and finer than the old *L. vernum*; *Anemone blanda alba*, a good companion to the beautiful blue form which Mr. Ingram has done so much to introduce. *Muscari Szovitzianum* is in good bud in the open; in flower in a frame it shows itself to be a valuable acquisition. *Iris reticulata histrioides* is finer in the open border than even it was under glass. We have lately planted an acre with self-sown *Rhododendrons* which were choking up their parents or otherwise in the way. The leaves of many of them show good blood, so they should make a fine show next year.—GEORGE F. WILSON.

Narcissus papyraeus.—All my efforts to flower this charming Narciss in the open air near London have proved unavailing, but I suppose this is an old story. Salisbury, in the Transactions of the R.H.S., vol. i., says that he repeatedly failed with it at Chapel Allerton; while at Mill Hill, under the shelter of a Laurel and where the soil was deep loam, it lived and increased for seven years with no other protection than that of the dead leaves which happened to blow over it in autumn. He goes on to say that this proves that it may be grown in our island, and that in many situations by covering the beds with straw it may be grown to advantage for market. A deep sandy loam, rather moist than dry, and free from all manure whatever, is the soil recommended. Apart from the question of expense, I do not believe this tender bulb can be grown in the open air in England unless far south, and even in Cornwall I have not heard of its being grown with any great success. It appears that the Dutch in Salisbury's time had never succeeded in cultivating it, all the bulbs being imported from Italy. Has anyone succeeded with it in the open air and where?—K.

Left-behind Snowdrops.—This is the term by which on p. 234 Mr. George Paul speaks of some *Galanthus Elwesi* which he describes as simply wonderful in his garden at Broxbourne. I wish he would tell us at what depth in the soil he finds the bulbs, as I think it probable that he will find them buried spade deep. For deep soils, well worked and well drained, I have more than once advised a trial of planting some spring bulbs at least double the usual depth. Only two or three days before reading Mr. Paul's note I tried to dig up a stray left-behind root of common double Snowdrop, which had the largest flower and leaves I had ever seen, in order to try if it would produce a stock of giant Snowdrops. I did not, however, succeed in reaching the bulb, but dug off the flower with about a foot of underground stalk. The same experience holds good in the case of left-behind Daffodils, and amongst wild Daffodils I have many times selected an exceptionally fine flower and failed to reach the bulb from its great depth. Crocuses, too, generally prove the same. Anyone may verify this for himself by digging up the stray Crocuses now in flower; the undersized flowers mostly belong to bulbs left near the surface, and the magnified flowers to those which have been buried deep. The results of deep planting will vary according to conditions of soil, and I do not recommend it to be universally adopted.—C. WOLLEY DOD, *Edge Hall, Malpas.*

The last of the Snowdrops.—*Galanthus nivalis serotinus* of Mr. Harpur Crewe, and *G. nivalis aestivalis* of Mr. Smith, of Newry, have nearly passed away for this season, but *G. nivalis virescens* is at its freshest and best, and is one of the very latest as well as one of the greenest of all the Snowdrops. We have, however, two kinds only just now opening their eyes to the sun, and both are seedlings raised by Mr. Jas. Allen, who is by common consent acknowledged to be the Snowdrop king. One of these is called *Loiterer*, and the other is named *Lazybones*, so by their titles shall we know them as the very latest of their breed. A bulb of *G. plicatus maximus* (Boyd) has given us three enormous flowers, proving, as its sponsor foretold, that it is a big and noble thing. Of course, size is not everything in a Snowdrop, but those who like large-flowered kinds should grow *G. plicatus maximus*, *G. Imperati* (Atkins' var.), *G. nivalis maximus* (Straffan var.), *G. Elwesi major*, and *G.*

Elwesi globosus (Wilks), the last-named having caused quite a sensation at the recent Snowdrop meeting in London. As to the pink or rose-tinted variety now causing a little flutter among Snowdrop growers, there seems no apparent reason, *a priori*, why we should not have a rosy Snowdrop as well as a rosy Lily of the Valley. Whether a rosy or pink Snowdrop is worth looking for is another matter. Anyone who cares to water a clump of common white Snowdrops with a solution of cochineal or of magenta dye may make a Snowdrop more or less rosy for themselves. I believe it was such an one that deceived poor Mr. W. Threlfall, but as Mr. Webster says he also has observed one or two, we may hope that he may some day be in a position to produce them at a meeting of the R.H.S. for the admiration of those who desire such things. Pink, and yellowish, and greenish Snowdrops are all very well for those who admire them, but the really free and beautiful and best of Snowdrops of gardens are those with pearly white buds and green inner markings, and none, however different, can be more lovely than the ordinary form *G. nivalis*, as seen luxuriant and happy in the fresh young Grass of orchard or lawn.—F. W. B.

LILY OF THE VALLEY.

THERE is no flower more truly and universally popular than the Lily of the Valley. What can be more delicious and refreshing than the scent of its fragrant flowers? What other plant can equal in spring the attractiveness of its pillars of pure white bells half hidden in their beautiful foliage? There are few gardens without a bed of Lily of the Valley, but too often the place chosen for it is some dark corner where nothing else would be expected to grow, but it is supposed as a matter of course that "it will do for a Lily bed." The consequence is, that although these Lilies are very easy things to cultivate, as indeed they ought to be, seeing that they grow wild in the woods of this and other counties, yet one hears so often from those who take only a slight interest in practical gardening—"I have a Lily bed, but I scarcely ever get any Lilies." Wild Lilies are hardly worth the trouble of gathering, they are so thin and poor; it is interesting to find a plant so beautiful and precious in the garden growing wild in the woods, but beyond that the flowers themselves are worth but very little. This at once tells us an evident fact about the Lily of the Valley, viz., that it does require cultivation. It is not a thing to be left alone in a dark and dreary corner to take care of itself anyhow year after year. People who treat it so deserve to be disappointed when in May they go to the Lily bed and find plenty of leaves, but no flowers, or, if any, a few poor weak attempts at producing blossoms, which ought to be so beautiful and fragrant. One great advantage of this lovely spring flower is that it can be so readily and easily forced. Gardeners in large places usually spend several pounds in the purchase of crowns and clumps of Lily of the Valley, which they either import direct from foreign nurserymen or else procure from their own dealer in such things, who imports his Lilies in large quantities from abroad. But we may well ask, have foreign gardeners found out some great secret in the cultivation of this plant? Or is their climate more suitable for it? Or their soil adapted to growing it and getting it into splendid condition for forcing? It is impossible that the conditions for growing large and fine heads of this Lily can be in any way better in Berlin or elsewhere than they are in our own land, unless greater heat in summer than we experience in England is necessary for ripening the growths in autumn. There is another question certainly as to varieties; one variety may be superior to another, but surely if so, it is only on the principle of the survival of the fittest, that is to say, by carefully working on the finest forms only and propagating from them, a strong and vigorous stock may be the result, and this stock may be dignified with a special name. For my own part, what I want is to have a great abundance of Lily of the Valley from February till the outdoor season is over. To do this with imported clumps would, of course, be most costly, and far beyond what any parson ought

to spend on mere flowers. Though it must be remembered that it is an immense advantage to the parish priest to be able to take bright and sweet flowers to the bedside of the sick, or to gratify the weary spirit of a confirmed invalid, confined through all the lovely spring-time to the narrow limits of a dull room, with the fragrant flowers of the Lily of the Valley. I determined, therefore, that I would have an abundance of early Lilies, and that they should not be costly, but simply produced at about the same expense as any other flowers, and I have been very successful in accomplishing this by very simple means. First of all, it is necessary to have the means of forcing, that is to say, the required heat, which in my case is obtained from an early vinery. I have seen Lilies forced by pushing the clumps in under the material for making a hotbed for early Cucumbers, the clumps being drawn out, of course, as soon as the flowers had made a good start. They have then to be carefully and very gradually exposed to full light, but often, although fine heads of bloom may be produced in this way, the leaves will be few and poor.

My method is simply this: In the kitchen garden there is the old original bed of Lilies of the Valley in a corner certainly, but not a dark corner. This is the reservoir, as it were, from whence the regular supply of heads for special cultivation is taken. This large bed is not neglected and left alone to take care of itself, but carefully manured with leaf-mould and peat moss manure from the stable every year. Especially the vacant places made by taking out the heads for cultivation are thus filled up. Then under the east wall another piece of ground is laid out and divided into four plots. When I first began to prepare for forcing I waited four years, and had one plot planted with divided heads each year. Clumps are taken up from the reserve bed and then shaken out and the heads separated, each with its little bunch of fibrous roots. They are then carefully planted in one of the plots about 4 inches or 5 inches apart, the ground having previously been made as light and rich as possible with plenty of leaf-mould. I think the best time for doing this is in autumn, after the leaves have turned yellow and have rotted away, but frequently the operation has been delayed till spring without much difference in the result. Asparagus is usually transplanted in spring, and there is a wonderful affinity between the two plants, which, of course, belong to the same order. It was a long time to wait—four years—but I felt there was no use in being in too great a hurry, and every year the plants manifestly improved, and the buds swelled up nicely and looked more plump each winter when the leaves were gone. It must be remembered also that a nice crop of flowers could be gathered each year. When the fourth year came the first plot was divided up into squares about 2 feet each way, and taken up before any hard frost or snow had made their appearance, and put away on the floor of an unused stable. From the stable they are removed as required in the squares to the vinery, where they grow beautifully, not sending up merely fine heads of bloom without a vestige of leaf, but growing as they would in spring out of doors with a mass of foliage, among which one has to search for the spikes of flower, so precious for all sorts of purposes at that early season of the year.

The spikes produced in this way do not equal in thickness and substance of petal the flowers which come from more carefully prepared clumps imported from Berlin, but they are fine and strong, and above all most abundant. I can not only supply the house and small vases for the church, but also send away boxes of the flowers to friends at a distance, besides the many gifts which can be made to those who are ill or invalids. Few gifts at such a time are more acceptable than a fragrant nosegay of Lily of the Valley. In order to keep the supply of prepared roots ready year after year, a plot of ground has only to be planted each autumn, so that in the rotation of years it may be ready for forcing when its turn shall come.

As the season advances, as everyone knows who has attempted to force the Lily of the Valley, much

less time is taken in bringing the flowers to perfection under precisely the same circumstances as those in which the first sods are forced. In February or earlier the buds are more unwilling to start; there seems to be a natural repugnance against being so soon forced out of the winter's sleep and rest. But when the flowers do come, they are nearly as fine and their leaves are quite as abundant in this way of forcing as from the pieces which are introduced much later into heat. It would be easy to preserve the squares after all the flowers are gathered, but I found that they would not, like Strawberries, kindly furnish forth another crop later on in the year, and, therefore, mine are flung away, and I have often pitied the tender leaves in the frost and snow after their short sojourn in the hot climate of the vinery. But the reserve bed will always supply an ample quantity of fresh heads, and it is best to take the new plants for preparation in the kitchen garden from this reserve bed.

This very simple method of forcing Lilies of the Valley is within the reach of anyone who has even a small garden and a warm house, and these two things are becoming more and more common among us every day. A GLOUCESTERSHIRE PARSON.

EARLY SPRING FLOWERS AT HAARLEM.

AFTER the severities of the past terrible winter, which, alas! has also in our country left its destructive marks behind in the untimely death of so many valuable plants, the earliest spring flowers are being hailed with more than ordinary delight, the more so as every season new treasures are being added to our collections of hardy bulbous plants. In the course of last week one of these acquisitions, *Iris reticulata histrioides*, said to be a natural hybrid between *I. reticulata* and the Palestine *I. Histrio*, opened here its glorious flowers. It cannot fail but that a hybrid between two such extremely beautiful species as those last named, be it a natural or an artificial one, must be a good plant itself, and this *Iris* is no exception to the rule. The most conspicuous feature of this rarity, if its unusually large size is excepted, undoubtedly centres in the beautiful colouring and spotting of the large and spreading lip, which combines the rich colour of *I. reticulata* with the streaks and spots of *I. Histrio*. Cultivated bulbs of *Iris Histrio*, one of the rarest species at present in cultivation, produce magnificent flowers with large lips of a pale blue, streaked and spotted all over with a deeper shade of the same colour; it increases rapidly where it finds a suitable soil, which should be as sandy as possible. The bright blue of *I. Bakeriana* and the golden yellow of *I. Bornmülleri*, or *I. Danfordia*, as its well-known introducer now writes that it should be called, make an uncommonly bright picture if lit up by the bright sun of March, while the little heard of, but equally beautiful *I. Kolpakowskiana*, with its richly coloured deep brown lip, is not the least beauty among them. A very good plate of this and of the following appeared in THE GARDEN for June 16, 1888, but despite its beauty and extreme hardiness, I do not find it mentioned in these columns afterwards, which leads me to believe that it is still extremely rare in English gardens. Last, not least, I would call the undivided attention of English cultivators to that most beautiful of all spring-flowered Irids, the gaudy coloured *I. Rosenbachiana*. This *Iris*, introduced from Turkestan some four or five years ago, wonderfully improves under cultivation, to which it takes as readily as the *I. persica*, which old and useful species this new-comer totally eclipses in both beauty and hardiness. An endless diversity is to be found in the flowers of newly imported bulbs of this *Iris*, and it would be foolish indeed to give all these varieties separate names; but still I think it will only be reasonable to keep the earliest forms apart from the general stock, as these not only precede the others by a fortnight, but are also distinguished by their unusually large flowers. This appears to me as a well fixed variety. The large and very fragrant flowers, of which a full-sized bulb bears two or three in succession, are of a very delicate milky white flushed with pale lilac, the lip of a deep purple-plum shade, with broad bands of a

bright orange-yellow, together making up an exceedingly rich combination of colours. This novelty doubtless has a great future before it as a plant for forcing. C. G. VAN TUBERGEN, JUN.

WINTERING DELICATE ALPINES.

TO THE EDITOR OF THE GARDEN.

SIR,—The culture here and the collection in the Alps of choice alpine plants have been my hobby for many years. I have, therefore, followed with interest the recent discussion in your columns, and on some at least of the points at issue I desire to tender my evidence rather more than my criticism. That discussion is, perhaps, tending quite naturally to become a little diffuse. Many "hares have been started," and our enthusiasm goes after each. Conscious that I should naturally follow the same course—a course, however, not conducive to solid conclusions—I will limit myself, so far as I can induce my enthusiasm to permit, to certain definite questions. These shall be those on which I can speak (always as a witness only) from some practical experience, and I will deny myself the pleasure—legitimate enough, surely, at times—of theorising as to causes.

In the first place, I would second "E. J.'s" assertions as to the great ease, the astonishing ease, with which quantities of alpine plants may be grown in the English garden under any ordinary conditions. True that many, perhaps the most, of those that can be most readily cultivated are not by nature denizens only of the high Alps, but are either species of such wide and robust sympathies as to dwell in Nature equally well on lower slopes, or are even in no proper sense alpine at all, and are such only in vague popular parlance. But after all deductions made on such accounts, it remains a fact, more certain than it is extraordinary, that even numbers of species, which are never by any chance found in Nature below a very considerable altitude indeed, will grow with the greatest ease in an English garden upon the sea level. I would instance the several alpine *Anemones* and *Gentiana acaulis*, *G. verna*, and *G. asclepiadea*; but I could make a long list. The chief explanation is mostly found—admittedly, I think—in the moisture of our summers, and in some other causes which it would lead me from my present purpose to state. That which does remain somewhat surprising, to me at least, is that so many plants which in Nature always and invariably experience a dry cold winter and a profound rest during the half of their year's life should grow so robustly and well when these conditions are radically altered. The fact that they do so is so well established, that only indirect advantage can be got by hunting for the explanation. I can think of none, except the assurance, comforting to us as gardeners if humiliating to us as theorists, that we have largely in our theorising under-estimated Nature's adaptabilities and the power of numbers of plants to conform in a large measure to changed conditions. Our broad assumption that to grow a plant we must necessarily imitate the conditions of its natural habitat is proved by experience to be untrue. But it may, and according to my experience does, remain true that such is the best way to grow it.

In the next place, may I emphasise the supremacy of the English climate for their culture? I think I recollect M. Correvon writing or saying to me that only in English gardens could even fair specimens of the alpine *Rose* be found in cultivation, and that he, with the hot summer climate of Geneva, was (as I should otherwise have believed) at a great disadvantage by comparison with English growers. I know,

I think, the best botanic gardens on the Continent and the best Continental (alpine) nurseries. All seem to me to be vastly inferior at all points, as regards alpine culture and collection, to those of this country. There is, I believe, complete agreement as to this matter, and also as to the cause, viz., our moist temperate summer. Probably our dull sunless winter is also helpful.

But this brings me to my third point. My experience is wholly favourable to glass protection during winter for most choice alpine plants, given always sufficient and regular ventilation. For a very small minority indeed it is essential, and those for which it is so have been already sufficiently indicated by others. To a few it is, perhaps, injurious, unless their enormous appetite for air can be gratified, while at the same time shielding them from wet and from extreme cold. But for the great bulk, while neither essential nor injurious, I find such protection good, unless bought, as it need not be, at the price of fresh air. It is intelligible, consistent, and not unreasonable for some to think and say, "I care only for a garden of alpine plants, naturally grown and natural looking, and I am content if thus I may be spared the ugliness and trouble of glass structures, to forego the choice plants which make them necessary, to put up with a larger death-rate, and to suffer the trouble and expense of more frequently refurnishing." This may be a wise position, and even an economical one. But those of us who aspire to large collections of choice alpine plants at their best, and to secure these to us perennially against weather and accident, will best and most easily—I will not say only—succeed, so far as my experience enables me to judge, by keeping their plants under glass in winter, and so remedying the single defect of our climate for their culture.

I have long been a convert from pot culture, unless for exhibition specimens and other special reasons. Under it sufficiently rapid drainage and deep root runs are wanting, and both these are needed to give the best results. But planting out in well-ventilated frames is not, of course, the only alternative, though in many ways it is the best. A plan which I have followed with almost equal cultural success, and with the manifest advantage of avoiding all unsightliness, is to plant a rockery or sloping bank 6 feet by 4 feet with the plants to be protected, and to cover them from late autumn to early spring with a common garden light. This is held up and over them at the four corners by large stones, which should either be natural-looking and permanent, or which may be removed with the light in March if unsightly. It is, however, further essential to hold these lights down against the power of the wind. This is effected by the use of two or three iron clamps for each frame driven firmly into the ground. I have thus grown successfully and perennially large masses of *Onosma taurica*, *Dianthus alpinus*, alpine *Primulas* and the like. In ordinary winters most of these plants would probably, and well enough, have done without the protection, but the rest and security thus assured to the plants are, I am convinced, valuable; and I imagine that it is the question of value rather than that of complete necessity which we are considering. On the question whether it is protection against damp or against smoke or fume, our experience here generally is not of value. But I can contribute one fact for what it is worth, and few such single facts are worth much. Here at Guildford we were, during the past severe weather, visited by a foul and dirty London fog, driven hither by a north-east wind, and precipitated upon our

evergreen foliage by a sharp frost which succeeded it. The visitation, from a rare concatenation of causes, was almost, in my experience quite, unprecedented. While Conifers hard by were poisoned, and whole boughs at least killed back by it, alpine of many sorts quite close to them, and though with persistent foliage, were absolutely unharmed.

Generally agreeing with "E. J.'s" remarks, my experience leads me to the conclusion that he undervalues lime in alpine culture. For few even choice alpine is it essential; many neither care for it nor dislike it; a few (for instance, *Gentiana bavarica*, *Androsace carnea* and *A. Wulfeniana*) seemingly abhor it. But most so like it and flourish in it, as to make their culture in calcareous soil easy, when otherwise it would be difficult. We have M. Correvon's evidence to this effect. Last summer I was plant-hunting at and about San Martino, in the Dolomite Mountains, a range in which limestone mountains are strangely and closely intermixed with others of (I believe) gneiss formation or volcanic origin. The absolute difference between the flora on the two formations was most remarkable. It is scarcely too much to say that the notable plants found profusely on the one formation refused to grow on the other, though all conditions, except soil, were otherwise to all appearance identical. I am stating my impression, and shall be glad to be set right if my observations were too partial. *Primula glutinosa*, for instance, a plant abounding above the Tognola Alp (on a granitic or some other non-calcareous soil) I found nowhere on Dolomite proper (i.e., magnesian limestone), though I traversed it in many directions. *Gentiana verna*, *Primula farinosa*, and *P. minima* were almost in sheets on the latter formation, but neither bloom nor plant of them was to be found (though Nature must have scattered their seed lavishly) upon the other and alternating soil, and, as M. Correvon says, the alpine flora is multitudinous and rich upon the chalk or limestone, it is comparatively meagre to the last degree off it. My experience, both as a practical cultivator and as a passing observer of the Alps, leads me to the conclusion that a truckload of chalk is a good investment for the would-be grower of choice alpine plants. It has long been pretty common knowledge that for some plants, such as the difficult *Androsace Chamæjasme* and *Gentiana verna*, chalk is a veritable secret. The latter is the one plant of which throughout this terrible winter I could here (on chalk) pick blooms certainly in every month, not improbably in every week.

Guildford. H. SELFE-LEONARD.

Mimulus.—Treated purely as annuals raised from seed sown practically in midwinter and in a cool house, I find no plants more easily produced, and of the fine spotted or tигed strain few more beautiful for outdoor culture. Although the seed is exceptionally fine, yet it germinates freely if sown at any time through the dead of winter. That is pretty conclusive proof of the comparative hardiness of both seed and plant, and should encourage those who have no heat to grow *Mimulus*. Where so easily raised the after cultivation is not less easy. The only danger in seed-sowing in pans is that because so fine and full of growth, the seedlings should be far too thick in the pans. It is indeed almost impossible to have them otherwise. The best remedy for overcrowding, therefore, is found in having other pans filled with fine sandy soil into which to dibble moderately thinly some of the strongest of the seedlings. Given a gentle sprinkling of water and left alone in the house or frame, these tiny plants soon begin to form fresh roots and make growth. This is rapid, for in a short time a further transplanting is needful either

singly into small pots or thinly into the soil bed of a frame. In a very short time further the plants will be strong enough to be planted out into the open ground, because the *Mimulus* is so comparatively hardy. I have done this on a west border as early as the end of April, long before it would be safe to entrust tender plants to the weather. The newer and richly coloured and speckled strains have a fairly dwarf habit, blooming profusely at from 6 inches to 9 inches in height, and, of course, need little pinching. In the case of young plants, which seem to throw all their strength into the production of a single stem, it is well to pinch that hard back, and thus induce shoots to break from the base. The better strains of *Mimulus*, however, hardly need pinching, as they spread and break freely. Only after the first bloom is over is it needful to pinch or cut out the flower-stems, and then new ones are produced.—A. D.

THE FLOWER GARDEN.

WITH the lengthening days of March preparations for the summer planting and general beautifying of all those parts of the garden requiring annual treatment which first took shape last month may now be advanced a step. Specimen plants as *Fuchsias*, *Unique*, *Ivy-leaved*, and other *Pelargoniums* as well as *Heliotropes* and *Lemon Verbenas* are now starting away nicely, and if they are on balloon or pyramidal shaped trellises they want looking to occasionally to direct the young growths so that the plants when required may be well furnished from base to top. It is almost impossible to overfeed such plants as the summer advances, for it must be remembered that if they remain year after year in the same pots, there must necessarily be a perfect mass of roots requiring the aid of powerful stimulants to keep up the supply of flower and healthy foliage until late in the summer. Boxes or pans that are to occupy prominent positions should be filled some time this month to allow plenty of time to furnish them well, and also to thoroughly harden off the plants before the end of May. It sometimes happens that the inmates of such boxes have to serve several ends. For a few such boxes that we have to fill I use as trailers alternate plants of *Cobæa* and *Canary Creeper*, carrying them to where they are required by means of thin wire. To hang well down over box and stonework I employ *Creeping Jenny* and *Mina lobata*, and for the face to be seen from sitting-room, a mixture of *Lady Plymouth Geranium* and *Heliotrope* and *Mignonette* with occasional plants of *Rose of Castile* and *Wave of Life Fuchsias*, with a front row of white and blue *Campanula carpatica* and *Manglesi Geranium*. If there is little in the way of actual flower garden in the immediate neighbourhood of the mansion, a bit of colour may be had here and there by the aid of a few groups of smaller plants. If zonal *Pelargoniums* that have been used for winter flowering are cut back slightly, top-dressed with some good loam and a dash of artificial manure, and started in a little warmth, they will be flowering again well by the beginning of summer and continue through the year. I saw a very pretty group last summer made up with three or four *Palms*, a few plants of *Francoa ramosa* and a mass of *R. V. Raspail Pelargoniums*. This answered admirably in serving the required purpose, viz., a spot of bright colour relieved and toned down by the feathery spikes of the *Bridal Wreath*. A very nice group for a verandah or porch can be formed with *Fuchsias* and tuberous *Begonias*, the foliage employed being *Grevillea robusta* and *Onychium japonicum Fern*. I may again call attention to the necessity of all things employed in the neighbourhood of the mansion, whether in the shape of box, vase, or pot plant, being in the best possible condition, well furnished throughout, and in a thoroughly healthy state; all pot plants should receive an occasional sprinkling of artificial manure to keep the foliage intact and growth moving. Plants to be used as small specimens in beds should be potted at once out of seed-pan or cutting pot, and grown along fast for another five or six weeks. Besides foliage plants, as *Acacias* and *Eucalyptus*, some of the *Ivy Geraniums*, *Petunias*, *Fuchsias*, and *Helio-*

tropes can be used for the purpose. Old stock plants of *Verbena*, *Ageratum*, *Petunia*, and *Lobelia* from which cuttings have been taken may be shaken out of the pots and transferred to boxes. There is in most gardens a man handy with saw and hammer, and if some rough boarding of the proper thickness is procured, this manufacture of boxes will furnish work for wet or rough weather. The advantage gained by boxing is very considerable, and makes a lot of difference in the rapid furnishing of beds. A little preparation is sometimes necessary for the planting of odd nooks and corners, not very important in their way, but still presenting a better appearance if they are brightened up at any rate through the summer months. One such corner was improved by planting the variegated *Ivy* to three stout iron stakes 3 feet in height, training it to the top and then allowing it to droop and ramble at will, the intervening space being filled with the common *Musk*. The double *Tropæolums* (both the orange and red) will do well and flower profusely on a dry light border; so also will the old double *Chamomile* and *Echeverias* in variety. E. BURRELL.

Claremont.

Hepaticas are always welcome in early spring, and this year more so than usual. The one most common in gardens is *H. trilobata*, this being the origin of all the single and double forms we grow, excluding, of course, *H. angulosa*. These varieties have been in more request in recent years and some of the old gardens have been ransacked, greatly to the benefit, we are told, of lovers of these pretty spring flowers. In good free vegetable soil and in semi-shady spots they thrive amazingly, and if left alone are not long in forming nice firm tufts. The *Hepatica* is a plant that will not stand being disturbed; it resents treatment of this kind by refusing to flower and often by refusing to grow at all. The safest way is to start with young plants a year or two old, make up a nice bed, and plant where they will remain undisturbed for years. It is always worth while to save the seed of the best sorts and to sow it directly it is gathered in boxes or pans. *H. angulosa* from Transylvania is a very fine species with large deep blue flowers, very free, and easily grown on the rockery.

Cactus Dahlias.—In the schedules of prizes for Dahlias to be competed for at the National Dahlia Society's exhibition at the Crystal Palace on September 4 and 5, and in that for Dahlias offered by the National Chrysanthemum Society on September 9 and 10 at the Royal Aquarium is witnessed a new departure in relation to what are known as Cactus Dahlias. Classes have been formed for flowers only following the type of *D. Juarezi*, and thus showing the true Cactus character. In order that exhibitors should know what are admissible in these classes, the following list appears in the report of the National Dahlia Society, viz.: *Amphion*, *Beauty of Brentwood*, *Cannell's Favourite*, *Henry Cannell*, *Honorina*, *Juarezi*, *Marchioness of Bute*, *Mrs. J. Douglas*, *Mrs. Hawkins*, *Panthea*, *Professor Baldwin*, *Robert Maher*, and *Sir Trevor Lawrence*. As is usual with Cactus Dahlias, six blooms of each variety are invited. The prizes offered for true Cactus Dahlias at the exhibition of the National Chrysanthemum Society in September are given by Mr. T. W. Girdlestone, M.A., the hon. secretary of the National Dahlia Society.—R. D.

Omphalodes verna.—G. Shepherd sends me nice twigs of this creeping *Forget-me-not*. Some are from pots in the greenhouse, and others from the open ground. The indoor twigs have larger and better-developed foliage, but the outdoor flowers are of a deeper blue.—G.

Choice double Primroses.—Here we have about a score of plants of double *Primroses* growing in pots. They have bloomed profusely this year. I have not tried them outside yet, but they ought to do well in this moist atmosphere, and what could look better than a bed or border of this grand *Primrose* with its fine dark flowers, so freely produced, as they are now in the greenhouse? I do not know the name of this *Primrose*, but I have sent a few for your inspection.—P. WELLS, *Gorey, Wexford*.

* * * The flowers sent are those of the old double crimson.—Ed.

COTTAGE GARDENS.

THE very phrase "cottage gardens" calls up many pleasant memories, and brings to mind many pleasant sights and sounds, not only in country places, but also in the very suburbs of London and other large towns in England where such gardens are to be found. Throughout the length and breadth of England the traveller more especially is delighted with cosy little hamlets and villages rendered homely and beautiful by cottage gardens filled, as most of them fortunately are, with blossoming or fruitful trees or shrubs, and nearly always with homely, old-fashioned flowers.

In Devon and Cornwall the cottage gardens

and fruitful land. The word "fruitful" reminds us that of all times or seasons, perhaps, the most delightful period in England is the time of Apple and Cherry blossoming. When the verdant Grass of meadow and orchard or lawn is overclouded with rosy or white blossoms, tossing up against the clear blue or grey-flecked sky, then is England—almost more than Normandy—a country fair to see. It is so in Devon, Kent, Surrey, indeed in all the home counties; so also in Herts and Warwickshire, and throughout Wordsworth's land of the lakes; nor need we stop at the border, for the beauty of cottage and of orchard extends even far into the land of Burns. Never have I seen such

Apple trees at Shottery, near Stratford-on-Avon. Similar cottages are met with in Kent, Middlesex, Surrey, and Sussex, and nowhere else perhaps in the whole world can we see the old crimson and gold Wallflowers so fine as in these homely places. Now and then during summer and autumn such cottages are wreathed with foliage or fruitage of the Grape Vine; sometimes a Victoria Plum, rich in blossom or heavily laden with juicy fruit, octopus-like, stretches its branches over their whitened walls; or, it may be an Apricot that helps to pay the rent, or a fine old Pear often exists on the sunniest gable end. How delightful are the old timber-framed cottages among the Pear orchards of Hertfordshire, and now and then even the red brick cottages of the midland counties are made beautiful by the fruit trees, Roses, Ivy, Clematis, or Jasmine which nearly cover their bare outer walls. There is nothing much more delightful than to make a pilgrimage now and then amongst the homely plots that belong to a flower-loving people. If you go among what we may call the Shakespeare villages around Stratford-on-Avon you will not only find traditions of the man himself plentiful amongst them, but also most of the flowers which he loved and mentioned in his works—the "Rosemary for remembrance" and Pansies for thoughts. Here in the grassy fields, fenced with "budded Thorn," you will see myriads of "freckled" Cowslips, King Cups, Cuckoo buds, and other flowers of many a hue that "paint the meadows with delight." There also are to be still seen the "streaked Gilliflowers," the "Clove Coronation" of Spenser, also known, from its probable use in homely and cottage economy, as "Sops in Wine."

There can be no doubt but that the thousands of cottage gardens in this country have had a very great conservative influence on hardy flower culture in England. Now and then such gardens were invaded by the bedding plants, such as Pelargonium, Lobelia, and Calceolaria, but, as a rule, this was not so, since there were neither sheltering conveniences nor inclination to favour the introduction of exotic half hardy flowers. On the other hand, the cottage garden flora is mainly composed of what we may call Parkinson's flowers, that is to say, of the flowers commonly grown in the best of English gardens before the era of glass structures in the garden. This flora was in part exotic, but most of the plants of which it was and is composed are quite hardy. Of such are Snowdrops, Snowflakes, winter Aconites, Christmas Roses, Daffodils, Tulips, Iris, Lilies, Crown Imperials, Auriculas or Bear's-ears, Carnations, Pinks of spicy odour, Sweet Williams, Clove Pinks of many kinds, old Roses, many of which are now rarely to be seen; Primroses, Polyanthus, Larkspurs, not forgetting the Anemones and Crocuses, Irises of many kinds, Lily of the Valley, Solomon's Seal, Hollyhocks and gorgeous Paeonies. Among the most popular annuals of 200 or 300 years ago and of cottage gardens to-day were Sunflowers and French and African Marigolds, the very name being a proof of the ordinary garden, or so-called pot Marigold being in cultivation. Gerard (1597) is very careful to tell us of the abundance of many flowers, such as Tulips, Auriculas, Daffodils, Pinks, Carnations, Roses, &c., in the London gardens of his time, and visitors to the Guildhall Museum in the busy London of to-day may see the quaint old water-pots of earthenware, as alluded to by Shakespeare, and as used by the wives or daughters and servants of the London merchants in their city gardens of 300 or 400 years ago.



Cottages at Limsfield, near Oxted, Surrey. Engraved for THE GARDEN from a photograph by Mr. W. S. Rogers, Bedford Park, Chiswick.

are quite a welcome feature in the landscape, with clambering Roses and Clematis, and the hundred and one other little things that go to make such gardens delightful. Near Killerton I once saw a little thatch-roofed cottage almost smothered with *Ecchremocarpus* (*Calampelis*) scaber, while in others still further south were Roses, Sunflowers and Dahlias, Maize and Carnations in glorious, because luxuriant, profusion. In spring the Hellebores and *Daphne Mezereum*, old double Primroses and *Polyanthuses*, *Auriculas* (*Dusty Miller*), and Daffodils in some of the cottagers' gardens or orchards in Devon are enough to make one ever wish to live and enjoy a garden in such a genial

Hollyhocks, Phloxes, Pansies, and such trailing masses of the Scarlet Flame *Nasturtium* as may be seen in cottage and farmhouse gardens north of the Tweed.

Our illustration gives us a peep at an old wood-framed or timbered cottage at Limsfield, Surrey, with its leafy covering or garniture of all sorts of pleasant shrubs and flowers. It is in such places as this that the old monthly Rose (*China*) is at home, so also Jasmine, Clematis, *Gloire de Dijon* Roses, Lavender, Rosemary, Mint, Thyme, and Marigolds. Such a cottage as this may stand for a type of what is quite common in England, and reminds one a little of Ann Hathaway's cottage among the

And to-day it is this old flora of early days in the history of gardening that has come back to us, or, as Mrs. Ewing puts it, the flowers once cast away to make room for "bedders" are now brought back from the cottage gardens just as the old farmhouses are ransacked for old cabinets and bits of Chippendale or Sheraton furniture, so that, as is abundantly evident, the cottage garden, with its Lavender and Mezereon and golden-flowered Kerria, its Jasmine, its old Provence Roses, and its bush of fragrant Rosemary, is really worthy of due remembrance as having exerted and maintained a beneficial influence on at least one of the best phases of gardening of our time.

As was evident in the exhibition of Tudor portraits in London last season, the Carnation was one of the, if not actually the, most popular flowers of that day, and Professor Thorold Rogers tells us that in the England of Elizabethan time each cottage had near to it at least three or four acres of land, so that one may wonder the less at the tenacity of the cotter of our own day in clinging to his orchard or garden and his love for the flowers his ancestors prized.

Mr. Rogers, whom we have to thank for the photograph from which the annexed engraving was prepared, sends us the following notes concerning it:—

Limpsfield is a delightful little village in Surrey some mile or so from Oxted—the nearest railway station. It can be reached from Croydon in about twenty minutes by rail. The principal street ascends a considerable hill, and contains the usual assortment of houses, large and small, that are to be found in villages of this same size and age. Neat and clean is Limpsfield, and its cottagers are well versed in the art of flower-growing, for scarcely a single dwelling but has its tiny garden abloom with Stock and Pansy, Mignonette, Marigold, and Geranium, whilst the fronts of the cottages are covered with Monthly Roses, Gloire de Dijon Rose, or Honey-suckle. Ascending the hill and halfway up on the right hand is a lane, which leaves the roadway at right angles. In this is the row of cottages shown in the engraving. The timbers in the walls and the diamond panes in the leaded window casements show these cottages to be of no very modern date. Probably they have sheltered many generations of folk, of which the ancient dame in the picture is not the last or least interesting.

Limpsfield people are shrewd at a bargain if I may judge by the sample who posed to my lens in this instance. She did not object to be photographed, but the price was to be two copies of the resulting impression. The copies were duly forwarded, and may they have given the worthy dame and her kin the pleasure she hoped to obtain from them. The bargain was not a one-sided one after all, for my model—in spite of her eighty summers—stood firm as a rock, and thus contributed in the best way she could to the success of my picture.

F. W. BURBIDGE.

HARDY WATER LILIES.

In the size, colour, and brilliance of their flowers, the Water Lilies rival the Magnolias, Pæonies, Roses, Poppies, Tulips, and Lilies of our gardens, and in one respect (an exception almost unparalleled) surpass them, inasmuch as they are naturally double-blossomed when growing in the wild state in the lakes and rivers, from which an inexhaustible supply of them can always be obtained. These wild Water Lilies exhibit some appreciable diversities in the size of their flowers and the purity and uniformity of their colouring. Occasionally specimens are found which diverge considerably from the type. These, however, are rare, a circumstance which may be explained as due to the greater uniformity of the conditions of the habitat of aquatic plants; still, they sometimes

occur, and during the last twenty years two splendid varieties (one originating in Europe and the other in America) have given a fresh impulse to the culture of Nymphæas by adding to our aquariums two very hardy Water Lilies with handsome rose-coloured flowers. About the same time was discovered, or more correctly re-discovered, in Florida a species with yellow flowers, a colour unknown amongst the Nymphæas of temperate climes, and these fresh acquisitions have afforded an additional charm and means of enriching the ornamental furnishing of pieces of water in pleasure grounds, besides supplying the parentage of some most interesting hybrids and the prospect of further successes in this direction. Visitors to the exhibition at the Trocadero will remember the splendid collections of Nymphæas staged by MM. Latour-Marliac, Lagrange, Croux, Armand Gontier, &c., from which a good idea could be formed of the extent to which this fine genus is now amplified in forms and varieties. I shall not here undertake a complete account of all the old species and new varieties which may be grown in the open air, but shall confine my remarks to a summary description of the best kinds, my experience, now of many years' standing, enabling me to give suitable instructions as to their culture and information respecting their mode of growth, which I hope will prove interesting to amateurs—a class of gardeners that I would rejoice to see ever increasing their numbers by making their friends and neighbours converts to their practice. I shall divide the following notes into three sections, viz.: First, an account of species and spontaneous varieties; second, a description of garden varieties raised from seed; and third, general instructions as to culture.

THE WHITE WATER LILY (*Nymphæa alba*).—This handsome plant is too well known to require any description here; it will, however, often recur in these notes, as serving for a standard of comparison with other species. It commences to flower early—about the end of April—and continues to bloom all through the summer with a moderate degree of profuseness, the plant being larger and finer when growing in a 4-foot or 5-foot depth of water. The thick rhizome ramifies pretty extensively, and by division of it the plant is readily multiplied. It grows well in ponds, the bottom of which has been covered with a layer of soil 1 foot deep, and does tolerably well in ponds not so furnished with soil if planted in a basket. The variety plenissima has a greater number of petals than the type, say fifty, when the ordinary form would have no more than twenty-eight or thirty, not counting the potential petals or stamens. It requires the same culture as the preceding kind. The variety maxima originated in Macedonia, and has very large flowers. I only know it from description. In the variety minor the flower is smaller than in the type, but is equally double and well formed. Its small size is only a matter of comparative interest.

CASPARY'S WATER LILY, or the Swedish rose-coloured Water Lily (*Nymphæa sphærocarpa*).—This magnificent species or variety has been referred by some authorities to *N. alba*, but it is very certain that it differs from that species in the characteristic features of its growth. Of the precise locality in which it originated we know nothing more than what it has pleased its introducer to communicate to the public, but the earliness of its growth appears to confirm the supposition of its northern origin. It comes into flower sooner than any other kind of Nymphæa, and requires a considerably less degree of warmth in the water to produce its finest flowers. It prefers to grow in waters that are deep, pure, and fresh, and its flowers are at their best during the latter half of the month of May, when they attain a size little less than that of the flowers of *N. alba*, from which they differ in being more widely opened. The deep rosy-carmine colour which characterises the four

or eight inner petals then spreads over nearly all the rest, the outer petals, however, remaining somewhat paler than the others. This brilliant suffusion of colour preludes, with a brief interval, the end of the flowering season, the interval being all the shorter if the weather is warm and the plants are grown in an aquarium or a pool which does not receive a supply of running water. Under such conditions the latest flowers make their appearance about the middle of June. The root-stock of this plant is very thick, and increases in length rather slowly. It is not quite correct to say that it never produces lateral shoots, and that, consequently, it cannot be propagated by means of offsets, but such shoots are extremely rare, as may be judged from the fact that during twelve years a very strong plant afforded me only two of these lateral shoots. This Nymphæa is a better seed-producer than any other kind, which might be inferred from the scantiness with which the root-stock yields lateral shoots, and I have frequently sent perfectly ripe seeds of it to lovers of aquatic plants. Some of the seedlings from these will, perhaps, surpass the parent plants in the colouring of the flowers.

DWARF CHINESE WATER LILY (*Nymphæa pygmaea*).—I grew this for some years and lost some plants of it which I have not been able to replace; I therefore prudently refrain from giving any cultural instructions, but I may say that as the plant comes from a climate which is very warm in summer, it does well in a tank or aquarium in which the water is sufficiently warm for it. This pretty little plant bears a flower which has only four white, well-marked petals, exclusive of the segments of the calyx and the broad filaments of the stamens, and is something less than 1½ inches in diameter. The plant has often been described.

NYMPHÆA TUBEROSA.—This very hardy, handsome, and floriferous Water Lily is found in Lake Superior and in the Northern United States. Its native habitat is very limited in extent, which perhaps is the reason why the plant is so little known. It comes into flower in the end of April about the same time as *Nymphæa alba*, and the flowers are about the same size, quite as double, but with firmer and broader petals, these being from 1½ inches to 1¾ inches broad, while the petals of *N. alba* seldom exceed two-fifths of an inch in breadth. The inner petals, which are attenuated into broad stamen-filaments, are of a fine lively golden-yellow colour instead of the pale yellow seen in the flowers of *N. alba*. The flowers are produced in succession throughout the whole of the season, and in greater profusion than those of *N. alba*. The root-stock is very curious, consisting not of an elongated ramifying body, but of an agglomeration of numerous buds forming a fleshy mass sometimes a foot in diameter. Division, however, is effected without much difficulty, and I have thus multiplied this species to a large extent without injuring the parent plant in the least. This Water Lily does very well in a depth of water varying from 2 feet to 6 feet. The leaves, being pressed upon by the close and numerous shoots, are half raised above the surface of the water, and the flowers almost always stand clear of the water, and usually at a distance of from 2 inches to 4 inches above it. As in *N. alba*, the back of the outer petals is sometimes slightly tinged with rose colour, and the calyx is of the purest green. I have never seen any seed-vessels formed on my plants, but it is probable that such might be formed and that the seed would ripen easily.

NYMPHÆA ODORATA (Aiton).—This species occurs in great abundance in all stagnant or slow-running waters in the United States, of which it is a native. It has an odour which might almost be pronounced agreeable when compared with the insipid and very weak scent of the preceding species. It does not commence to flower until June, when the temperature of the water has become sufficiently high; it is quite hardy, and flowers profusely and continuously, the flowers being at their best at midsummer. The rhizomes are comparatively very slender and ramify without stint, so that propagation is easily and very quickly effected by means of division. I have fruitlessly sought for

fertile seeds on the plants grown by me either in tanks or in the open pond. Plants of this species having flowers more or less rose-tinted were long since known to exist, and Meehan, in his "Native Flowers and Ferns," had given a coloured plate of specimens, when by chance some plants with fine pure rose-coloured flowers were discovered in a marsh near Cape Cod, in the neighbourhood of Boston, at the south-eastern extremity of Massachusetts. It is this last-mentioned variety which must be borne in mind when one reads of the "Cape Cod Water Lily" in American gardening books. The colour of this fine variety differs appreciably from that of Caspary's Water Lily, the rose colour being pure, without any tinge of lilac and carmine; all the petals are uniformly more deeply tinted on the lower part, and somewhat more lightly tinted at the point on both sides of the petals, which has the effect of imparting to the flowers a shaded and satiny sheen. The flowers open well, and the plant adapts its growth to any depth of water in tanks or ponds. I saw a specimen this year flowering finely in a pool where the dryness of the season had reduced the depth of the water to 8 inches. In addition to growing it in the open air, this plant is also grown under glass by the florists of Boston, who sell the flowers which it yields continuously during the winter. A plain tub or bucket and a little earth and water are all that is required for this phase of its culture. The hardness of this Water Lily, the readiness with which it can be multiplied, and its property of flowering continuously all through the summer and up to October should recommend it as worthy of being grown in every garden in which there is a tank or pond.

THE YELLOW WATER LILY (*Nymphaea flava*, Audubon).—A coloured sketch, by the celebrated naturalist Audubon, representing one of the birds of Florida, had long puzzled the botanists, one of the accessories of the picture being a double-blossomed water plant with citron-yellow flowers, which could represent nothing but a *Nymphaea*. Such a plant had never been seen by them nor recorded by anyone, and, on the other hand, Audubon was known to be scrupulously conscientious as to the truth of his delineations and descriptions. However, about fifteen years ago the plant was rediscovered near the river Saint Jean, in Florida, whence it was introduced into the Northern United States and thence into Europe, where it has proved to be a harder plant than anyone could suppose from the low latitude of its native habitat. This plant presents very sharply defined features; it is not truly rhizomatous, but has fibrous roots mingled with short swollen ones, and sends out tolerably long runners (like the Strawberry), which take root in the same way and form new plants. The leaves are comparatively small, oval, slightly acuminate, perceptibly toothed, of a deep green colour, marbled with brownish red, the under sides being purple and red. The flowers are of medium size, that is, about 4 inches in diameter, with numerous petals, which are not more than three-fifths of an inch broad at the base and are pointed at the end. This plant requires to be grown in the open air, as it does not appear to be amenable to culture in a tank—at least I have not succeeded in growing it in an aquarium with a bed of soil in the bottom of it. The plants should be immersed out of doors gradually until they stand in about 2 feet of water, and it would perhaps be safer to reserve a few plants under glass to provide against accidents, &c. It is not, in fact, a plant that can be very easily grown, and we think that the new yellow-flowered hybrids will be found far preferable subjects for the embellishment of ponds, &c., in pleasure-grounds.

The varieties which I shall describe next were raised from seed by the well-known specialist M. Latour-Marliac, of Temple-sur-Lot. This skilful cultivator has, as we think, struck a rich vein in diverting his chief attention from the raising of new varieties of *Nelumbium*—a plant which in France cannot be grown in the open air except in the southern districts—to the raising of new varieties of *Nymphaeas*, plants which are universally hardy, easy of culture, and of which the varieties and species re-

cently introduced afford good materials and a wide field for experiments in hybridisation. The question is whether M. Latour-Marliac's new varieties are the result of hybridisation, and if so, what is the parentage? All this, however, is the raiser's secret, and if he chooses to keep it, no one should contest his right to do so. I have often heard it said that some of his new varieties are nothing more than such divergencies in the seedlings of a species as might be expected to occur when that species is grown in a climate different from that of its native home; but I cannot accept this hypothesis, for many of these varieties appear to me to combine the characteristic roots, flowers, leaves, and manner of growth which belong to two distinct species, and I am of the opinion that the raiser has followed a system of intercrossing which he has worked out with careful calculation and judgment.

NYPHÆA MARLIACEA CHROMATELLA.—This superb variety is one of the most remarkable of the series. The rhizome is rather thick; the leaves are abundant and of a purplish red colour on the underside. The flower is very large, well opened, with broad petals of a sulphur-yellow colour and golden yellow stamens; it is often 6 inches in diameter and rests on the surface of the water. The leaves are very large, but leave a sufficient space of the surface of the water clear for the flower to float in. The plant commences to flower in June and blooms continuously and pretty plentifully all through the summer.

NYPHÆA MARLIACEA CARNEA AND N. MARLIACEA ROSEA.—These two plants have larger flowers than any others of the series. They are nearly 7½ inches in diameter, and the flowers of the first named variety are of a paler colour than those of the other variety, as the specific names would indicate. Another splendid variety is *N. Marliacea albida*, which has very large white flowers, the inner petals of which are shorter than the others, and the centre of the flower is of a lively yellow colour.

NYPHÆA ODORATA ROSACEA.—Leaves very abundant and of medium size; flowers large, soft rose colour, and abundantly produced.

NYPHÆA ODORATA EXQUISITA.—A magnificent new variety, larger in all its parts than the typical *odorata*. The flowers are of a still finer rose colour, and the underside of the leaves is of a still deeper purple colour. This is one of the handsomest plants of the series.

NYPHÆA ODORATA SULPHUREA.—This splendid variety has already been described and figured in a coloured plate in the *Revue Horticole* for 1890, p. 540. Leaves very abundant, green, marbled with purple on the upper side, and of a dull red marbled with bright red on the under side. Flowers very large large, very double, and of a sulphur-yellow colour; petals narrow, numerous, spreading very much, and even reflexing towards the flower-stalk, giving the flower an almost spherical appearance.

All these hybrids are, as a rule, plants of large dimensions, especially those of the *Marliacea* series. They are adapted for growing in deep water without, however, requiring so great a depth as *N. alba* and *N. sphærocarpa*. They would also probably prefer water of a higher temperature. They have a tolerably agreeable scent, especially *N. odorata sulphurea* and *N. Helvola*, a dwarf variety having the characters of *N. pygmaea*, with the exception of the colour of the flower, which is yellow, and the red marbling on the leaves. This series of hybrids already so remarkable, will no doubt be annually increased by new acquisitions as the seedlings of M. Latour-Marliac, or of those who are treading in his footsteps, come to maturity and show their flowers. It is not, however, during the first year of flowering that the merit of a variety can be fully ascertained. In addition to all other good qualities, a *Nymphaea*, if it is to

prove a success in a horticultural sense, should possess the property of being easily propagated. Some remarkable seedling plants are sometimes entirely incapable of emitting lateral shoots from their rhizomes, and consequently remain in the condition of being almost solitary specimens. Such is the case with the handsome *Nymphaea Laydekeri*, which has carmine flowers with orange anthers and filaments, peach-scented and produced in lavish abundance. This variety, whose only defect is that it does not yield any lateral shoots, has, under the hands of its raiser, become the seed parent (male) of another variety named *M. Marliacea rubra punctata*, which will shortly be put into commerce.

CULTURE OF HARDY WATER LILIES.—The best mode of culture is the simplest; which consists in sinking a portion of the rhizome furnished with one or more shoots in a pond or other piece of water 2 feet or 3 feet deep (some kinds may require more than this) and having a muddy or clayey bottom. The long roots can be confined in a small loosely-woven game-basket (the older and more worn out the better), allowing the point of the shoot to protrude for a couple of inches. Some roots exist very near the end of the shoot; these must be left free, and they will soon lengthen out and fix themselves in the soil of the pond bottom. This operation of planting should only be carried out in the month of May except in the case of the earliest varieties. It could be done at any season of the year, but I think early planting is more conducive to the plants becoming well established. *Nymphaeas* which are planted out-of-doors attain a larger development and flower more abundantly and even somewhat earlier than when they are grown in aquariums. They are able to hold their ground against the wild water plants with the exception of the Bulrush (*Scirpus*) and the Reed-mace (*Typha*), the roots of which should be extirpated if any exist near them. Clayey bottoms seem to suit them very well; the water may either be running or not, and may either be of a fixed depth or may vary in its level to an extent of 1 foot or 2 feet without injuriously affecting the plants. In the absence of a pond or pool with a natural mud or clay bottom, these *Nymphaeas* may be successfully grown in tanks 4 feet or 5 feet deep, the bottoms of which are covered with a layer or bed of rich compact clayey soil 1 foot in depth. This soil having been moistened, the roots of *Nymphaeas* are planted in it, after which the bed of soil is covered with a layer of river sand an inch, or a little more, in depth. Water is then admitted slowly until it reaches a depth of 3 feet in the tank. Plants grown in this way come into leaf at the same time as pond plants. Lastly, if neither ponds nor tanks are available, these Water Lilies can still be easily grown, for, as M. Latour-Marliac wittily observed, like Diogenes, they can content themselves in a cask; we may even go further than this and say that they find themselves quite at home in half a cask buried in the ground and half filled with soil and water. On lawns the cask or half cask might be sunk level with the surface, thus giving the leaves and flowers of the Water Lilies the appearance of growing out of the ground. Last and least satisfactory of all I shall mention the mode of growing them in a basket at the bottom of a tank not furnished with a bed of soil. Here the new roots issue through the basket and extend themselves on all sides without meeting with any sustenance. In speaking of planting in a pond or tank, I gave special directions for the operation, but these water plants are so tough that they will bear a far more summary method of treatment, and a *Nymphaea* may with every prospect of

success be planted in a pond by simply fastening a stone to a piece of a root and throwing it into the water.

In tanks the water may be kept fresh by putting into it a few small fishes, not larger than gold fish. Gold fish are fond of the seeds of *Nymphaea*, so that the seed-vessels should be looked after and gathered as soon as they will burst when squeezed slightly. The ripe seed keeps good for a pretty long time if stored in a dry place; it germinates usually in a satisfactory manner, and the seedlings can be pricked out without any difficulty. The raising of seedlings, however, cannot be said to be an easy matter, as for more than a year one must carefully attend to the condition of the shallow water which covers them by keeping it clean and up to the proper level, besides giving the plants more room as they require it, and various other attentions. In an aquarium one of the greatest enemies of the seedlings is the frog, which does harm by squatting on the pots that are just covered by the water, often making cavities in the soil and breaking down the young plants. These would be better kept in tubs containing a little pounded charcoal and placed in an Orange house.

It is pretty well known that *Nymphaeas* open their flowers late in the day. The hybrid varieties expand their petals not sooner than 8 a.m., and close them about 5 p.m. Should the weather be gloomy, they close in the middle of the afternoon. The species *flava* and *odorata* do not open before midday. The natural fecundation of the flowers takes place on and after the second day after their first opening. If they are to be crossed, the anthers should be removed on the first day, and the selected flowers should be covered with linen or calico bags or hoods. The pollen should be applied on the following day if the weather is fine and dry.

The species and varieties which I have mentioned, all hardy kinds, have white, red, or yellow flowers, exhibiting various shades of these colours. A handsome South African species (*N. scutifolia*) has blue flowers. Plants of this species which have been kept under glass during the winter may be planted out in summer in still waters, and flower pretty well if they get heat enough. So far as I am aware, no successful attempt has been made to cross plants of this section (to which *N. Lotus* and *N. zanzibarensis* belong) with any of the species described in this article.

In temperate regions only two other *Nymphaeas* are found besides those which are here mentioned. These are *N. nitida*, a Siberian species with white flowers, inferior to the common white Water Lily, and *N. tetragona*, a Japanese species. The last-named, although very interesting from a botanical point of view, is not a very brilliant-flowered kind, the narrow petals being of a rather sombre brownish-red colour, and I cannot say positively whether it has been grown in Europe or not. The great number of handsome plants which the genus contains has rendered amateurs more fastidious than they used to be. Who can say, however, whether this Japanese species may not some time or other contribute to the creation of a new type of Water Lilies with narrow-petalled flowers, which will look like the flowers of a *Magnolia stellata* when compared with the blooms of the round-flowered *Nymphaeas*.—MAURICE L. DE VILMORIN, in *Revue Horticole*.

Fuel and boilers.—I have not the slightest desire to raise any objection to anthracite as a fuel where it can be obtained cheaply, but simply to check those who in their exuberance ascribed to it

wonderful and impossible properties. A coke cart will carry 25 cwt. of coke quite as easily as a coal cart will carry 25 cwt. of coal and at the same cost. Anthracite may be more suitable than coke for the boilers used by "E. J.," but to say that coke has the "very essence stewed out of it at the gas-works" is altogether wrong. Coke is practically pure carbon with a small percentage of ash, and the fuel values of coke and anthracite coal are practically identical. If I could buy anthracite at the same price as coke I should prefer it, and this is about all which can be fairly said in its favour. I have no price list of tanks at hand, but the prices can easily be obtained. Tanks are kept in stock by many makers, being largely used for rain-water cisterns. They can in many cases be built of brick and cement over flues, and answer every purpose in equalising the heat and providing a reserve.—THOS. FLETCHER.

ORCHIDS.

ONCIDIUM CONCOLOR.

THIS beautiful cool house species has been imported in quantity lately, and I trust many Orchid growers may be induced to grow it. A few years ago Mr. R. Measures, of Cambridge Lodge, Camberwell, used to grow this plant largely, many of the spikes having twelve and eighteen flowers each. The flowers are large and showy, the colour being soft delicate yellow, in some plants approaching bright yellow. It is over fifty years since this plant was introduced to England. *O. concolor* is by no means a plant, like *O. macranthum* and many others, requiring much room for its successful cultivation, for it is a small compact grower with oblong, ovate pseudo-bulbs, bearing a pair of bright green leaves at the apex, which with the bulb are about 9 inches or 1 foot long. The spike springs from the base of the bulb, and bears a dense raceme of flowers. The flowers are yellow, of one colour, as its name implies, the lip large and prominent. I would recommend this plant to be grown in shallow earthenware pans and hung up near to the roof-glass. These pans should be well drained, and be filled with a mixture of good peat fibre, from which the fine particles have been beaten, and some chopped Sphagnum Moss, to which may be added some moderate-sized nodules of charcoal to keep the soil open. During the summer months this Orchid should be hung up near the glass in the Odontoglossum house, and when the growth is finished the plants should be dried and only kept sufficiently moist to prevent the bulbs shrinking; at this time they may be removed to a little higher temperature than the Odontoglossum house is in the winter months. The cool end of the Cattleya house will suit it, but avoid too much warmth if the plants are not wanted to flower before April and May. This remark will apply to "*C. D. C.*," who sends me a spike of this species, saying his plants are all in full flower. They have been wintered too warm, and that has brought them along too soon. This appears to be the case with a great many Orchids this spring, and has been caused by the greater amount of fire-heat used for the plant houses through the past winter. This *Oncidium* should be kept well supplied with water to the roots and overhead during the growing season, for a dry atmosphere is sure to favour the attacks of red spider. During the flowering season avoid wetting the blooms, and they will remain in full beauty for a month or six weeks. W. H. GOWER.

Cattleya Trianae alba.—How many times I am led away with this name by correspondents sending me the variety which I consider to be

delicata instead of the true plant. I am not disappointed, however, with a flower now to hand from Mr. Manda, of the United States Nursery at Hextable. It measures 6 inches across either way, the petals being round and full, and these, together with the lip, are of the purest white, saving a tinge of yellow in the throat. It is curious what a rarity this pure white form is.—G.

Thrixspermum unguiculatum.—This plant has been known to cultivators many years. I remember it in gardens under the name of *Phalaenopsis Ruckeriana*, and indeed the plant resembles in its growth some species of the smaller-flowered kinds of that genus. From this, however, it was removed to *Sarchochilus*, and eventually to the genus here mentioned. Under this name I recently saw it flowering in Messrs. Seeger and Tropp's nursery at Dulwich. The flowers are upwards of 2 inches across, sepals and petals spreading, thick and fleshy in texture, and pure ivory white. Lip three-lobed, side lobes erect, white, streaked with lines of crimson, the front lobe fleshy, yellow, dotted with crimson. It is an elegant plant, which does not appear difficult to manage.—W. H. G.

Dendrobium Ainsworthi.—This *Dendrobium* may assuredly be classed amongst the more notable of the triumphs secured by the Orchid hybridiser. Undoubtedly distinct from both its parents—*D. aureum* and *D. nobile*—yet uniting to a great extent the good qualities of both, it may, in these days when so many hybrids of little real and permanent value are produced, be put forward along with the others raised from the same parents as an achievement for hybridisers to imitate and rival. Raised in 1874 in the collection of Dr. Ainsworth, near Manchester, it remained for many years a rare and valuable plant. Now, although it is by no means common, it is sufficiently spread throughout the country to testify at once to its value as a garden Orchid and to its vigorous constitution and ready propagation. The flowers occur in pairs at each of the nodes, and are upwards of 3 inches in diameter. The sepals and petals are white, but the lip is handsomely marked with a large blotch of deep amethyst-red on the disc, from which numerous radiating lines of the same colour extend. *D. Ainsworthi* inherits a good deal of the delicious fragrance of *D. aureum*, and this, together with its profuse flowering nature and easy cultivation, makes it an Orchid which every grower should strive to possess. Since *D. Ainsworthi* appeared, several hybrids have been raised from the same parents. *D. Leechianum*, raised by Mr. Swan at Fallowfield, and *D. splendissimum*, by Mr. Seden, are the more noteworthy of these. There is found to be so much variation in the seedlings raised from these crosses, that it is difficult to tell to which some of them belong. One of the most beautiful of the group is a form of *D. Ainsworthi* with larger flowers and rosy purple sepals and petals; it is known as *roseum*.—W. J. B.

SHORT NOTES.—ORCHIDS.

Dendrobium nobile nivale.—This is a very pretty form, which is now flowering in the gardens of Mr. Mosley, Park Village. It has a tinge of colour on the tips of the sepals and petals, and a dark maroon blotch at the base of the lip. It is pretty amongst the many dark forms now to be seen in flower.—G.

Dendrobium Fytchianum roseum.—This plant is now flowering in Messrs. Williams and Son's collection at Holloway, and differs from the type in having instead of white flowers blooms of a soft rose colour, the side lobes of the lip being rosy purple. It is one of the introductions of Major-General Berkeley from Rangoon.—W. H. G.

Odontoglossum Oerstedii (F. T.).—I have always found this species succeed best when grown in the house with *O. Alexandrie*. It should be planted in shallow earthenware pans and suspended near the glass. These pans must be well drained, and the plant should be kept moist all the year round. The plant is a native of Costa Rica at about 9000 feet elevation; at this altitude the night temperature is very low.—W. G.

Lycaste Skinneri.—From Mr. Lutwyche, of Tulse Hill, comes a very nice flower of a dark variety of this species, the sepals and petals being round and

full, suffused with a hue of crimson throughout. The side lobes of the lip are deep crimson, the ground colour of the front lobe white, nearly covered with blotches of deep rich velvety crimson. It is a very pretty and richly coloured form.—W. H.

Dendrobiums at Forest Hill.—These plants, which are blooming pretty freely this spring in most gardens where Orchids are grown, are especially fine in Mr. Laing's nursery just now. Amongst the most conspicuous are *D. Wardianum* and *D. crassinode*. Some people do not seem to see any difference between these two species, but *D. crassinode* can be at once recognised by the absence of the dark eye-like blotches on the base of the lip. *D. fimbriatum* and the variety *oculatum*, *D. luteolum* and *D. nobile* in profusion (the last named in many forms),

SPIRÆAS AS CUT FLOWERS.

THE best known variety of the Meadow Sweet for use in a cut state is without doubt *S. japonica*, which is a valuable means of supply, but it does not follow that any other variety is not fit for the same purpose. The subject of the illustration is not so well calculated for successful pot culture, but it comes into flower after the first named is all but over when that kind is grown in the open air. Thus it forms a good succession to it, being at the same time quite distinct in every respect. Its foliage is both elegant and pretty; this may very appropriately be taken to arrange with the spikes of bloom, as seen in the accompanying plate,



Cut flowers and foliage of *Spiraea filipendula* fl.-pl. in a vase.

D. Pierardi, and *D. primulinum* are also flowering freely.—G.

Cattleya Trianae Dodgsoni.—This beautiful variety was recently blooming in the nursery of Messrs. Laing and Sons, Forest Hill. The flower is large, measuring between 8 inches and 9 inches across. The sepals and petals are spreading, white, the petals beautifully frilled; lip large, the side lobes being tightly rolled over the column, the front richly stained with deep violet-crimson, which ends abruptly at the throat, which is rich orange. This variety is very beautiful, and the true plant is very rare. The original plant was sold for eighty-five guineas.—W.

which is an excellent example of the adaptation of flowers and foliage from the same plant. The foliage of *S. japonica* is frequently very serviceable, but in a cut state that of *S. j. aurea reticulata* is much better, being elegantly veined with yellow. Another good kind for cutting is *S. palmata*, and its white variety also, the rich pink of the former and the pure white of the latter being excellent contrasts. *S. palmata elegans* is intermediate between the two in colour. Another variety whose merits are now being more worthily recognised is *S. astilboides*; this, as I have proved, will force well; it will, therefore, make an excellent change to *S. ja-*

ponica. It is of the easiest culture, merely wanting a cool, moist soil. This, whether in a cut state or upon the plant, is a light and attractive variety; the purity of its flowers leaves no room for finding fault. If I am not mistaken, this *Spiraea* will be grown very extensively when better known. *S. aruncus* is simply grand for tall vases, so that its character may be fully displayed. In the shrubby varieties of the same family are several most useful kinds for cutting when most of the herbaceous varieties are over and gone. Prominent among these are *S. ariaefolia* (lovely in the bud), a most profuse bloomer. *S. Lindleyana*, of most stately and noble growth, is quite hardy. This in a cut state looks best when used in large vases. Two other useful shrubby kinds for forcing are *S. confusa* and *S. Thunbergi*, which are both very valuable for cutting, yielding a prolific supply. Later still in the season there are other varieties which come in useful. In all cases when *Spiræas* are used in a cut state, it is best to take the spikes of bloom just as they are expanding. In this condition they are far prettier than if allowed to fully develop; especially is this the case with *S. ariaefolia*, *S. palmata*, and the subject of this illustration. A good depth of water is also desirable; this will greatly assist in the better preservation of the flowers. The foliage when used should be detached from the stem, so as not to exhaust the flowers. J. H.

THE WEEK'S WORK.

ORCHIDS.

WE divide our plants into three great divisions, the cool house, the *Cattleya* or intermediate department, and the division for the East Indian section. There are many Orchids requiring a high temperature which cannot be placed in the East India house to take their chance. They require special treatment as regards shading, watering, and atmospheric moisture. I have on a previous occasion recommended the importance of selecting positions in the house suitable for the various occupants, those that require most shade being placed in that part of the house least exposed to the sun. The Moth Orchids (*Phalenopsis*), for instance, do not need a special house for their accommodation, but they must be placed on the shady side of the house, and when the sun shines out brightly after days of dull weather, a double shade must be placed over the part of the house where these plants are growing. Indeed it may be safest to have a double thickness of scrim over that part. Some of the plants have passed out of bloom, and others are yet bearing their lovely wreaths of charming flowers. I like to keep them in beauty as long as I can, and this requires a rather drier, cooler atmosphere than the plants like, and to allow all the flowers to remain until they fade is terribly exhausting to the plants. The anxious cultivator will not be slow to notice this, and must boldly cut the spikes off. They retain their beauty for a long time in a cool room. In a warm and moist atmosphere with careful shading from the sun these Orchids succeed best. Basket culture is best, and the less disturbing of the roots the better. Old decayed Sphagnum may be picked out with a pointed stick or forced out with tepid water driven into the corners with a syringe. Perhaps the Orchids of which the culture is least understood are the *Pescatoreas*, *Bolleas*, *Batemannias*, &c. Anyone needing an object lesson on the culture of these plants should see the lean-to house set apart for their culture in the town nursery of Messrs. Sander, St. Albans. It was through the well directed energy of this firm that so many species of these wonderful Orchids were introduced to England, but an even greater meed of praise is due to the late enterprising young collector, M. E. Klaboch, and this Mr. Sander would be the first to acknowledge. It may well be that special means must be used to

successfully cultivate plants found growing in very shady woods, and where rain falls every day in the year. Nearly all these distinct and remarkable plants require a lean-to house with a north aspect, a nearly uniform temperature of about 60° all the year round, a moist atmosphere, no lack of water at the roots, but not saturation, and careful shading from bright sunshine. They certainly seem to like light if it can be obtained without exposing the plants to the sun, as they thrive best suspended near (almost touching) the roof glass. They like the usual good peat and Sphagnum compost, and may be watered overhead during the summer months. The leaves are apt to be injured by red spider, and the upward use of the syringe will be necessary to destroy this pest. By a natural instinct it attacks the under sides of all leaves first, but it must not gain the least footing here. *Vanda cœrulea* has been imported recently, and the usual treatment of it and the allied species, such as *Aerides* and *Saccolabiums*, is to hang them up in a comparatively shady part of the house in an inverted position until roots begin to push out. I plant them in clean drainage in baskets or pots, watering the drainage only when it becomes dry. The plants themselves must not be watered except that part of them covered with the drainage. When roots are formed remove a portion of the top drainage, replacing it with a compound of clean Sphagnum cut up with a knife and an equal portion of potsherds with a few pieces of charcoal added. The plants suspended in mid-air by the root ends may be treated in a similar manner; remove, of course, all decayed portions, and in potting the plants do not cover all the roots up with Sphagnum. The roots outside the potting material are the most useful; they are at least in the most healthy condition when the plants require repotting a second time. The recently imported plants of *Dendrobium Wardianum* and other species have come over in capital condition. They are starting freely, and many of them are promising a good show of bloom. I start all such plants in the Cattleya house, but as growth advances and new roots are formed I place them in a warmer house. They are not syringed or watered overhead, but the roots are kept in a uniform moist state until the bulbs or long stems are fully developed, when much less water is given to them, and they are also removed into a cooler house. Indeed, most of these *Dendrobiums* may be kept when they are at rest in almost a greenhouse temperature and without water at the roots for six weeks at midwinter; by thus retaining some in a cool and others in a warmer house, a succession of bloom may be kept up for the first five months in the year.

J. DOUGLAS.

PLANT HOUSES.

FOR conservatory decoration during the summer season there are several excellent things amongst tuberous-rooted plants. Prominent among others is the new race of *Cannas* of dwarf growth; these are well suited to pot culture, flowering continuously from the same spikes for months together, besides which their foliage and general stately habit are most attractive. With me, in a house where *Roses* as climbers are grown, and just showing for flower, these *Cannas* are now starting into growth. This house can only be considered as being of a greenhouse temperature; additional warmth is not, therefore, really essential to their safety. These plants are now pushing up fresh suckers, having been kept previously moderately dry at the roots. Now they will be potted and encouraged to start into active growth. A loamy soil with some leaf-mould will suit them very well. The following are a few good kinds of which I took note last season whilst in flower: *Felix Crousse*, brilliant scarlet; *Flamboyant*, of a lighter shade than the foregoing; *Mme. Bernard*, brilliant scarlet, edged with golden-yellow; and *Le Tigre*, a bright yellow, very distinct. *Iridiflora Ehemanni* is a tall variety. *Hedychiums*, as represented by *H. angustifolium*, *H. coronarium* and *H. Gardnerianum*, are grand plants for a conservatory. They can be grown in large pots or tubs, or turned out in borders, but generally thrive best in the latter way as far as strength and rapid increase in size are concerned. Those who possess

any stock of these varieties should now pay attention to their requirements. The potting of this description of plant is frequently overlooked as of no particular importance; this, however, should not be if they are expected to flower during the ensuing summer. Plants which are stunted and starved in pots should have a good shift given them and then be placed in gentle heat until they have fairly started into fresh growth. Large stools may be divided with advantage; back breaks will thus be obtained, and the leading growths can afterwards be got back into the centre of the pot or tub, as they are, if left too much to themselves, very much disposed to travel towards the sides. The *Hedychiums* grow well in loam alone, but if this should not be of the best description I would prefer to add about one-third of peat. The *Guernsey Lilies*, or *Nerines*, from now and onwards where the growth is completed will not require nearly so much water. They should not be kept absolutely dry, but any excess will be decidedly detrimental. More harm is done to these Lilies by continuing to water them freely after they have developed their leaf growth than I think at any other time. Water should now be gradually withdrawn, hardly any being needed when the leaves fade in a few weeks' time. Do not attempt any potting at this time of the year. The plants of *Agapanthus umbellatus* which have been kept dry through the winter should now have a good soaking of water. If this cannot be accomplished by the ordinary method of watering, the plants should be stood in water for a time. Where any potting is needed, it should now be done. These plants will remain in good condition for years without fresh potting and in other ways put up with a deal of rough treatment, but this even may be carried too far with a diminution in the quantity of flower-spikes. Division of the clumps can oftentimes be effected at the time of giving a shift. This will be found a better plan than increasing the size of pot, for oftentimes when much pot-bound, the roots will burst the pot asunder. In potting, adhere to nearly all loam and keep the soil pressed down quite firm, with a provision made for a good top-dressing at the completion.

THE SCARBOROUGH LILY, or *Vallota purpurea*, is not grown so much now-a-days as it used to be, at least it is not seen in such good health as one could wish. I fancy this is the result more often than not of overcrowding and want of attention after flowering. If this bulbous plant stands in need of fresh potting, this will be found a good time to see to it. When in a good state of health I prefer to let the plants stand over unless a larger pot is needed, but if at all sour or otherwise unhealthy at the root, it is better to shake out entirely and pot in fresh soil. In doing this, many of the offsets can be taken away for working up a younger stock. It is always a good plan to have at least a few plants coming on; these should be started in rather small pots, 3-inch in most instances being quite large enough. Rather light, fibrous loam and about one-third of its bulk in good leaf-mould with plenty of sand will suit this Lily well. After potting, a rather warmer place might be given the plants for a few weeks, or they could be accommodated upon a shelf, in which position I have found them to do well. *Schizostylis coccinea* is another tuberous-rooted plant which should not be lost sight of for late autumn flowering. Those who wish to increase their stock might now divide up old stools, pricking them off into boxes to partially re-establish themselves, then later on they can be planted out of doors; potting is hardly to be recommended. A cold frame will suit this plant now better than a house.

The earliest *Tuberoses* should now be making good headway. Give them therefore all the light possible, and do not allow them to suffer for want of water; yet they must not, on the other hand, be overdone in this respect. A moist and brisk temperature will suit them best, such as that of a forcing pit or a shelf in the stove. Another lot should now be brought on as a succession, and the last potting must not be deferred much longer; meanwhile the bulbs should be kept in sand or cocoa fibre to prevent them from shrivelling, being also

kept in a medium temperature. The insect most to be guarded against is red spider which attacks the foliage, often even before the spikes push up. Syringing with a solution of soot water will keep this enemy in check and do no harm to the plants. *Gesneras* and *Tydeas* should now be carefully shaken out of the soil and potted up afresh. This can be done in two ways: they may either be started a few bulbs in small pots or more can be put into larger ones and divided up later on. I prefer the latter method, for by starting them rather closely together in shallow pans less watering will be required than if put into small pots, and this will be found more congenial to the bulbs. A light soil will suit both of these families.

J. HUDSON.

THE KITCHEN GARDEN.

MAIN CROP PEAS.—Probably there is no other crop of such importance during the summer months as Peas. In many gardens it is the same with Peas as with other vegetables, *i.e.*, a flush during the early part of the season and then a considerable falling off. Under a regular system of culture there should not be the least difficulty in keeping up a constant supply. Ground that has not been well prepared beforehand rarely brings a crop to full perfection unless the season should prove very favourable for free growth. In poorly worked ground, or that which has been indifferently manured, Peas soon feel the effects of the want of moisture in dry seasons, and much labour might be saved in watering if care were taken earlier in the season, or previous to seed sowing, to prepare a good seed bed. The best portion of the garden should be selected for Peas, and generally the plot which has been previously occupied by Celery is set apart for the main crop Peas. Overcrowding of the rows is an evil, and if there is not room for the rows to be sufficiently far enough apart so that the sun and light can reach all parts of the haulm, the system of double cropping should be resorted to. For instance, the rows could be 12 feet or so apart, the intermediate space being occupied with early or second early Potatoes, or some other low-growing crop. The height of the Peas selected to be sown must be the gauge for the distance for the rows to be apart. It is a good rule to have the rows the same distance apart as the Peas grow in height. Old gardens which are rich in humus, and consequently have been cropped for many years, are not the best for the production of high-class Peas, and to digging old rubbish-heap material or the cleanings from pleasure grounds into the soil, the disease which has been so prevalent amongst Peas during late years may be traced. In those gardens where the main crop Peas have been anything but satisfactory in previous years, a dressing of either lime, fine bone-meal, or superphosphate of lime would change this state of affairs. Soot, wood-ashes, or well-burned garden refuse would also be highly satisfactory. The preparation of the ground is of the greatest importance. The best course of culture to secure satisfactory results irrespective of the season is to prepare trenches. These should be taken out about a foot in depth and the same in width, and over the bottom a layer of well-rotted manure should be placed, filling up the trench to within 3 inches or 4 inches of the top with the soil taken out. The seeds should now be scattered very thinly over the surface, as a crowded growth must be avoided. The seeds should be covered over with about 3 inches or 4 inches of soil, a less depth being not advisable, especially on light soils. The seeds at this depth are in an equable state of moisture, and cannot but germinate equally. On very heavy soils it may not be necessary or advisable to sow in trenches. In these cases see that the drills are drawn sufficiently deep and wide enough. Draw the hoe along the drills so as to form a flat bottom. Drawing the drills out with the corner of the hoe is a bad practice, as when the seed is sown it trickles down together along the bottom of the drills; consequently the future growth is crowded. To keep up a succession of Peas, a sowing should be made as soon as the previous sowing shows through the ground. I should have previously mentioned that where the trench system is adopted and

it is intended to apply some of the correctives as stated above, these should be worked into the bottom of the trenches, as well as a portion into the soil for filling up. In every case a dressing of soot should be applied to the surface previous to breaking down the ground and preparing for the crop.

EARLY AND SUCCESSIONAL PEAS.—The past weather has been anything but satisfactory for the sure progress of early Peas, and all we can do is to assist them as far as lies in our power. Those which have been prepared in pots and planted out will, unless they have been protected with evergreen boughs, have had a poor time of it, but in many cases they were no doubt safe in cold frames. Those who were wise would have had a successional crop coming on, so as to guard against any possible emergencies. During the latter days of February whilst the weather was fine many people no doubt were led away, but, judging by the experience of previous years, too early sowing or planting is a mistake, especially in this fickle climate of ours. Successional Peas coming through the ground must have every attention in timely hoeing as an incentive to free growth. A sprinkling of soot along each side of the rows and hoeing will have a stimulating effect. As soon as growth is 2 inches or 3 inches in height the rows must be earthed up, and the sticks placed to them before they are very far advanced.

ENEMIES OF PEAS.—Near large towns sparrows are about the worst enemies to Peas, and if these are not guarded against the young growths will be devoured as soon as they appear through the ground. Lengths of black cotton stretched along the rows are as good as anything to check their attacks, excepting, of course, the usual Pea guards. White cotton is not of much value, as this they can see and soon get used to it. In wooded districts not only sparrows, but pigeons and jackdaws have to be contended against. These in a manner are worse than sparrows, as these latter rarely touch the young Peas after they are 3 inches or more in height, but with pigeons, as long as the shoots are succulent, they will attack them. The best course I have found with jackdaws is to shoot one or two and hang them up amongst the rows. Field mice are also very destructive, and besides trapping, the seeds previous to sowing should be first moistened with a little linseed oil and afterwards coated with red lead. The seed may also be dressed over with petroleum. The small black slug is also oftentimes very destructive, and especially whilst the Peas are in quite a young state. Dustings of soot and lime will keep these in check. In many gardens slugs are very numerous. Slugs harbour and breed in decaying vegetable matter to a great extent, and where this is allowed to remain on the ground to be afterwards dug in, it is a sure harbour for them. Where possible all decaying vegetable refuse should be cleared off and burned; the ashes being returned to the ground will have a much greater manurial value. It is very rarely that we are troubled with slugs, and this through adopting the above course. A. Y. A.

FRUIT HOUSES.

FRUITING PINES.—These started well and made good progress during February, but the very dull wintry weather since experienced has checked progress considerably. As yet only a few have flowered, but the bulk will most probably have opened their flowers before the month of March is out. During the flowering period overhead syringing ought to be avoided, and much less moisture distributed about the house, these conditions being altered directly the bulk have flowered. A high temperature and plenty of atmospheric moisture are needed to swell the fruit to their full size, great size coupled with perfect form, that is to say, evenly built up fruit with a moderately large crown, being more thought of than high quality. It is possible, however, to swell out the pips to a great size, and yet impart a brisk rich flavour to the fruit, the latter being accomplished by simply placing them in a cooler and more airy house soon after colouring commences. If it can be done without making the pipes unduly hot keep the night temperatures

not lower than 70°, increasing to 75° in the daytime, and 80° with a little air on. Close early so as to run up the heat to nearly 90°, syringe lightly overhead and frequently damp down the walls and floors. The less the plants are disturbed the better, but if necessary add fresh material to the hotbeds, a bottom-heat of 75° to 80° being suitable and requisite. Keep them in a uniformly moist state at the roots, carefully avoiding saturating the soil. Roots being abundant and the soil, therefore, in a sweet state, give either guano or diluted farmyard liquid manure at each watering. A handful of the former to a 3-gallon can of soft water heated to a temperature of 75° answers well. Any strong plants that have failed to fruit should be kept rather dry at the roots till they do push up.

SUCCESSIONAL PINES.—Late batches of Queens and the bulk of Smooth Cayennes, Rothschilds, and Black Jamaica ought now to be on the move. Properly managed, these should produce very fine serviceable fruit. It is not advisable to maintain a very high top-heat, from 60° to 65° by night and 10° higher in the daytime, with a further slight increase when the days are sunny and warm, answering well. They ought to have the benefit of a rather strong bottom-heat or say from 80° to 85°. Also keep them a little on the dry side at the roots till such time as the colour in the centres denotes that they will shortly push up fruiting stems. Any in a badly rooted state, this probably being due to the loose sour state of the soil, might with advantage be turned out, and after having much of the bad soil carefully picked away from the roots be repotted firmly in more suitable compost. This will not as a rule prevent them from fruiting, and they will form fresh roots in time for these to assist in the swelling off. Plants thus treated must be very carefully watered for a few weeks, over-watering souring the soil and spoiling the fruit accordingly.

TREATMENT OF YOUNG PINES.—The early part of March was most unfavourable for much work connected with Pines, the weather delaying the formation of hotbeds and potting operations. It is almost useless to attempt Pine-apple culture without a strong bottom-heat either of leaves, leaves and manure, tanner's bark, or hot-water pipes and sawdust, or some other kind of plunging material. Also it is of the greatest importance that suitable soil be forthcoming, few succeeding well with Pines if superior fibrous loam cannot be had. That cut early last summer from good grazing land and stacked grass downwards till required for potting is the best. Break this up rather roughly, using nothing but the fibrous portions, and to every barrow-load of this add an 8-inch potful of bone meal and the same quantity of soot. Most of the autumn struck suckers now well established in 7-inch pots ought at once to be shifted into their fruiting pots. The favourite size with the majority of growers is the 11-inch pot, this being clean, carefully drained, and the soil well warmed through prior to using it. Pick away a little of the old soil from the balls, loosening some of the roots and repotting firmly, taking care not to raise them unduly. All should be plunged in a brisk bottom-heat, ranging say from 80° to 90°, and arranging them 2 feet apart each way, water if at all dry, and maintain a moderately high temperature, or about the same as advised for the successional fruiterers.

PINES PLANTED OUT.—If deep well-heated pits are available, a portion of the young plants may well be planted out where they are to fruit. They succeed admirably on a deep hotbed of Oak leaves, on this being placed about 18 inches of turfy loam, and the additions as recommended for pot plants. They should be firmly planted about 30 inches apart each way. Where the bottom-heat is obtained solely with the aid of hot-water pipes, a still more simple method of culture may be adopted, this consisting of first covering the pipes with small brick ends, arranging turves over these a layer of loam about 18 inches in depth finishing the preparation of site. The Pines are planted in this and treated much the same as pot plants, only according as a fruit is cut the old plant is rooted out, two or three shovelfuls of fresh soil replaces the old, and a well-rooted sucker or pot plant put out. In this

manner there are plants of all ages in one pit, and fruit is had nearly at all times.

SETTING GRAPES.—During the next few weeks the bulk of Muscat Grapes grown in this country will be in flower, other moderately early and mid-season varieties also flowering at about the same time. Not a little depends upon the way in which the Vines are treated at this critical stage, this remark applying to the free setters as well as those somewhat shy in this respect. Stoneless berries usually refuse to swell to a serviceable size, while those only that are furnished with their full complement of stones can be depended upon to swell to a great size. All ought, therefore, to be studied, not Muscats alone, and that, too, some time in advance of the flowering period. What are wanted are strong flowers on stout foot-stalks, and these can best be obtained by giving the bunches all the daylight and sunshine possible. The least that can be done is to allow a space of 12 inches or more between the lines of laterals, those bunches shaded by a heavy canopy of foliage rarely setting so well as they would do if more sensibly treated. An increase in the temperature during the flowering period is also desirable. While in flower the Muscats may well be kept at about 70° by night, increasing to 75° and 80° with air in the daytime. A temperature 5° lower all round sufficeth for the Black Hamburgh, Gros Maroc, Madresfield Court, Foster's Seedling, and Buckland Sweetwater. Overhead syringing should be discontinued altogether, and less moisture be distributed about the house till the berries are set, after which the walls and floors should be frequently damped down, and the evaporating troughs be kept constantly filled with water. Various methods of distributing the pollen are adopted, though it is doubtful if any surpasses the plan of carefully drawing the hand over the bunches daily, this being done towards midday. When the pollen is abundant and dry it can be readily distributed by means of smartly tapping the rods, but it is advisable to transfer it to the moist pistils of Muscat flowers by carefully passing the hand over the bunches, or this may be done with a good sized camel's-hair brush. If the Black Hamburgh or Madresfield Court or Foster's Seedling happens to be in flower at the same time as the Muscats, pollen grains from these free setters might well be used for assisting in fertilising the latter. It is not necessary to handle or otherwise fertilise the free-setting varieties, but if done it might be the means of increasing the size of the berries.

PRACTICAL.

Insecticides.—I gladly reply to "Cornubian" (p. 260) as to where soluble paraffin oil can be obtained. The manufacturer of this excellent insecticide is Mr. Bentley, Chemical Works, Barrow-on-Humber, Hull. I would strongly advise "Cornubian" to use this insecticide for indoor application if troubled with mealy bug. For Gardenias I find it invaluable, and if given a syringing every three weeks or so, the plants require no sponging and always present a bright, glossy appearance. For mildew it is an excellent remedy. Another recommendation is its cost, as a small quantity will go a long way. For mealy bug I use half a pint of oil to two gallons of tepid water, for red spider twice as much water, for green or black fly a trifle weaker still. As a winter dressing half a pint to a gallon of water with clay or without. As a cleansing solution for washing and syringing walls and fruit trees, the quantities given for green fly will be sufficient, and as a slight cleansing for fruit trees with young tender foliage half a pint to ten gallons of water will be a safe remedy. When using soluble paraffin it is an important point to use rain or pond water, as water strongly impregnated with lime is not so good and does not mix so readily, besides staining the foliage. Warm or tepid water should in all cases be used, as it is quicker in effect. Every part of the plant should be thoroughly wetted. It is best applied in the evening or after the sun has declined. If done in the morning the plants must be shaded or allowed to dry before the sun touches them. In the case of very tender-foliaged plants it is best to syringe with clear water a short time after using the oil, as this will displace

all impurity, leaving the most tender foliage perfectly bright and uninjured. I consider paraffin one of the best remedies we have for insect pests, and now the oil can be obtained in a soluble state it should be largely used. I have used it for two years, and so far it has never injured the most tender foliage if properly mixed, and, as I described in a previous note, for outside application it is invaluable and should do away with the old plan of using it in its ordinary raw state, as it is an inconvenient process to keep the oil mixed with the water and takes up much time. With soluble paraffin this is avoided.—G. WYTHES, *Syon House, W.*

FERNS.

GYMNOPTERIS.

This is a genus of *Acrostichæ* named by Bernharti in the beginning of the present century. It contains some twelve or fifteen species, about the half of which are in cultivation. Those kinds named below, although not commonly seen in cultivation, deserve more attention than they have ever received at the hands of Fern growers. The strong growing kinds are very fine when grown in pots or planted in the open rockery in the stove. The plants have a creeping rhizome, more or less elongated, and the various species are scattered through the tropics of both hemispheres. They thrive well when potted in loam and peat in about equal parts. This should be made tolerably sandy. The pots should be well drained, and the plants liberally supplied with water at the roots. The syringe must not be used freely, as it is apt to cause the fronds to become brown. Of most or of all of these kinds I have had good specimens, so that I can speak confidently about them, and I am sure they cannot fail to please those who may grow them.

G. ALIENA.—This is a most beautiful Fern, producing from its creeping rhizome fronds some 18 inches to 2 feet in height and 9 inches broad, the pinnae being broad and deeply lobed, and in colour a rich deep green. The fertile frond attains the same height as the sterile one, but the pinnae are much contracted, plain at the edges, not lobed, and the under side is quite covered with sori. It is an evergreen stove plant, widely distributed through the tropics of America and the West Indian Islands.

G. NICOTIANÆFOLIA.—The Tobacco-leaved Fern is also a very pretty one. The sterile frond is usually composed of a pair of pinnae and a large terminal one. I have now before me a frond 2 feet in length, carrying two pairs of side pinnae, which are each 8 inches long and upwards of 2 inches broad, and a terminal one which is 10 inches long and 5 inches broad; the fertile frond is 2 feet high, and bears three pairs of side pinnae and a terminal one; these are much reduced in size, and are quite covered with brown sori on the under side. The fronds are somewhat thin in texture and of a pleasing shade of light green. An evergreen Fern of common occurrence in the West Indian Islands.

G. GABOONENSIS.—This I have only seen in a young state, or, it may be, an imperfect state. I have only seen the sterile fronds, and these were nearly entire, saving two little pinnae at the base. It is a native of the West African coast.

G. QUERCIFOLIA.—A small growing species, and a perfect little gem for a Wardian case where warmth is given; the fronds are prostrate, from 3 inches to 6 inches long, lobed at the edges, and clothed with numerous short brown hairs. The fertile frond is erect, and double the length of the barren one.

W. H. GOWER.

Davallia Mooreana (pallida) poisonous.—I agree with "W. G." (p. 227) as to there being no need to fear any serious results from working among plants of *Davallia Mooreana (pallida)*, or any incon-

venience at all when the fronds are used for decoration, for the effects are in any case only transient, and are only produced when the face and arms are moist from any cause. I suffer, as some of your correspondents do, not only from the Fern in question, but also when working amongst old plants of *Gymnogramma chrysophylla*. No doubt the effects are very unpleasant, but I should hardly think anyone would seriously propose to give up growing such fine Ferns from such a cause, as it is only at times when it is necessary to handle the plants rather roughly that the symptoms are produced. I have always considered that it is due to the spores, which are liberated by the disturbance of the fronds, settling on the face and arms, for they float about freely and attach themselves to the damp skin. The best thing to do is to resist, if possible, the wish to rub the face, for this only increases the irritation tenfold, until one feels as if the parts affected had been scalded. A little vaseline will cool the face and allay the irritation.—J. C. TALLACK.

FLOWERING FERNS.

THE little group of Ferns to which the above title belongs is very interesting, and some are remarkably pretty. The genus *Anemia* with which *Anemidictyon* is now included is the most interesting and distinct of all the flowering Ferns; in fact, it is to this genus alone that the term is most generally applied. Apart from the interest they create on account of the peculiar manner of growth, they are very desirable as decorative plants. In all the species with which I am acquainted the fertile portion of the fronds is produced from the base of fronds, the barren portion being simply pinnate, the fertile portion consisting of the two lower pinnales which grow erect, and in some instances are branched, and have the appearance of panicles of undeveloped flowers. *A. phyllitidis*, of which there are several varieties, is the most useful of the genus, and is grown somewhat extensively for market, especially for selling in small pots, young plants with two or three fertile fronds being very effective for the small vases now so much in use. Where larger specimens are required several plants may be grown together in shallow pots or pans, and when well grown they are very useful. Of the different varieties *fraxinifolia* is one of the best. Although a native of tropical America it will succeed well in a cool greenhouse, even better than when subject to a high temperature. *A. Dregeana* is another species which succeeds well in the cool fernery during the summer, but requires a little more warmth in winter. This species comes from Natal. *A. collina*, a most distinct and beautiful species from Brazil, requires stove treatment. *A. adiantifolia* is another useful species, widely distributed in America. All the *Anemias* may be readily obtained from spores, which should be collected as soon as the fertile portion of the frond begins to change colour. The spores are very abundant, and in some species when fresh they are of a pretty yellow colour. In sowing the spores care should be taken not to sow too thickly. The young plants must be potted on as they require it; if once allowed to get stunted they do not make nice plants afterwards. A rather light compost suits them best; loam, leaf-mould, and peat in equal parts with plenty of sand is a good compost for them, or if the loam is light and fibrous, peat need not be used. The plants should not be wetted overhead, but they should be kept fairly moist at the roots.

OSMUNDAS.—The Royal Fern (*O. regalis*) is one of the finest of this genus. It delights in a cool shady position and plenty of moisture. In the hardy fernery it is very ornamental; it may also be grown in pots. I have grown this in the cool Fern house, where in the summer-time it is very effective. When grown in pots the plants should have the protection of a frame, or be well covered up with Bracken during the winter. As it takes several years to establish large specimens, it is important that they should be well cared for during the winter. *O. gracilis*, a North American species, with slender fronds, is very pretty either for the hardy fernery or for pot culture. *O. cinnamomea* and *O. interrupta* (Claytoniana) make fine specimens in the hardy fernery, but

I have never grown them in pots. *O. palustris* is a beautiful evergreen species from the mountains of Brazil. It succeeds well in the greenhouse, and is a most desirable variety for general decoration. It is of more slender growth than our native species and has a bronzy-red tint. This useful Fern may be readily obtained from spores. The prothallia are very distinct, of a deep green, with an undulating margin, and they grow nearly an inch long before the first fronds appear. These start very irregularly. All the *Osmundas* like plenty of leaf-mould in the compost, and those planted out in the fernery should have a good mulching every season. Under natural conditions this is done by the fallen leaves and other decaying vegetable matter which accumulate around the stems.

Among our native Ferns we have two other very interesting examples of the flowering Ferns in the Adder's-tongue (*Ophioglossum vulgatum*) and the Moon-wort (*Botrychium lunaria*). These are not often found under cultivation. I believe they are very difficult to manage. I once found the first-named growing plentifully in a meadow in Sussex. I have also found the Moon-wort in its natural habitat. Although very interesting, they cannot be regarded as of any decorative value.

F. H.

GARDEN FLORA.

PLATE 798.

ANNUAL PHLOXES.

(WITH A COLOURED PLATE OF PHLOX DRUMMONDI VARS.)*

THE Phloxes as a whole, and in this one may include the numerous perennial as well as the annual species and varieties, are certainly amongst the showiest and most easily managed of all hardy herbaceous plants. What are known as the florist's Phloxes, including early summer as well as late autumn flowering sorts, are a very popular class of plants amongst amateurs. They grow well in almost any garden ground, soon form good tufts or stools, and from June until October maintain an endless display of the most brilliant and varied coloured flowers. The great disadvantage in the predominance of tall forms has happily been overcome in the more liberal use of *P. decussata* in crossing these garden varieties, and we now have a strain of dwarf, compact-growing Phloxes with as large heads and flowering with as great profusion as the tall ones. When once these perennial Phloxes are fairly established they give little or no trouble beyond the spring dressing and slight staking or tying at the beginning of the flowering season, for however strong the stems may be, the huge heads of flowers in wet weather require substantial support.

The annual species *P. Drummondii* and its numerous varieties are deservedly amongst the most popular of all hardy annuals. While Drummond, the botanist, in whose honour it is named, was travelling in Texas in the autumn of 1834, this charming flower was amongst the most interesting plants which attracted his attention. The seed sent over to Sir W. Hooker early in 1835 soon germinated. The flowers when produced attracted much attention at that time, when Texan flowers were only beginning to come into cultivation,

* Drawn for THE GARDEN in Mr. Gumbleton's garden at Belgrove, Queenstown, by Miss Travers. Lithographed and printed by Guillaume Severeys.



SOME GOOD VARIETIES OF PHLOX DRUMMONDII

and the hopes of a great popularity then expressed have been more than realised to-day. That it has proved a great acquisition may readily be seen by the numbers of new varieties being brought to our notice every few years. The greatest novelties in the form of the cuspidata section were raised by the firm of Martin Grashoff, and first flowered by them in August, 1887. They were called cuspidata and fimbriata, differing from everything before known in the toothed corolla lobes. In cuspidata the middle tooth is four to five times longer than the side ones, while in fimbriata it is barely twice as long. This opened up quite a new field in flower form, and since then something like a score of colour variations have been raised and distributed to the public. *P. Drummondii grandiflora* is a section separated from the type on account of its much larger flowers and more robust habit. Here again there is great variety in colour from pure white to violet and deep purple, most of them distinct and all very beautiful. *P. D. nana compacta* is a section much in request for bedding, a use to which they are



Phlox Drummondii grandiflora.

specially adapted, and saving much labour in pegging, a troublesome process with the older varieties. Those of the nana section may be used with good effect in mixed borders also, and do well as a front row.

Phlox Drummondii and its varieties seem to be much more popular on the Continent than they are in this country, though for what reason it is impossible to say. They are of the easiest culture, and from a 6d. packet of seed one may get a great variety of the most pleasing and brilliant colours. These varieties may be used with great effect in many ways; beds or groups of standard Roses and other plants may be brilliantly carpeted with them without in any way interfering with their growth. They may also be used for vases, hanging baskets, &c.; indeed, no end of different ways of utilising this beautiful annual will suggest itself to the grower. To get flowers early, the seeds should be sown in early March in a warm moist temperature, and as soon as the seedlings are ready to handle they should be pricked off into boxes, and when well established in these boxes they should

be gradually hardened off until they are planted out in their flowering quarters. A good plan to get dwarf bushy plants is to pinch the points out when the seedlings are a few inches high, this not only assisting in prolonging the flowering season, but keeping the plants near the ground, and rendering them much more effective than if they were allowed to grow in a loose, straggling manner. Before planting out, the ground should be well turned over, adding plenty of decayed leaves, which seem to suit *Phloxes* much better than stable manure. They do well in almost any position, although they prefer one sunny and fully exposed. Cuttings taken off in autumn come in handy for the greenhouse in early spring, and in this way *P. Drummondii* may be perpetuated. It is, however, classed amongst annuals, as this is the only means of growing it out of doors in this country. About the beginning of April the seed may be sown in the open border, thinning and treating the seedlings exactly in the same way as other hardy annuals. There are over 100 varieties sold by Continental nurserymen.

D. K.

ORCHARD AND FRUIT GARDEN.

NOTES ON MELONS.

BECAUSE Melons are usually planted somewhat thickly and kept restricted to a limited amount of trellis space, it does not follow it is the best way of training them that can be followed under all circumstances. On the contrary, there are numerous instances where they might be grown on a very different system with excellent results. Properly treated they will cover a considerable amount of roof area, the plants producing crops somewhat after the manner of Cucumbers, that is to say, continuously or as long as they are kept in good health, and not over-cropped at the outset. Grown on this, what I have previously termed the extension system, about six plants in two batches, one planted in March and the other in May or June, will maintain a constant supply of fruit from the first week in June or somewhat earlier if preferred till November. What is also of great importance is the fact that the Melons cut from plants kept in a healthy growing state are always solid and good in quality, comparing most favourably with the produce of the much-restricted, over-cropped, dried-off plants very often to be met with. This plan of training Melons is best adapted to the roofs of old Pine stoves and disused vineries or Peach houses, these having a considerable length of roof, large central beds, narrow front walks or no front walks at all, and a wider back walk. There are many such in the country that might well be devoted to Melon culture when not wanted for storing a variety of winter-flowering plants. Instead of crowding a number of plants along the front in a ridge of loam I would strongly advise that not more than three should be grown in a house, the roof area available of which would be about 10 feet by 36 feet, this probably being near the average size of an old Pine stove. For each plant build a square pit 27 inches or three bricks square and 27 inches or nine courses high, this being done with loose bricks, and not quite close up to the permanent brick walls of large pit. As many bottom-heat pipes as possible ought to be enclosed by these temporary pits, a little bottom-heat giving the plants a good start. Being duly

filled with strong loamy soil to which a little of either well-pulverised night soil, bone-meal, or superphosphate of lime has been added, it can either be warmed through quickly with the aid of hot bricks plunged in it, or if the plants are not ready the soil will, if put together in advance, become slowly warmed through by the time they are fit for planting.

So much being staked on a few plants, more than ordinary pains should be taken both in preparing them and also in putting them out. There being no strong hotbed to give them a start, it would be most unwise to plant any that have become badly root-bound and greatly weakened accordingly. Shift the seedlings first from 4-inch pots into 6-inch pots, and plant out before they give signs of hardening. Canker is the one great bugbear of this method of training Melons, and it behoves those trying it for the first time to anticipate this disease as much as possible, or there may be a great blank in the house before the summer is far advanced. The best and only preventive of canker is high planting and the keeping of the "collars" of the stems constantly dry. If after they are in position and the soil heavily rammed down about them they present a "cocked up" appearance, so much the better, those in charge then having no excuse for wetting them when the rest of the soil is moistened, while high planting also admits of the requisite top-dressings being safely given. I might here state that Mr. Pettigrew at Cardiff, and who grows Melons remarkably well, encloses the collars of his plants in an earthenware rim, and into these two pieces of glass are fitted so as to neatly enclose the stems. This effectually excludes moisture, whether from the watering-pot or syringe, and canker is an unknown evil with him since this ingenious, yet very inexpensive plan has been adopted. Any potter or even brick-maker could make these rims. If by any chance canker should start, then ought the affected parts to be carefully scraped and then be frequently dried with newly slaked lime. Surrounding the stems with ashes, sand, or flowers of sulphur is a quite useless precaution against canker, and may easily do more harm than good, as each and all are liable to become quickly saturated with moisture.

Until the plants reach the roof trellis they ought to have all side shoots closely rubbed out, but instead of stopping them when this point is reached the leader should be continued up to near the end of the roof, and the side growths laid in right and left at right angles till they meet each other on the wires. These growths must not be crowded, and may well be laid in 15 inches apart, those not required for furnishing being rubbed or pinched out before they have had time to set, or otherwise the wounds may not heal properly and the stems become decayed in consequence. The lateral growths thus trained being strong will break freely at every point, and it is these second breaks or sub-laterals that produce the fruit—and very freely too. There is no necessity for or wisdom in waiting for a given number of female flowers to be open on one day before fertilising commences, but some of the earliest opened may be set and others in succession. The plants being full of vigour, little or no difficulty will be experienced in setting a long succession of fruit, fruit of all ages and sizes being on a single plant, and not unfrequently they swell off without being touched by the hand, this being especially the case when the houses are opened freely during the hottest part of the summer. In all other respects the treatment of the top-growth is much the same as that adopted in other methods of training, the sub-laterals being

kept stopped at the first or second joint beyond the fruit, and some allowed to ramble occasionally in order to take the place of that cut out, and to furnish more bearing haulm.

At the outset, or till the plants have taken possession of the mass of soil, water must be given somewhat sparingly, especially if the loam used is of a clayey character, but when well established and arrived at a bearing state, they ought to have abundance of water, sometimes twice a day. It should be remembered that there is no mass of decaying leaves and manure underneath to supply the deep running roots with food and moisture, and also that plants growing under the extension system have each a great number of large leaves constantly evaporating moisture. Not once, therefore, ought they to become at all dry at the roots or any more so than Cucumbers, the treatment of both in my case being identical. It is also very advisable to give the plants frequent thin surfacings of rich compost, nothing answering better than pulverised night soil and loam, or any good special mixture may be used. I would also recommend that one good "shift" be given, or, in other words, that the pit be enlarged an additional width of a brick or rather more all round, and the space be filled in very firmly with good loamy compost, this being done before the plants receive a severe check to their growth. The loose-bricked walls are surprisingly strong, and being easily taken to pieces and put together again, admit of the shift being given and the state of the soil and roots to any depth readily tested at any time.

Most varieties of Melons I have tried succeeded well under this method of culture, these including Eastnor Castle, Golden Gem, Hero of Lockinge, Blenheim Orange, William Tillery, Emerald Gem, and High Cross Hybrid. There are two sorts that rarely do well under any other treatment, and these are the Hybrid Cashmere and Longleaf Perfection, the latter being the result of a cross between Eastnor Castle and the Hybrid Cashmere, and bearing the closest resemblance to the last named. Both are of very superior quality and quite distinct from most other varieties, but unfortunately the fruits are very liable to crack badly, and that too before they are fit to cut. Growing them on the extension system to a certain extent prevents premature cracking, though even in this case the fruit ought to be cut directly it has coloured somewhat, and if ripened on dry warm shelves, the quality will be excellent.

W. IGGULDEN.

Apple Chelmsford Wonder.—The fruit in question bears in size and conical form much resemblance to the Beauty of Hants type of the Blenheim Pippin, but the eye is deeper. Again, it bears a close resemblance to Grange's Winter Pearmain not only in form, but also in flesh, which is very firm and somewhat acid. It is a distinctly handsome Apple, with much of the flavour or taste of the Cellini, skin smooth, clear yellow, speckled, and slightly striped on the sunny side with bright red. No information was furnished as to the probable parentage or whether a free cropper or otherwise. The certificate of merit awarded was given chiefly because the variety seemed to be a good late keeper and was handsome and attractive.—A. D.

Cape Peaches.—The appearance of a box of Peaches recently from the Cape of Good Hope on the table of the fruit committee at the James' Street Drill Hall hardly justified the exclamation of a member, "Oh, where is this thing going to end?" The fact is that if no better continuation is made in the matter of Cape Peaches than was the beginning, we need not be in trouble about them. The fruits were of the clingstone type and Noblesse form and colour, gathered evidently long before being

ripe, and although finished so far as possible then, were hard of flesh, which was somewhat discoloured, absolutely flavourless, and not juicy. It is evident that Peaches cannot travel here from Africa in a well ripened state, and gathered long before being ripe are worthless. Cape Peaches will hardly affect the home grower. The variety is out there designated the March Peach.—A. D.

STRAWBERRIES IN THE OPEN.

STRAWBERRIES are now making good progress, and are apparently about to flower strongly. Now is a good time to commence feeding all requiring it, this including strong young plants on rather poor ground and well-established plantations generally. Farmyard liquid manure and sewage suit them well, comparatively old plants being especially benefited by frequent applications of the latter. Later on, or when the ground is in a much drier state and the weather hotter, strong liquid manure of any kind would most probably do more harm than good. Unfortunately, liquid manure is not generally available, and in all such cases some kind of special manure or mixtures ought to be applied, guano being, perhaps, one of the best fertilisers that can be used. A mixture composed of one-part of sulphate of ammonia to two parts of either kainit or muriate of potash answers well for heavy soils, and to this may be added another part of either common salt or nitrate of soda for medium and light soils. If the bulk of the mixture is further increased by a liberal addition of soot and wood-ashes, this will add to the efficacy of the manure and further serve to keep down slugs and other insect pests. It is a difficult matter under these circumstances to state exactly how much should be used for a given number of plants, but if the whole of the ground around the Strawberries is well coated with the mixture, this will be none too much. On no account ought any of it or any other strong manures to come into contact with the foliage, or the latter will be greatly damaged thereby. Apply it when the leaves are dry, spreading it just clear of the plants and stir in with flat hoes. The rains will wash it gradually into the ground. Never dig among Strawberries.

MULCHING STRAWBERRIES.—Mulchings of stable or farmyard manure applied in the autumn are not to be commended, the ground and the plants in consequence being benefited by exposure to all weathers during the winter. At the same time it is unwise to delay mulching till the flowers are far advanced, as by that time much more moisture may have evaporated than is good for the plants to lose. After the dressing of artificial manure and a surface hoeing have been given, it is advisable, therefore, to give a mulching of strawy manure at once. The juices from this will wash down to the roots during April and May, but this will scarcely leave the surface clean enough for the fruit to rest upon. The market growers cannot afford a second dressing of manure, but private gardeners ought to cover the manure with a light surfacing of clean straw, passed through a chaff-cutter with one blade only at work, or the cleanest of the strawy litter from the stables may be substituted, this being done before the fruits are set. Wire hoops or crinolines are of good service in keeping the fruit clean, and these might well be made in wet weather some time before they are wanted. Strong old fencing wire is handy for this purpose, bending this in half circles, with ends 12 inches long for thrusting into the ground.

YOUNG STRAWBERRY PLANTS.—These may yet be moved from the nursery beds, but would have suffered less from the removal if done before leafy growth had commenced. Those put out early last August ought to be quite strong enough to bear good crops of fine early fruit, and should be mulched accordingly. Any planted much later and also this spring, and weak and small accordingly, should not be allowed to fruit this season. The bunches of bloom being picked off as fast as they show, the plants will grow away strongly and be extra strong and productive next year, well repaying for the self-denial practised this season. There is no necessity to mulch these small plants,

though they would be all the better for it. Garden room being limited, there is no reason why rows of either Onions, Turnips, Lettuces, or Spinach should not be grown between the small Strawberries.

W. I.

SHOULDERS ON BUNCHES OF GRAPES.

It cannot but be admitted that compact bunches of Grapes are the most useful for whatever purpose they may be intended. Single tapering bunches are the best in every case, and the same weight of Grapes may be obtained by leaving more single bunches than there could otherwise be allowed to remain where the practice of leaving shoulders is adopted. Growers for market, or rather those well acquainted with their work, know how desirable it is to have compact single bunches as being more adapted for packing. Competent judges at exhibitions also favour the single tapering bunches, and, again, for home consumption smaller-sized single bunches are the more useful. Bunches having large shoulders can seldom be used up under two or three days, at the end of which time the Grapes have not a very inviting appearance. It must not be inferred that I favour bunches of a small size, as single tapering bunches of the majority of varieties may be grown to a large size under good cultivation. Bunches with large shoulders are also more difficult to finish properly, and what might have been a good bunch of Grapes is in effect entirely marred by allowing far more berries to form than can either stone or finish properly. I remove useless shoulders from all varieties; from the Black Hamburg even. One may enter some vineries containing perhaps this old favourite only, and notice what might have been a good house of Grapes entirely spoilt through favouring shoulders, these being tied out to make the bunches look as large as possible. What a sorry figure they cut, however, when placed on a dish or even on an exhibition board. The removal of the useless shoulders should take place as soon as the bunches form, or when they are large enough to be removed with safety by the finger and thumb. When removed at this stage the strength of the bunch is not frittered away, as it otherwise would be if the removal were deferred too long. Sometimes the shoulders are left until thinning time, but this course is objected to. Muscat of Alexandria often produces irregular bunches, and this takes place more often than not on young Vines, the roots and branches of which are extending freely. With these, even where the bunches are single, it is found to be an advantage to sometimes, or, rather where necessary, clip in the top shoulders as well as cut a portion off the bottom. If this was not done the bunches would have a very irregular appearance, and there would also be a difficulty in confining the bunch to the dish. A bunch to be perfect should be of what is termed a pyramidal shape, and also solid in appearance, so that when cut and placed either on a dish or on an exhibition board, it will keep perfectly together and not roll about. It takes some amount of courage to take away what appears to be a large part of a bunch of Grapes, but if a few bunches are practised upon, these will fully illustrate the best course to adopt. The bunches may appear rather small at first, but they will gradually draw down and fill out, and in the end the balance will be in their favour.

RURAL.

SHORT NOTES.—FRUIT.

Scarcity of Pears.—Apples were fairly plentiful at the Bath bulb show, but only a very few Pears were shown, this proving that late varieties are very scarce. Beurré Rance, of moderate size and well kept, took premier position, a dish of rather small Josephine de Malines being second. Easter Beurré was shown in fairly good condition, and there were also a few stewing Pears. It is no fault of the past season that Pears are scarce now, as the crops generally were fairly good; but what is wanted are a few really good-keeping sorts, and for which to all appearance we shall have to long for in vain.—I.

A promising Apple.—At the late Bath bulb show Mr. J. Rogers, gardener to Mr. P. C. Hardwick, exhibited a remarkably handsome dish of Apples under

the name of Streaman Pippin. Nothing was stated as to the history or origin of this, in my opinion, very distinct and valuable variety, but it was rightly awarded the first prize in a well-filled class for a single dish of Apples. The fruits, large, or of about the same circumference as moderately large Blenheim Pippins, were of greater depth and more richly coloured than those of the latter variety. Of the quality I am unable to speak, but let this be what it may, Streaman Pippin ought to be a first-rate market variety, as it evidently keeps well, and is of a most attractive appearance.—I.

LONDON FOG AND ITS EFFECTS.

I SENT you a few notes early in the year on the above subject, and thought that our troubles were at an end, so far as this winter was concerned. I have since found that a London fog in December or early in January was not so difficult to deal with as one all through the last half of February, when many more plants were in active growth, and thus suffered more severely. I hear it has also badly affected Tomatoes at Chiswick. Such is my experience also, and some kinds suffer much worse than others, while those not killed are weak, puny plants, though close to the glass and in a suitable temperature. My reason for penning these lines is to inquire if its evil effects have been noticed on Peach and Nectarine trees. Here many of the early forced trees have shed their first leaves. In our case most of the bloom was set, or I do not know how it may have been. We have lost a small house of Hamburg and Foster's Seedling Vines. These were just at the flowering stage, and every bunch has curled up and dropped off. This latter is a serious matter, and in a small establishment would often mean total loss of Grapes, but my late worthy predecessor suffered in the same way, and planted small pits for early work, reserving the larger houses till later when safe from the evil influences of fog, so that the loss is not so great. Another point worthy of notice is the way it affects young Vines just started from eyes and some few inches long. The tops curl up after going brown, and the young shoot drops off just at the base, and, of course, the Vines are ruined. I thought at first they must have been burnt or deficient of roots, but found these all right and getting round the sides of the pots. I have lost some hundreds of Vines in this way, and as I am not sure that this is usual in this locality, I thought it might be caused in some way by our metal houses. Melon and Cucumber plants present a sorry appearance, and have made no progress, and I found it best to keep them on the cool side while the fogs lasted, or I fear we should have lost all, as we did in December, if the usual high temperature had been kept up. Strawberries in pots are a sad sight. Some few hundreds have been consigned to the rubbish heap after many months' care. We had nearly 300 Vicomtesse Héricart de Thury just opening their flowers when these last fogs commenced, and every bloom failed to set, no matter how treated and in what position. It also had the same evil effect on plants in a more forward state. We had a nice set on some Crescent Seedling, and they all refused to swell. It is certainly a difficult matter to cope with these fogs and smoke, and I think as much of the evil is caused by want of light as by the sulphurous gases with which the air is charged. The effect on flowering plants is less than earlier in the year; then we suffered severely, now we have more bloom, but so far this is in wooden structures chiefly and not iron. Those in the iron structures are much worse, although the temperature is the same. On the other hand, the glass in the latter is the old-fashioned small panes, consequently not nearly so close, thus admitting the obnoxious gases more readily.

I have this year had the glass frequently cleaned to admit daylight, else I fear this last fog would have had worse results than it did. Fortunately at this date (March 7) we are now getting a nice rain, with westerly winds such as your correspondent "A. D." hoped for, thus clearing the ground of the thick dirty deposit left by the fog. But even heavy rain will not cleanse the glass unless it is well brushed while in a moist state. The evil effects of this greasy

deposit on white paint are disastrous, no matter how good the material, as it robs the wood of its chief component—the oils in the paint. After such fogs as we have experienced, the paint will rub off easily with a slight touch, and the wood of course suffers. With vegetables I have found it a most difficult matter to get Potatoes in frames to make any progress; they all draw up, being thin and weakly looking, and lose all the bottom leaves as if diseased. Such is not the case, as upon examination they are all sound at the roots. Another serious drawback is the way it affects young Cauliflowers and Cabbages, as owing to the total loss of these plants this winter we had sown seed in January in heat, and these were in frames growing nicely. But many of them are now useless, being irretrievably damaged; this may be chiefly owing to want of light, the young tender leaves having been in darkness nearly a fortnight just at the critical period of growth when abundance of light and sun with a fresh atmosphere was needed. Such plants as Celery and Onions did not suffer nearly so much, though in the same frames and all treated alike.

Syon House.

G. WYTHES.

ROSE GARDEN.

ROSE NOTES.

I HAVE seldom seen Roses in greater haste for a start than they have exhibited through most of the month of March. Had this month not changed its character from a lamb to a lion of abnormal severity, our Rosés must have rushed headlong to their destruction. The mildness and drought of February produced unusual excitement and precocity among all living Roses, and when March started on the same or even more summer-like lines, the Roses threw off their scabbard, that is, their bud-scales, and made a headlong dash for growth and blossoming. But the frost, winds, snow, hail, &c., have put the curb on their impetuous energy, and forced a halt which will probably mean safety. Some suppose that this impetuosity of growth reveals weakness at the core—that where the frost failed to maim or kill it managed to weaken—in fact, philosophically, that it is weakness that hurries, strength never. Be all this as it may, this early growth has forced an early pruning, for it is difficult for rosarians to stand aside while their Roses are wasting their strength in shoots of from 1 inch to 2 inches long, and so knives have been at work, and as sharp frosts have followed the early precociousness possibly the knife and the frost together may now hold the Roses back till they can grow into safety and beauty abreast without further hindrance from man or weather.

Further testing of the effects of the long winter on the Roses here but confirms my former estimate of its disastrous and deep-reaching character. But so much depends on local soils, sites, physical conditions, and air currents, that immense differences may generally be met with within very limited geographical areas. For example, I trust my friend and neighbour Mr. Sheppard's sanguine view of the effects of the frost among the Roses may prove the more true of most of the sea and river-influenced portions of East Anglia. Though little more than 30 miles apart as the crow flies, Mr. Sheppard and his great Rose-growing friend have wonderful climatal advantages on the banks of the fine tidal river of the Orwell, and within smelling of the salt sea over those more inland. And even there, how often do we find some Roses taken and others left by the frost within a few miles. The fact seems to be that when we get anywhere within near reach of zero, Roses and many other plants are lost or saved by the slightest differences of alti-

tude, shelter, soil, air currents, sea breezes, culture, or other subtle influences, such as the absence or proximity of large or small bodies of water, physical form, altitude or depression of the ground, character of the subsoil, &c.

On a recent visit to Theberton Hall, the family seat of Mr. Jasper Milner-Gibson, on the east coast, I was greatly struck with the protective power of the sea during such long and cold winters as the present. Not only were Roses and other semi-hardy plants that were found well within the sea range less severely hurt, or scarcely hurt at all, but Broccoli, that the winter has almost swept clean out of the centre of East Anglia, were found safe and sound from Theberton to Aldborough, and along the coast line in various directions. Similar well-marked lines of safety may often be traced for some miles inwards from the banks of tidal rivers; while, on the other hand, the frost often hugs with abnormal severity the banks of non-tidal rivers, and launches its keenest darts at vegetable life from beside the still waters of placid lakes.

But to return to the present state of our Roses. It is refreshing to hear that standard Teas protected by a thin covering of hay and manure have not suffered at all. Most of ours, though also covered with snow, are cut down to nearly the ground line, and as the bulk of them are on their own roots, they will doubtless soon spring forth afresh from their base, the first blooms being the chief loss, in these cases often compensated for through the new life poured into the old root-stocks through their new departure, and the greater profusion and higher excellence of the blooms through the late summer and autumn months.

It is curious to note among the frozen Roses how frequently life and death are intermixed, and live shoots found far above dead stems giving promise of recovery that can never be realised. On the other hand, the smallest strip of live bark seems at times sufficient for the support of living branchlets on stems and big boughs having no other signs of vitality.

Roses on iron stakes or arches assuredly suffer more from cold than those on wooden stakes or on walls or wooden fences, intense cold sometimes killing with almost as much swiftiness and thoroughness as lightning under similar circumstances. Can it be that occasionally these two apparently most opposite powers combine their destructive forces even in winter? One very cold night during the past winter there was much lightning, and immediately afterwards the Roses on many of our iron arches had their leaves scorched and blasted on the plants as if fire had passed over them. This severe winter also gave many fresh illustrations of the protective power of transplantation. Hardly a Tea or other Rose moved before the great frost in November has suffered; none have been killed; while, on the other hand, scores of old-established plants are gone, past hope of recovery. So marked and general is the protective power of transplantation, that I have serious thoughts of replanting all our Teas in the open every year, and would not hesitate a moment could I only command maiden root runs for them.—D. T. FISH.

— The selection of the best new Roses of recent introduction given by "Ridgewood" in THE GARDEN of March 21 (p. 271) will be valuable to many, especially to those whose Rose desires are great, but the means of gratification comparatively small. It is very discouraging, after having paid a high price for a much-lauded novelty, to find that it turns out something inferior, if not worthless. At the same time there is only one reliable means of testing the true worth of these new-comers, and that is

by tying them, which "Ridgewood" has evidently done in a thorough and exhaustive manner, and many will heartily thank him for placing his dearly-bought knowledge at the disposal of the readers of THE GARDEN. In looking over the list, however, I find one or two omissions, which in the light of my own experience seem rather strange. The sorts can hardly have been overlooked by "Ridgewood" in his trials, and yet they are absent, and others which with me are not nearly so good are present. Comtesse de Frigneuse (Guillot, 1885) is one of the missing ones. The raiser's name is almost a sufficient testimonial, but the Rose is unquestionably a good one, a free grower and bloomer, of a lovely canary-yellow colour, and possessed of a delightful and most powerful fragrance. Viscountess Folkestone, which Bennett sent out in 1885, the year after Grace Darling, is absent. "Ridgewood" must have been singular and almost alone in his experience of it, for it is deserving of a high place. It is, perhaps, hardly full enough for the exhibition table, but then the list comprises Roses of all sorts, and those who grow Roses for pleasure and even for profit should include Viscountess Folkestone. It is a pretty shade of colour—creamy pink, deepening into salmon-pink, dwarf, vigorous, and a free bloomer. Souvenir de Gabrielle Drevet (Guillot, 1884) is another Rose that I should include among the best of recent years. It is salmon-yellow suffused with bright pink, large, full and effective. Mme. Chauvy (Bonnaire, 1886) will, I believe, prove one of the best climbing kinds of the Dijon race. It has the Mme. Berard habit of growth, with comparatively spineless shoots. Its flowers are large, double, full, when first expanding of a deep buff colour, becoming lighter. I only tried it last season, and being a vigorous grower it naturally made some amount of wood. If it is as free as it is striking it will be a grand Rose. I am induced to mention it from the fact that in the list there are Henriette de Beauveau and Duchesse d'Auerstadt, and the behaviour of these three during last year was about equal.

ROSES AFTER THE FROST.—Several notes have appeared upon the state of the Roses, and, as might be expected, the evidence they contain is conflicting. Mr. Fish speaks of a condition bordering upon extermination (this from West Suffolk), whilst from East Suffolk comes a note from Mr. Sheppard which tells of comparatively little or no injury to plants slightly protected. From the same part of the same county I can speak on behalf of 1000 Teas that have stood through the past winter totally unprotected, and there is not a death among them, nor are any, except the dwarf *Devoniensis*, a particularly tender kind, showing ill effects from their complete exposure, other than the death of unripened shoots which were flowering when the frost came, and which, even had winter not been sharp enough to kill them, would be pruned away in spring. Some proverbially tender kinds, such as *Amazona* and *Niphetos*, are quite safe, and the buds of these and many others are already on the move, although winter seems very loth to depart. The lowest reading of a thermometer placed among these Roses showed 23° of frost on several occasions. It would be interesting to know how Roses have fared with the great trade growers, especially the Teas, and if evidence were forthcoming from Colchester, Oxford, and Waltham Cross, with particulars as to whether anything or nothing was done to protect them, we might be further enlightened and know more concerning the hardiness of the Teas. One thing the past winter demonstrates, and that is the value of elevation. It is this that has materially assisted our Roses—at least I am tempted to think so by the fact that some large plants of *Homère* in a cottage garden in the valley are quite dead. Probably those few extra degrees of frost did the mischief. That there was a difference in the temperature between the valley and the hill-top could be easily detected on some of the still early mornings of the past winter, and a test by the glass showed the difference to be from 8° to 10° lower in the low situation. Damp valleys or the proximity of large bodies of fresh water, whether lake or stream, will, I think, prove to be situations in which the Tea

Roses will suffer most when weather is severe, whilst the present state of our plants after a crucial test is strong evidence in favour of the hardiness of Tea Roses under conditions which prevail in many localities.

ROSE PRUNING will now be one of the operations engaging the Rose grower. It is not possible to say much that is new concerning it, but the time is opportune for reminding those who grow Roses for pleasure how much beauty they wantonly sacrifice when using the knife and shortening back to a third or even less of their original length the shoots of the previous season's growth. We have Roses now that were only planted last year whose shoots are strong, well ripened with plump buds, and from 3 feet to 6 feet in length. The kinds are *Gloire Lyonnaise*, Dupuy Jamain, A. K. Williams, Madame Gabriel Luizet, General Jacqueminot, *Gloire de Margottin*, and others. To prune these to regulation length would involve the sacrifice of hundreds of flowers later on, but there is no need to do this. In the bad weather the men were employed cutting stout pegs, and these shoots will be pegged down almost their whole length over the surface of the border. By this means they will flower their whole length and literally carpet the ground with flowers. Pruning in many cases this season will simply mean cutting out the wood that the frost has killed, and the operator will not be called upon to exercise much judgment in the matter. Those whose Tea Roses are killed to the ground need not despair of growth and bloom eventually. As a matter of fact a large trade grower once told me he would advise cutting down to the ground each year, for what reason he did not say, but I have never seen the wisdom of practising it, though some will be forced to do so this year.—A. H.

STANDARD ROSES ON LAWNS.

I HAVE no hesitation in stating that a large percentage of losses of standard Roses on lawns through death is owing to injudicious planting. The fact is not a few of the standard Roses obtained from the nursery are imperfectly rooted, and a hole is dug in the soil only large enough to contain the roots, the soil trodden about it, and it is expected to succeed; instead of which it too frequently fails and dies. Only a few days since I saw a jobbing gardener planting in this fashion. Now there are many who object to standard Roses, but they are very suitable for forecourt gardening, being more convenient in many ways for the purpose, and because of this, standard Roses will be planted for many years to come.

The standard Rose will bear a good deal of exposure and do well on any aspect provided the trees are properly planted. This is a very important matter, and one sometimes not sufficiently considered. Those who plant standard Roses should remember they are planting for time as well as for the present, for it is abundantly proved that a well-planted standard Rose of a vigorous habit will last a long time and bloom finely year after year if properly cared for. To this end let it be properly planted at the outset. A circle of turf should be cut out 4 feet in diameter. If the surface soil be good, let it be placed on one side to be returned again to the surface. Then, unless there is a good fertile loam to the depth of 2 feet, let the subsoil be removed entirely and be replaced by a compost made of good yellow loam, if a little stiff so much the better, well decomposed manure of a strong character, and pieces of turf chopped up if it can be obtained. When the hole is partly filled with this it should be trodden down firmly, and then the tree can be planted, spreading out the roots horizontally and covering them with rich soil that will encourage the production of fibrous roots. One caution is necessary—avoid deep planting; many standard Roses are ruined from this cause. The soil should be so filled in to the hole as to admit of 2 inches or so of road sand being placed on the top so that the Grass may be relaid upon it. This surface of road sand will operate to moderate the growth of the Grass, which would otherwise be too

luxuriant. A stake should be placed to each Rose, and the stem firmly tied to it just below the point where it was budded. In replacing the turf a circle 2 feet or so in diameter should be left round the stem of each tree.

The piling up of soil on these circles is a prolific source of injury to the plants, as it places the roots too deep below the surface, which is a mistake. It is a common practice to plant a few bedding subjects in these circles, but they should be those that do not root too deeply. It would be best to keep the circle sacred to the Rose, and mulch with manure two or three times during the summer and especially during dry weather. Liquid manure can be given occasionally with great advantage; one authority recommends that it be freely poured upon the circle of soil two or three times during the winter and not during the summer. It is not too late to plant, but the work should be completed as soon as possible. R. D.

ROSES UNDER GLASS.

ALL Roses under glass will now be making quantities of young growth. If this young spring growth is allowed to become infested with green-fly, mildew, maggot, or red spider, it is impossible to secure a paying or satisfactory crop of bloom. The four pests named above are the chief enemies of Roses under glass, and they may be kept down in a very simple way if persevered with early in the season. The finest of all insecticides is undoubtedly soft soap; procure this of the best quality and use it weak and often, when you will be troubled with very few injurious insects upon your plants. The frequent syringing with this mixture also cleanses the foliage and keeps all healthy and sweet. I do not disparage any of the many good insecticides now sold. What I wish to point out is the great efficiency of pure soft soap. This is not only far cheaper, but it forms the principal ingredient in almost all compound insecticides. If used weak and with clear soft water it does not discolour the most delicate blooms, provided it is not applied with unreasonable force and directly upon the flowers. The green-fly is of several shades of colour, according to that of the young shoots upon which it is feeding—green, pink, red, or brown. Fumigating with tobacco is a good means of destroying them, and this should not be given strong for an hour or two only, but kept at a medium strength all night. I prefer a good fumigation early in the evening, giving another dose later on with a good syringing in the morning; this seems to kill all the insects, while the syringing clears the foliage of the dead insects. Prevention is far better than cure, and one should not allow the fly to increase to any extent; by careful watching and syringing every morning and night with tepid water containing a little soft soap the two chief of these Rose pests, viz., green-fly and mildew, can be easily battled against.

Mildew is, according to my experience, brought on by cold draughts and sudden changes in the temperature, or by allowing the plants to become dry at the roots. Upon the very earliest symptoms of this fungoid disease add a little flowers of sulphur to the soft soap water. Keep the whole well stirred during application, then when the foliage dries a fine dusting of sulphur will be left upon it. This is less unsightly than dusting it over the plants in any other way and applied in conjunction with the soft soap it is also far more effectual. If the plants are not exposed to cold east or north winds and are kept moist at the root, mildew may be successfully met in this simple manner.

Red spider is one of the worst of all Rose pests, attacking the plants very strongly if the atmosphere of the house is allowed to become too dry. Frequent syringing is a great help in keeping them down. Where any plants are much infested with them, a good plan is to mix some sulphur into a paste and apply the same to the hot-water pipes, shutting the house up closely at the same time. It will be seen from these few practical notes that I have by no means too strongly upheld the great benefits of using the syringe freely morning and evening among Roses under glass. The

Rose maggot is far more prevalent early in the season, eating the tips of the young shoots out, also destroying the flower buds by eating from a third to half of one side while in the earliest stages of formation. Hand-picking is the best remedy, and if done early once or twice is generally enough. Care should be taken to hunt them all up, also not to shake the plant in any way before having killed all you can see. After this a good shake is advisable, because the maggots have a tendency to descend to the ground by a silken thread directly they are disturbed, and by taking advantage of this peculiarity the remainder are easily captured.

RIDGEWOOD.

Rose Duc de Rohan.—This is stated to be synonymous with another H.P. Rose named Mrs. Jowitt. Is this correct?—H. E. J.

* * Duc de Rohan and Mrs. Jowitt have been placed by the National Rose Society in the list of too-much-alike Roses, and therefore cannot be shown in the same stand.—Ed.

Hardiness of Tea Roses.—After the lamentations over the destruction of Tea Roses, is there nothing to be said on the other side? I have been looking over mine to-day (March 17). I grow a few, including some of the delicate ones as, L'Idéal, Mme. Victor Verdier, Mme. Chedane Guinoiseau, Mme. Charles, The Bride, and Clare Carnot (a lovely Rose which I have never seen mentioned in THE GARDEN). These were planted in the autumn of 1889. They were very weak plants then, and are so still. The little pink buds are breaking out all over them. Some of the points of the shoots are, of course, dead, but in no larger proportion than after an ordinary winter. All are dwarfs on the seedling Brier. The garden here is about 4 miles from the sea, facing east, and about 120 feet above sea level. The soil is a poor loam, resting on chalk, yet it holds the water rather tenaciously in winter. It is by no means an ideal Rose soil. The plants have had no protection whatever, not even a mulch, and they are not so deep in the ground as they should be, for the point of junction between Rose and stock in most of them is above ground, the ground having sunk since they were planted. Several standards planted at the same time are dead, but about a dozen much older ones are not hurt. Thus it is plain Tea Roses are not killed everywhere.—G., *Betteshanger Rectory, Dover.*

KITCHEN GARDEN.

TURNIPS.

TURNIPS to be appreciated must be quickly grown. To secure this end the ground must be deeply worked and also well manured, the surface being brought to a fine tilth. Turnips will not succeed well on lumpy ground, the seed in



Turnip Early Dutch. (One-fifth natural size.)

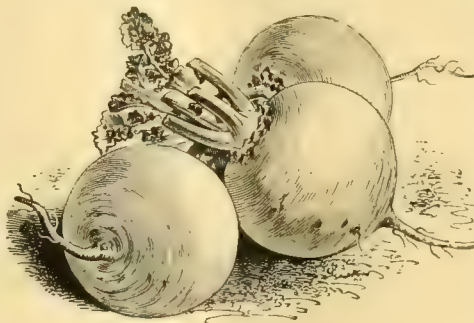
such germinating very slowly and irregularly, while the seedlings soon fall a prey to that destructive insect, the Turnip fly. On poor soils the results would be the same, as the growth made would be very slow, the texture of the roots consequently being very tough and the flavour strong. Overgrown Turnips should not be tolerated, sowings being made sufficiently often enough to keep up a regular succession. It is

early in the season that Turnips are most prized, although in the majority of establishments they are in daily request. On the majority of soils Turnips will succeed well, but when there is a difficulty in securing good results, a dressing of well-burned garden refuse or wood ashes will



Turnip Red-top Strap-leaved American Stone.

assist growth wonderfully. A dressing of superphosphate of lime in conjunction with the well-burned garden refuse is also beneficial. Salt is valuable as a manure for Turnips, but this must only be applied in small quantities, an ounce to a square yard being ample. Soot also may be applied with advantage. As the season advances, it is of the greatest importance that a quick growth should be encouraged from the germinating of the seed until the seed-leaf stage is passed. For this purpose, a small quantity of the best guano drilled in with the seed will be found useful. It is very annoying to have the seedlings devoured as soon as through the soil by the destructive pest mentioned above, so every means should be adopted to secure an early and quick growth. Very early sowings



Turnip Orange Jelly. (One-fifth natural size.)

have a tendency to run to seed, but with the improved varieties adapted for early sowing, this evil is considerably lessened to what it used to be. Sowing Turnips under glass on a slight hotbed, or even in a cold frame is now more largely practised than formerly, as besides an early supply being secured, "bolting" is greatly lessened. Sowing large breadths early in the season is not at all a good practice, it being much the wisest plan to sow smaller breadths and at more frequent intervals. For the earliest sowings, either under glass or in the open air, the Early Milan is the best, but from this time onwards it is advisable to sow a variety of the Early Snowball type, the quality being much superior to that of the Early Milan. Fortnightly sow-

ings on a south border should be practised up to the early part of May. During May the sowings may be larger, and for these an east border should be selected. During the hot summer of 1887 it was only from an east border that satisfactory crops could be obtained, sowings in the open failing repeatedly. During a dry time the drills should be drawn the day previous to sowing, and over-night be soaked with water. By the following day the soil for the reception of the seed will be in a fairly moistened condition, and consequently assist quick germination. When the seed lies in the ground, on account of the dryness of the soil, for some time, it often fails to germinate at all. The ground having been brought into good



Turnip Chirk Castle Black Stone. (One-fifth natural size.)

working order, the seed in all cases should be sown in drills, broadcast sowing being a slovenly mode of procedure, there being a difficulty in cleaning or otherwise attending to the crop. The drills should be drawn 12 inches or 15 inches apart and about 2 inches in depth. The seeds must be scattered thinly along the drills, as besides loss of time entailed through a deal of extra thinning, crowded plants prevent free growth. As soon as the seedlings are through the soil keep a sharp look-out for the Turnip fly. During showery weather it is not so destructive, the conditions being more favourable for a quick growth out of the seed leaf when all danger is past. In a dry time it is most persistent in its attacks, and if not kept in check would soon devour the whole lot. There are various preventives, and whatever is applied must be done in the early morning whilst the seedlings are wet with dew. Dusting with lime, soot, or wood ashes is effective. Spent hops scattered along the rows and amongst the plants are also an excellent preventive. Surface-stirring as soon as the seedlings are through the ground also assists in keeping the fly in check. As soon as the seedlings are large enough, thinning must take place. Hoeing being such an essential to free growth, this must be attended to as often as necessary.

The sowing for the winter supply is a very important one, and should take place from the middle to the end of July, although the second or third week in August is none too late for an additional sowing. Roots from the sowing of the Orange Jelly withstood the late frost and came out sound and good. The produce from this latest sowing I always leave out in the open, as the flavour thereby is much improved. For late spring or summer use any type of the

Snowball is good, also the Red American Stone, this latter remaining sound for some time after being fit for use. For the winter crop Veitch's Red Globe is a well-tried variety, selecting the Orange Jelly for a very hardy and superior yellow-fleshed kind. Chirk Castle Black Stone is also very hardy and well adapted for sowing in conjunction with the above.

A. Y. A.

SEED-SOWING DIFFICULTIES.

FEBRUARY was an exceptionally dry month, there being no rainfall worthy of mention, and we were also favoured with much sunshine and genial weather generally. This was highly favourable to the hitherto much delayed gardening operations, and the ground, thanks to the long spell of severe frosts, was never in better condition for working. The natural consequence of this state of affairs can easily be imagined. As day after day I walked round and about the garden and noted the state of the ground I was sorely tempted to commence seed sowing in good earnest, but having previously suffered from undue haste in doing such important work in former years, I preferred to wait. I took advantage of the dryness and free-working state of the ground to plant all the late Potatoes space could be spared for, and they never went in better, nor do I think any mistake was made in planting so early. A warm border was also planted with Ashleaves, and there, as far as this crop was concerned, nothing further was done. Early Peas, Broad Beans, and Spinach were also sown, but the more tender wrinkled-seeded Peas have been kept in the bags for a few weeks longer, as were also Onions, Carrots, Parsnips, and all other seeds. As it happens, I decided rightly, as this month, up to the present time (March 19), could not well have been more unfavourable to the germination of seed or the growth of tender seedlings—cold winds, amounting to a blizzard, sleet, hail, snow, rain, and a very severe frost, the thermometer in low-lying positions on the morning of March 12 registering 20° of frost, and only 3° less on higher ground, all reminding one more of severe January than spring weather. Judging from the time the snow lies on the ground, the latter must be in a very cold wet state, and tender seeds and seedlings buried in it must fare badly. Nor at present are there any signs of improvement, there being little or no sunshine and every prospect of more snow and cold weather. Unfortunately, very much seed has been sown in this and, doubtless, many other districts, professional gardeners, amateurs, and cottagers all taking advantage of the favourable state of the ground in February to get it in. Where the ground is of a light, warm character many of the seeds have germinated fairly well, but hereabouts there are more clayey than light gravelly soils to deal with, and already there are complaints of the seed generally coming up badly. There is really little or no gain in sowing seeds, more especially of Onions, Parsnips, and Leeks thus early, the seedlings coming up far more strongly and growing away more rapidly when the seed is sown late in March or early in April. Those, therefore, who have recently been hindered in sowing seed of these kinds need not trouble about it, as doubtless they will soon have a good opportunity of getting in seeds, while in all cases where the first sowing has resulted in partial or complete failures, there is yet good time for either sowing afresh, or, if the failures are only partial, the blank spaces only may be sown again. Both Onions and Parsnips transplant fairly well if done in showery weather and before the plants are far advanced in growth, but I would yet prefer to sow over the ground again, this being done directly it is seen where the failures occur. Main crop Carrots ought never to be sown before the present time, the first or second week in April being quite early enough. The seed will usually come up fairly well if sown in February or March, but not so well as it does in April, while the progress made by the latest sown plants is by far the most satisfactory. What is also of great importance, the plants from the later sowing form the least coarse roots. Salsify, Scorzera, and Chicory also form the cleanest and best

roots when not sown too early, and if the seed is got in from the middle to the end of April there ought to be no failures. Coarseness is very objectionable in Beet, and this is most surely prevented by sowing late in April or during the first week in May. Sowing the seed on very poor ground is naturally a preventive of coarseness, but the roots in this case are usually much too tough. If an early supply of roots is needed, then sow a pinch of Crimson Ball or any other good selection of the Turnip-rooted Beet now on a warm border or else in boxes and plant out early. The weather having prevented successional sowings of Peas being made, more of William I. or other good first early ought to be sown with the wrinkled-seeded second early varieties, and this will prevent any possible break in the supply. The wrinkled seeds generally are the most liable to perish in the ground, and if any were sown in February and are coming up badly, sow a few seeds in 4-inch pots, place in heat to germinate, harden off the plants, and make good the blanks with these. In some cases the rows of seeds will have nearly all perished, and the best thing that can be done with these is to sow a fresh lot altogether. Peas also transplant fairly well with a trowel. Early sown Turnip and Radish seeds are wasted, birds and slugs clearing off what few have germinated, but any sown now may do well.

Nor will many plants, as a rule, be obtained from the seed of Brussels Sprouts, Cauliflower, Broccoli, and Lettuce sown in the open during February. This difficulty will easily be got over by sowing seed in boxes or pans under glass, the seedlings being duly hardened off and pricked out on the open borders. It is advisable to raise the plants of Brussels Sprouts early, these requiring to be put out in June, and an early batch of Veitch's Autumn Broccoli is also of great service, but the bulk or all of the midseason and late varieties ought not to be sown so early as this even. The end of April is nearer the right time to sow these, and also Borecole, Chou de Burghley, and Savoys, the plants only spoiling each other in the seed beds when raised much earlier.

I. M. H.

Tomatoes for the open air.—To be successful with Tomatoes in the open air the seed should now be sown, in order to secure strong plants for planting when the time arrives. Securing strong plants is a very essential proceeding for the successful growth of Tomatoes in the open air. The plants must be grown on sturdily from the first, so as to secure a firm woody growth. It is the plants which have been crowded together, and also probably drawn up in heat, which the soonest succumb to the disease. The plants must be grown on early enough, so as to have the first trusses of bloom set previous to planting out the first or second week in June. If the plants are small when first planted out it is late before the fruit forms; consequently it has not such a favourable time for ripening. The seed should be sown thinly, and when large enough the seedlings should be potted off singly into 3-inch pots. Keep them growing on steadily in an intermediate temperature and fully exposed to the light. Eventually, and before the plants are at all allowed to become starved in the small pots, repot into 7-inch or 8-inch ones, using a sound compost. Grow on steadily, keeping each plant neatly tied up. In these pots the first trusses will form. Keep all side laterals pinched out as soon as perceived, and if gradually hardened off and planted out at the time stated above in fertile soil against warm sunny walls, good crops, if the season be favourable, will be secured.—Y.

The severe weather.—Whatever the experience of others may be in respect to the weather and its results on the garden, ours is not a cheering one. After nine weeks of frost, snow, and ice then came a glorious February, the few first days of March being also fine. Following this we had drifting snow for thirty-six hours, and on the night of the 11th 21° of frost. Although the blinds covering our Apricot trees are new and made of the best garden netting, strained to an iron rod at top just under a glass coping, the storm was so severe and the force of

the wind so strong, that it had driven the snow though the netting, and by 6 p.m. the trees were covered with snow. On the 11th the sun made the snow give way, and left both the blooms and trees clean for the severe frost that came at night. Bad as the snow may have been, I would rather have seen this on the open blooms than 21° of frost. On looking at the blooms afterwards I see that every one has been destroyed. Some young Cabbage and Cauliflower plants raised in heat and pricked out in cold pits, although they were protected, are killed.—J. CROOK, *Forde Abbey, Chard.*

CHICORY.

THE interesting exhibits of blanched growth of Chicory roots made at the recent Drill Hall meeting by Mr. Barron from Chiswick, admirably served to draw attention to a vegetable which is far too much neglected in this country. The capital examples of roots and blanched growth of diverse kinds of the Chicory family referred to may perhaps serve just now to draw attention to the merits of Chicory, especially that there is such a scarcity of hardy vegetables. Chicory has the special merit, certainly not common to all plants grown as food products, that it is both good cooked and as a raw salad. M. Henri Vilmoren, in his most instructive paper on salads, read at the Drill Hall last spring, mentions that, properly grown, blanched, and cooked, no other vegetable comes so near to Seakale as the Witloof variety. That is indeed high praise. If to that commendation be added this other, that all the forms properly blanched come nearer to well-blanched Endive than any other vegetable for salading, then Chicory gets high commendation indeed. Perhaps it will be found slightly more bitter in taste, but that is a trifling defect, and hardly noticeable in well-dressed mixed salads. The Chiswick samples were grown in deep pans, over which, as I understood, large pots had been inverted. According to M. Vilmoren, it seems essential to the production of firm clusters or heads of leafage that the covering should be fairly firm, so as to induce the production of this solidity. It was found on experiment that planting roots on warm manure rather led to the spreading of the leafage, whilst covering the roots with manure, by producing close compact growth, created this desired solidity. So far as home culture is concerned, there seems no reason for doubting but that soil of a fine dry character heaped or ridged over the roots out in the open would not produce similar results for late work, but for earlier crops the roots would have to be placed in frames or on beds, or treated more or less artificially, but to have over the crowns some firm material, so as to induce solidity of hearting. In France the rule is to sow seed in drills in the fields about 2 feet apart, and on fairly firm soil. Later the plants are thinned out to some 3 inches to 4 inches apart. The breadths are kept very clean by constant hoeing. The roots are lifted from the soil as needed for blanching. This is best done by bunching or tying the roots into clumps or bundles with all the crowns level. The Witloof variety, being of such strong growth, requires more room. The practice of blanching as performed at Brussels, where the greatest quantity of this vegetable is grown, is thus described by M. Vilmoren:—

Roots are dug up in October, and either immediately dressed and placed in the forcing pits or put by till the time comes for forcing them. Every root must be carefully dressed before forcing. The leaves surrounding the central shoot are cut back to rather less than 2 inches of their base, and all leaves belonging to lateral shoots are entirely removed with all buds, as all the strength of the root must be thrown into the main shoot. The inferior part of each root is cut, so as to make the roots perfectly even, as all the crowns must stand level in the pit. This is made from 12 inches to 18 inches deep, the roots are put standing on the bottom, which has previously been lined with fine soil or leaf-mould. They are planted in rows 4 inches to 6 inches apart and stand quite close in the rows. Fine earth sometimes mixed with sandy peat is sifted over the roots and made to penetrate between them, so as to hold them firmly in place. More earth is added so as to cover the roots about 8 inches deep and to fill the pit level with the garden soil. The pit is

usually made 4 feet wide; warm stable manure is heaped over the portion the first forced to a depth of from 20 inches to 30 inches. In twenty days the Witloof is then marketable. Other portions of the bed are covered with manure as needed.

Of the varieties shown on the 11th from Chiswick, the Witloof from both Messrs. Vilmorin and Messrs. Veitch's stocks were held to be the best. Other varieties were the common Chicory, large rooted, and large rooted Brunswick. A. D.

STOVE AND GREENHOUSE.

THE UNHEATED GREENHOUSE.

GLASSHOUSES are springing up everywhere, and every year adds immensely to their numbers; but much disappointment has been caused during the winter, which is now passing rapidly away, by trusting to canvas and other inadequate contrivances for keeping out frost. Unless a good boiler and a sufficient quantity of piping can be placed in the house to secure safety from frost in even an exceptional winter like the past has been, it will be better to fall back upon the old-fashioned flue. A good boiler with pipes and their proper fixing usually runs into a good deal of money; in fact, if the work is efficiently done, it pretty well doubles the cost of the house. A flue, of course, is not an expensive affair, and may be built by any good bricklayer who can set an ordinary copper. A flue has in more than one instance been found more reliable than one of those toy boilers with only just a few feet of pipe. If I could not afford a good useful boiler with pipes enough to keep out frost of the utmost severity, I should prefer a flue. If properly constructed, a flue furnace will burn all the house refuse and no heat runs to waste, as sometimes happens when a boiler is badly set or not sufficiently powerful to do the work. But in the case of amateurs who can only afford one conservatory or greenhouse, and who do not keep a gardener to manage fires, &c., I believe more pleasure will be obtained by growing in an unheated house only such plants as are fairly hardy or that will thrive under the protection of a glass roof without artificial heat. The most satisfactory unheated house that has lately come under my notice was given up entirely to Roses, all planted or plunged in the border, and which for the most part consisted of Teas and Noisettes, with just a few only of the bright coloured Hybrid Perpetuals, such as La France, General Jacqueminot, &c. Here there has been no disappointment, and everything is full of promise for the coming spring and summer. The planting out system is the best, as there is less labour, and if the borders have been well prepared the growth will be more robust and the blossoms finer than are generally obtained by any system of pot culture. I say nothing against the culture of Roses in the open air. I like to see Roses under every conceivable form and condition of growth, but in the suburban garden Roses may be successfully grown under glass where it would not be possible to have them in good condition in the open. It is not always a question of suitable soil; more frequently the source of trouble proceeds from an impure atmosphere. If the syringe is used freely and the ventilation carefully managed, avoiding cold draughts, there will be little trouble with insects, and a little sulphur in the syringing water occasionally will prevent mildew. Another family that invariably gives satisfaction in the amateur's small greenhouse is the Primroses, which also include Auriculas. There will be an endless source of pleasure and interest in getting together a good collection of these lovely flowers under the shelter of a glass roof. The house need not have a southern exposure; in fact the plants will do better if shaded from the midday sun. Though Carnations are open-air flowers in the fullest sense of the word, yet the brightest and best blooms are obtained from indoor plants, and those who wish to make a speciality of Carnations and the kindred section of the same family—Picoetes and Pinks—will find much pleasure and in-

terest from growing a good collection in pots and saving seeds and raising seedlings therefrom. What could be brighter or more beautiful in a large unheated conservatory than large groups of the Indian Rhododendrons and the Tree Paeonies, interspersed with choice Lilies in much variety? I say nothing against the heated greenhouses, but unless the heating power is ample and properly managed, it will be better to grow plants, of which there is an abundance, that will thrive and yield beautiful blossoms with but little expense or labour. There are many other things that will help to make the unheated greenhouse beautiful at all seasons.

E. H.

Camellia Lady Ardilaun (*J. Hawtry*).—This, I believe, is one of the pretty varieties sent out by Mr. B. S. Williams about two years ago. It is one of the varieties brought from Japan. This flower is sent for my opinion and is well and carefully packed. It is a single variety, with good broad outer petals, pure white and with an Anemone centre, the base of which is faintly tinged with a primrose-yellow. It is very elegant, and to those who like these single small-flowered Camellias a very desirable plant. I am told these Camellias are growing much better now they have been adapted to our English style of culture, and I hope to see them make their way in this country.—G.

Episcia erythrops (*J. Malcolm*).—The flower and leaf sent by this correspondent are of this plant, a member of the Gesneraceæ. It is a native of New Grenada, and was introduced nearly twenty years ago. It has large leaves, which are bright green on the upperside, paler beneath; the midrib is stout and deep red, this colour being suffused over the under side of the leaf. The flowers are not large. The limb is divided into five lobes of a pale flesh colour tinged with purple, inside of the tube yellow, dotted and spotted with orange purple. It is an evergreen stove plant of easy culture.—W. H. G.

Boronias as greenhouse plants.—Some at least of this beautiful family of New Holland plants are well suited for growing in fairly good quantity. In Messrs. H. Low and Co.'s group of early spring-flowering cool house plants shown at the last meeting in the Drill Hall, Westminster, there were some beautiful examples of *Boronia heterophylla*, which flowers profusely in a small state. These very compact bushes were studded with their neat little flowers (of a deep rosy-carmine colour), which last for weeks in good condition. In colour, habit, and general appearance, well-grown plants of this variety are decided acquisitions. It has been shown in previous years by Messrs. Jas. Veitch and Sons most profusely flowered, more so even than in the case of the others above alluded to. Messrs. Veitch's examples had apparently been grown in a little more warmth, but were one mass of flower. Messrs. Low's bore evidence of cooler treatment, being rather more bushy with not quite so much flower upon them, consequent upon not having made such a free growth. This variety grows quite freely and will bear pinching well, particularly so when of small size, so as to form a good base. It was introduced and shown by Messrs. Veitch and Sons in 1887, gaining a first-class certificate. *B. elatior*, a scented variety, is of a somewhat similar character to the preceding, being another introduction of the same firm. It is a stronger grower, and is seen to much better advantage as a specimen, or at least of fairly good size. It flowers at least a month later than *B. heterophylla*. *B. megastigma* is likewise a decided acquisition, the perfume emitted by its flowers being most appreciable. For this alone it is well worth growing, but its flowers, even although not of a showy character, are most attractive by their peculiar colouring—a rich shade of purple outside and yellow within. This plant is disposed to grow tall; it should, therefore, be pinched whilst growing, and as soon as it is out of flower be given a moderate pruning. *B. pinnata* is rarely seen in good condition; the best plants I have ever seen were those which Mr. Thos. Baines used to stage in such splendid form at the May shows. *B. serrulata* is another variety not frequently met with; it flowers in terminal clusters of

a bright rosy-pink colour, and under ordinary cultivation is in best condition during July. Both of these are scented kinds, but in respect to cultivation they require careful treatment, as in the case of hard-wooded Heaths. Good peat suits them all better than loam, except in the case of the two first named, with which I would prefer some light loam when growing on into specimen size.—G. H.

ACACIA CORDATA.

IN any selection of the smaller growing Acacias suitable for the greenhouse this must find a place, for it is quite distinct from any other member of that extensive genus both in foliage and in flower. The shoots of this are long, slender, and for the most part have an erect tendency. They are thickly clothed with small, deep green leaves, which, however, scarcely merit the specific name of *cordata*, as they are more triangular than heart-shaped. The flowers, which are disposed in little clusters throughout the entire length of the shoots, are straw-coloured, and are therefore quite distinct in hue from those of the other members of the genus. When needed for flowering in a small state, this *Acacia* should be cut back hard directly the blooming season is over, otherwise it will get bare at the lower part. In mentioning it as one of the smaller growing Acacias I should be inclined to give the following half-dozen as a very good selection: *A. platyptera*, which is remarkable by reason of its curiously winged stems, and also from the fact that it flowers before Christmas, and in this respect stands forth alone. The flowers, which are borne in globular masses, are of a rich golden yellow colour. *A. armata*, the Kangaroo Thorn of Australia, is a sturdy growing species, with very dark green foliage and a profusion of rich yellow blossoms. It will flower freely in a small state. *A. Drummondii*, with its deep green pinnate leaves and cylindrical spikes of lemon-coloured blossoms, is a well known kind, and one of the most popular of the whole. *A. pulchella* is a very slender, but profusely branched species, clothed with small pinnate leaves, and during the blooming season densely studded with tiny golden balls. Even devoid of flowers it is a pretty little shrub, and one that blooms earlier in the year than most of them. *A. lineata*, illustrated in Vol. XXVIII. of THE GARDEN, bears small, simple leaves and deep golden blossoms, which in the shape of little balls thickly clothe every shoot. While this completes the half-dozen, should another be required, *A. grandis* possesses many desirable qualities, and is one of the latest flowering of them all. This is a sturdy growing species with very rigid spiny branches, thickly clothed with small divided Mimosa-like foliage, and profusely laden with little rich yellow coloured clusters of blossoms, each standing out singly from its neighbour, but so numerous are they that the entire plant is quite a mass of gold. All these Acacias, with the exception of *A. Drummondii*, are of very easy culture, and stand cutting back to almost any extent without injury. They may, if required, be kept in health for more than one season without repotting. *A. Drummondii* needs more careful treatment in all stages than any of the others.

H. P.

Thibaudia acuminata.—Although perfectly familiar with this *Thibaudia* as a beautiful flowering greenhouse shrub, I never before saw it bloom so freely in a small state as in the case of those shown by Messrs. Low at the Royal Horticultural meeting on the 10th inst. True, I have had recently-struck plants produce each a head of bloom, but those shown were little bushes about 18 inches high with several clusters of bright-coloured blossoms. The usual habit of this *Thibaudia* is that of a vigorous, somewhat loose-growing shrub, well suited for furnishing a pillar in the greenhouse, for covering a wall, or for some similar purpose. A large specimen will bloom more or less continuously nearly throughout the year, and even without flowers it is an ornamental Evergreen, as the ovate-shaped leaves, which are each from 2 inches to 3 inches long, are of a deep shining green when mature, though in their young state they are prettily

flushed with pink. When in the bud the clusters of flowers are covered with large boat-shaped bracts which remain persistent for some time after the expansion of the blossoms. These last are tubular in shape, each about $1\frac{1}{2}$ inches in length, and of that thick wax-like texture common to many of the Ericaceæ. Their colour is bright red, tipped with greenish white. The large bracts above mentioned which surround the blossoms are of a bright pink colour, and therefore play a part in the embellishment of the plant. It is of very easy culture, thriving, like many of its class, in a soil principally composed of peat. Good drainage is essential to success, for a liberal supply of water is needed throughout the growing season. It is propagated by means of cuttings much more readily than many of its allies, as the young shoots taken during the summer when in a half ripened condition will strike freely enough if kept close in a gentle heat. They should be inserted firmly into well-drained pots of very sandy peat. This *Thibaudia* is also known by the generic names of *Proclesia* and *Cavendishia*, the specific name in each case being the same—*acuminata*. According to the latest botanical authorities, it is, I believe, regarded as a *Cavendishia*, but the name of *Thibaudia* is so generally recognised, that it seems a pity to change the nomenclature of the plant. It is a native of the Andes of Colombia and Ecuador, and was introduced in 1868.—H. P.

Tuberous-rooted Begonias.—These will now be on the move; fresh potting should therefore be seen to as soon as possible. For my own part, I prefer to see the new growth commencing before this operation is performed. Avoid using pots at all out of proportion to the size of the bulbs. This is a mistake which may lead to bad results. I would rather give a shift later on in any needful case than allow the tubers to be surrounded with too much soil at the start. The old soil should be carefully removed as closely as possible. This in itself will afford more room for the fresh. The bulbs should be kept fairly well down, so as to protect the surface roots as far as can be done. Turfy loam and leaf-mould in about equal parts, with plenty of sand, will grow them well. Watering must be done very cautiously until the plants are growing freely. A gentle heat will assist them, but on no account should too much excitement to rapid growth be allowed. The object to be aimed at is to obtain a dwarf stocky plant at the outset. Shelves will suit them very well—in such positions they will not be likely to get over-watered—or a pit where they are near the glass. Seedlings of this year should now be all pricked off; any which have been thus treated may have the same operation repeated before they are potted up. These will do better in rather more warmth than the older bulbs. Where any disposition has been observed in past seasons towards a pendulous style of growth, advantage should be taken of such tubers for basket culture, for which purpose some are peculiarly adapted.—H. G.

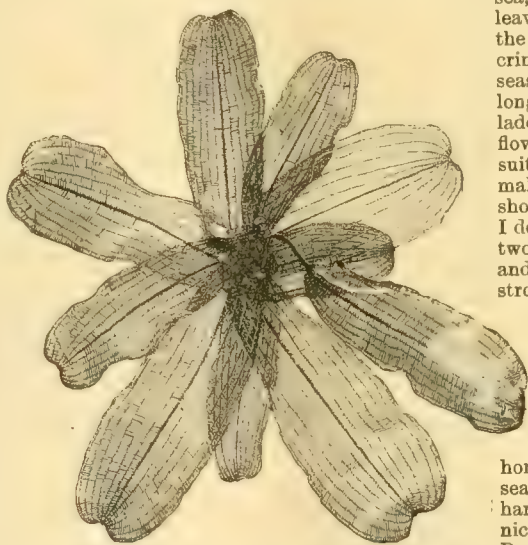
Aotus gracillima.—The mere fact that this *Aotus* has survived the long neglect of Australian flowering plants as a whole, during which many scores of beautiful kinds have practically disappeared from cultivation, speaks a great deal in its favour. It is a native of the Swan River territory, and was first sent to Kew by Mr. J. Drummond in 1844. Like many of the showiest plants of Australia, it belongs to Leguminosæ, and certainly there are few of that class more worthy of a wide cultivation. Either planted out in a peat bed in the conservatory or treated as an ordinary pot plant, it makes an elegant and profuse flowering bush. Its elegance is due to the long, slender, arching shoots, which are made each season, springing from the old wood after the plant has been cut back. These shoots, under favourable conditions, will grow to a length of 3 feet or 4 feet in one season, and when the upper two-thirds of each is covered with flowers, so crowded as to almost hide the leaves, it would be difficult to find a prettier object. The flowers themselves are individually small, like tiny Pea flowers in shape; in colour they are chiefly bright yellow, but the keel is brownish crimson, and a few streaks also occur at the base of the petals. The leaves

are about an inch long and very narrow; they are deep green above and greyish underneath. It should be grown in a compost of peat and sand and potted very firmly. After flowering the shoots should be shortened back to within a few inches of the previous year's wood, unless it is desired to obtain large bushes, when the strongest may be left about a foot long. Altogether it is a plant of very easy cultivation, and, provided it receives careful attention in regard to watering, it seldom gets out of health. It is now in flower.—B.

THE LACE PLANT.

(*OUVIRANDRA FENESTRALIS*.)

I ENCLOSE a photo of this curious and interesting water plant. It is a difficult subject to take, and I am indebted to Mr. Wells, of Burton-on-Trent (a young and enthusiastic naturalist and botanist), for the plate which he took of a plant growing here. Few if any known plants are more interesting than this Madagascar skeleton-leaved plant, and few plants have proved more fractious under cultivation. Many gardeners from time to time have tried to grow it, and usually with but indifferent success. It has been grown here successfully for many years and gives us no trouble at all. The longest established and



The Lace Plant (*Ouvirandra fenestralis*). Engraved for THE GARDEN from a photograph sent by Mr. Owen Thomas, Chatsworth.

strongest plants flower and ripen seeds, from which several young plants are raised annually. The plants are potted in 6-inch pots in stiff loam and immersed in water about 2 inches above the rim of the pot. Rain-water must be used, and a wooden vessel to hold the water is preferable to any other. I remember some years ago sending a plant to Mr. Latham, of the Botanic Gardens, Birmingham. This he placed in a glazed earthen vessel, and tended with the greatest care, only, however, to see it languish and die in a short time. I advised him to use a wooden vessel for his next plant, which he did, and he has since succeeded in its culture very well. The water in which it grows requires to be frequently agitated by some means. The usual way is to have a pan of water placed above the tub in which it is grown with a sponge placed not too tight over the hole, admitting a constant drip. I find that water poured on the leaves with considerable force through a rose pot four or five times a day in summer and once or twice a day in winter

answers equally as well. The plant should be cleaned every ten days or a fortnight, or the delicate tracery of the leaves will soon be destroyed by water sediment. The plants should be heavily shaded and receive stove temperature. The variety *O. Berneriana* is much scarcer, as it does not seed so freely as *O. fenestralis*. It is quite as easily grown and is by far the handsomer of the two. In order to have the piece of the plant here represented photographed, a piece of white rather thick paper was cut in a circular form the same diameter as the leaves of one of the plants. This paper was afterwards cut in two through the centre, leaving a small round space in the middle to fit the collar of the plant. Whilst one man carefully lifted up the leaves another laid the paper on the water, supporting it by stretching thin pieces of lattice from one side of the tub in which the plants grew to the other, afterwards laying the leaves on the paper, when they were photographed.

Chatsworth.

O. THOMAS.

Hypoestes.—I am in receipt of two species of this genus for names from "Ireland." The two specimens sent were of old species of the above genus. No. 1 is *H. sanguinolenta*. This, if I remember aright, is one of the many beautiful plants introduced by the Messrs. Veitch and Sons, of Chelsea, from Madagascar thirty years or more ago. The leaves are opposite, deep green, the midrib and all the principal veins being broadly banded with rosy-crimson or rosy-purple. It usually flowers at this season. The panicle now beside me is 6 inches long, with numerous branches, and it has been laden with many flowers of a rosy-purple. These flowers are small, and, moreover, they are not suited for cutting; but when grown in a stove they make a beautiful show. After flowering the plants should be cut hard back and young plants struck. I do not think them worth retaining for more than two years, as the young plants furnish the largest and brightest leaves. No. 2 is *H. aristata*, a stronger grower than *H. sanguinolenta*, and a more showy plant when in flower. The leaves are plain green; flowers bright rosy-purple, more or less streaked and spotted with rich purple. It is also one of the Messrs. Veitch's introductions from Natal.—W. H. G.

Steriphoma paradoxum.—This is a peculiarly beautiful stove shrub which came home from Venezuela amongst other things. At this season of the year it is very showy in a stove where hard-wooded shrubs are grown. Some years ago a nice flowering specimen used to exist in Lady Dorothy Neville's collection at Dangstein, in Sussex, and in one or two other places that I could mention there were also specimens. It neither wants nor will it stand much hard pruning. It makes a nice bushy shrub if properly started, and as the flowers are produced in a terminal raceme, it requires only just the point of each shoot cut out. It attains a height of about 10 feet or 12 feet, but a plant that I used to have under my care flowered freely every season when about half that size. The flowers are very ornamental, the calyx being large and of a bright orange, and the petals pale yellow; the stamens about 4 inches long, pale yellow. The raceme contains some twenty to thirty flowers. The plant should be grown in well-drained pots in a mixture of good light turfy loam, to which may be added one-third of good leaf-mould and a little peat, the whole made sandy. During the summer season it requires an abundance of water. At no time must it be allowed to feel the want of water, or loss of leaves will be the result. The plant is a member of the *Caper* family, and has been in cultivation for nearly 100 years.—W. H. G.

Greenhouse soft-wooded plants.—Selections should now be made from the stock of *Geraniums* (zonal and Ivy-leaved) for potting on into larger pots as a source of supply during July and onwards. Some promising-looking plants can be chosen from the bedding-out stock if none have been specially reserved for the purpose. If

potted now, they will continue to grow apace and make excellent material by the time named. Among the Ivy-leaved varieties, do not overlook *Souvenir de Charles Turner*, *Galilée*, and *Berthelot*, all double varieties of excellence. *George Potter*, *Lady Chesterfield*, and *Queen of the Whites* are fine zonal varieties. Some promising young plants of *Heliotropes* will be useful for the same season; at least one dark and one light variety should be chosen for growing on, keeping them well pinched for some time. If standards are preferable, such can easily be had by training up one strong shoot to the required height, then forming the head. Cuttings of *Fuchsias* struck this spring should not be left too long without being potted singly. Older plants of *Fuchsias* now growing freely should be kept constantly pinched at every second joint. *Lantanas* in pots will be found very useful, especially when of fairly good size; these should be potted now and grown in a similar way to *Fuchsias*. A selection should also be made of the white and the yellow varieties of the single-flowered *Marguerites* for retaining in pots. Where room is short, these may soon be transferred to a cool pit or frame, after another shift, if that be needed. Pinching must be resorted to to form a compact plant at the start. A close watch must be kept against the fly, which burrows its way into the fleshy parts of the leaves. I find syringing with soot water a good remedy against this troublesome pest. *Humea elegans* should now soon be shifted into blooming pots, being kept for a week or two in a growing atmosphere, and then gradually hardened off to a greenhouse temperature. Ten-inch pots are large enough for *Humeas*, unless they are extra strong; if overpotted, they are at times inclined to die off during the spring just before they should commence to increase rapidly in height. Firm potting is best for these, the soil being chiefly composed of light loam and sand; some spent Mushroom manure is a very good addition when the loam is at all heavy. When grown in a pit see that the points of the shoots are not broken by coming in contact with the glass.—G. H.

Vallota bulbs failing.—I enclose a bulb of *Vallota* infested with some insect. Would you inform me what it is and the best mode of treatment to cure it? I have tried slaked lime as a preventive, but cannot say at present if it will either cure or check it.—W. MARTIN.

*** I am sorry to have to tell you that your *Vallotas* are attacked by the bulb mite (*Rhizoglyphus echinopus*). The bulb submitted to me was very badly infested, and if the others are as bad I should burn them; and be careful to burn or bury the earth in which they grow. If any, however, be worth saving, cut out the affected parts and brush the bulbs as clean as possible, then soak them for a quarter of an hour in the following solution: A quarter of a pound of sulphide of potassium in three gallons of water at a temperature of 120°. Do not leave any of the earth from the pots lying about, so that it might get mixed with any untainted soil, and so get used again while the mites are still alive.—G. S. S.

SHORT NOTES.—STOVE AND GREENHOUSE.

Hyacinths failing (*Old Subscriber*).—You have evidently failed to water them previous to covering them up with the plunging material after they were potted.

Nepenthes (*F. T.*).—These plants like a higher temperature than 60°, and I should think the cause of their decaying at this season quite natural. You should keep them warmer, and then you could keep them moister. Cut them down now, repot or re-basket them, give them more heat, and when growth commences frequently sprinkle them. As growth increases, sprinkle them two or three times in the day.—W. H. G.

Venus's Fly-trap (*Dionaea muscipula*).—"T. W. M." has just received some roots of this plant from the United States of America, and asks as to their treatment. They should at once be potted in a mixture of good peat and Sphagnum Moss made sandy. The pots should be well drained, placed in moderate

warmth and kept constantly moist; they like sunshine, but as the sun increases in power, some shade will be necessary.—G.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

MARCH 21.

THE first show of the present season was held on the above date. Although liberal prizes were offered by the Crystal Palace Company, the response by exhibitors was not in some instances what one could wish. The reason of this may probably have been the low temperature pervading, plants being kept at home for fear of injury. In the open classes Messrs. H. Williams and Sons, *Fortis Green*, *Finchley*, were easily first for thirty-six *Hyacinths*, staging some clean well-grown examples with close spikes of moderate size. Lord Macaulay, single red; Grand Maitre, a pale blue; and King of the Blues, a dark blue, were the best. The same exhibitors were also first with the same number of *Tulips*, with a well-grown lot of plants; Van der Neer, purplish violet; Spaandonk, yellowish white, striped carmine; Ophir d'Or, deep yellow and cerise; Gris de Sin, tawny red, bordered with white, were some of the best. In both instances Mr. Morle, 283, Regent Street, W., was second. Messrs. Williams and Sons were again first for twenty-four pots of *Narcissus* with no opponent; the best kinds were Bazelman major, Jaune Supreme, and Gloriosus, all in good condition. The competition for *Cyclamens* was very good; in fact this flower, taken on the whole, was one of the features of the exhibition. Mr. Phillips, The Gardens, Langley Broom, Slough, succeeded in beating the trade growers, his plants being in more profuse bloom with good variety. Mr. Odell, Gould's Green, Hillingdon, showed well for the second prize, and the St. George's Nursery Company, Hanwell, were a good third. Messrs. Paul and Son, Cheshunt, Herts, were the only competitors for the substantial prizes offered for *Amaryllis*; they were deservedly awarded the first prize. Mr. G. F. Wilson, brilliant crimson, and Mrs. H. Wood, white, with crimson stripes, were two of the best. *Cinerarias* were shown in very good condition, the best twelve being staged by Mr. Ford, gardener to Sir C. Pigott, Bart., Wexham Park, Slough; these were well grown plants, of sturdy habit, with good heads of bloom. Mr. Phillips was placed second, but his exhibit, although the plants were good ones, had been spoilt by too much tying. For twelve pots of *Lily* of the Valley Messrs. H. Williams and Sons were first with apparently made up plants. Mr. James, Castle Nursery, West Norwood, was placed first for a miscellaneous group of stove and greenhouse flowering and foliage plants with a light arrangement not overburdened with bloom; amongst other *Orchids* this group included a good example of *Cymbidium Lowianum* and several *Odontoglossum Rossi*. Messrs. J. Laing and Sons, Forest Hill, were second with a brighter group, rather formal in arrangement, and not so light in appearance as the other; several choice *Orchids* were included in it. For twenty-four *Azaleas* the competition was only moderate; a few good plants were shown, but the number was evidently too much of an effort for both of the exhibitors. Mr. Wells, Longton Nurseries, Sydenham, was first, and Mr. Nunn, gardener to Mr. J. Soames, Greenwich Park, second. *Mignonette* was represented by some compact plants of the usual market style from Mr. Morle.

In the amateurs' classes, Mr. Shoesmith, gardener to Mr. M. Hodgson, Shirley Cottage, Croydon, was placed first for *Hyacinths*, *Tulips*, *Narcissi* and *Cinerarias*, the last being neat, well-grown plants. Mr. Phillips repeated his previous success with *Cyclamens*, staging good examples.—Mr. Carter, gardener to Alderman Evans, Ewell Grove, being second. Mr. Nunn took first prize for six pots of *Lily* of the Valley. Miscellaneous groups were an important feature, and greatly assisted the show. Messrs. B. S. Williams and Son, nurserymen, Upper Holloway, had a very showy collection of *Hyacinths*, *Tulips*, *Clivias*, and *Lily* of the Valley.

Amongst the *Tulips* were good examples of *White Joost Van Vondel*, fine; *Duchesse de Parme*, bronzy crimson, bordered with orange; and *Van der Neer*; whilst several of the *Clivias* carried fine trusses. Messrs. Paul and Son staged a well-grown group of forced *Roses*, among which were well-flowered plants of *Celine Forestier*, *Souvenir de S. A. Prince*, *Mme. Victor Verdier*, *Mme. Hoste*, *Comtesse B. de Blacas*, rose colour, and *Puritan*. The same firm also showed several well-flowered pans of *Hepaticas*, amongst which *H. angulosa* was particularly striking. Messrs. H. Low and Co., Clapton Nurseries, had another group of their well-grown and profusely-flowered early greenhouse plants, fully described in the reports of previous exhibitions. They also had a splendid collection of well-grown, vigorous plants of *Phalenopsis*, chiefly *P. Schilleriana*; these, with *Cologne cristata* and other *Orchids*, made a beautiful display, the effect of which was considerably enhanced by interspersing some Maiden-hair Ferns amongst them. Messrs. W. Paul and Son staged several boxes of cut *Camellias* of the best-known varieties, amongst which *Mathotiana* and *Countess of Derby* were conspicuous. Two excellent groups of well-grown *Cyclamens* came from Mr. Odell and the St. George's Nursery Co. Messrs. Barr and Son had a capital collection of *Daffodils* and other early spring-flowering bulbous plants. Mr. Ware, Tottenham, had also an excellent collection of *Daffodils* and various hardy spring flowers; here were good examples of *Queen Anne's double Jonquil* (*Narcissus odoratus minor plenus*), *Johnstoni*, *Princess Mary of Cambridge*, single *Jonquils*, and *N. cyclamineus*, besides kinds previously named. *Chionodoxa sardensis* and *C. Lucilia*, with *Scilla bifolia* and *Freessias* in variety, were also shown. Messrs. Cutbush and Son, Highgate Nurseries, staged several kinds of *Epacris* finely flowered, also small plants of *Erica Cavendishi*, *persoluta alba*, and *Wilmoreana*, and some dwarf plants of *Mignonette* called *Snowdrift*. Messrs. Peed and Son exhibited a neat group of flowering and foliage plants. First-class certificates were awarded to Messrs. Paul and Son for *Amaryllis* G. F. Wilson and *Picturata*, to the St. George's Nursery Co. for *Cyclamen Sunray*, and to Mr. Edmonds, Hillingdon, for *Cyclamen Miss Beatrice Edmonds*; also to Messrs. Paul and Son for *Camellia Beauty of Waltham* and H.P. Rose Denmark.

A full prize list will be found in our advertising columns.

ROYAL HORTICULTURAL SOCIETY.

MARCH 24.

THE display on this occasion was an excellent one, without doubt the best of the season in every respect as pertains to plants and flowers. The Drill Hall presented quite a gay appearance with the varied exhibits, and with a clearer light than for some time past things were seen to far better advantage. The attendance also was better than usual. First-class certificates were awarded by the floral committee to—

CHIONODOXA GRANDIFLORA (syn., *gigantea*).—This is a dwarfer variety than *C. Lucilia* and the flowers a shade darker. These are not borne in trusses, in the case of the latter kind, but either singly or in couples; the petals are broader, and individually the flowers are more attractive. Exhibited by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham.

SAXIFRAGA BOYDI.—This is a very dwarf and compact-growing variety of *Saxifrage* with pale primrose-coloured flowers. As a plant for rockwork this is a decided acquisition. Exhibited by Messrs. Paul and Son, Cheshunt Nurseries. It was also shown in a small collection from the Royal Gardens, Kew.

CAMELLIA BEAUTY OF WALTHAM.—A pale pink variety of decided promise, the flowers being imbricated and of good size; it is of quite a distinct colour. Exhibited by Messrs. Wm. Paul and Son, Waltham Cross Nurseries.

ARUM PALESTINUM.—This is a plant of dwarf growth. It bore one well-developed spathe which is an intensely dark shade of maroon, almost black. As a botanical introduction it is worthy of notice.

Exhibited by Hon. H. D. Ryder, High Ashurst, Dorking (gardener, Mr. Gold).

BERTOLONIA BARON A. DE ROTHSCHILD.—This is an exceedingly rich coloured variety; the ground-work of the leaves is of a rosy-purple colour, blotched with deep green, and somewhat beyond the average in size.

BERTOLONIA MME. LEON SAY.—In this case the leaves are suffused with a silvery colour, and blotched with a pale olive-green. Both these Bertolonias were exhibited by Mons. Linden, Brussels.

Awards of merit were given to—

AMARYLLIS OLIVIA.—This is a decided acquisition to the light-coloured varieties; the flowers are white, with veinings of reddish crimson on the upper petals; they are also finely formed and of great substance, the plant being of robust constitution; the spike a strong one. From Messrs. Veitch and Sons.

AMARYLLIS VANDYKE.—The flowers of this variety are of a rich shade of scarlet, very deep and quite self-coloured, with no trace of green; they are finely formed, with extra broad overlapping petals of great substance. From Messrs. James Veitch and Sons.

H.P. ROSE DANMARK.—This is of the colour of La France, but the flowers are of a more globular shape. It is a promising variety, which may be looked forward to with interest when grown out of doors. From Messrs. W. Paul and Son.

CLIVIA PRINCE OF ORANGE.—A fine variety and a good addition to its class. In growth it is more robust than many, with extra-sized trusses of a bright orange shade with a lighter centre. From Messrs. B. S. Williams and Son, Upper Holloway.

AZALEA MOLLIS NORMA.—This is a double variety of the well-known type, with flowers rather smaller than in the single kinds, but in many respects preferable, especially for cutting, in which state they last much better. The colour is a rich orange, the trusses of good size and freely produced upon dwarf plants. From Messrs. Veitch and Sons.

AZALEA MOLLIS MECENE.—Similar to the preceding, except in colour. In this instance this is almost a pure white, with only a slight trace of yellow. From Messrs. J. Veitch and Sons.

By the Orchid committee awards of merit were made to—

DENDROBIUM MELANODISCUM PALLENS (*Dendrobium Ainsworthii* × *Findleyanum*).—This is a delicately beautiful hybrid with but a faint trace of light pink in its otherwise white flowers, which are of average size. From Sir Trevor Lawrence, Bart., M.P.

DENDROBIUM MELANODISCUM RAINBOW.—Another hybrid from the same cross, with flowers of fine form, broader sepals and petals, also a larger lip with more colour than in other plants of *D. melanodiscum* shown in the same group, a shade of pale pink pervading. From Sir Trevor Lawrence.

Botanical certificates were also awarded to Sir Trevor Lawrence for *Cirrhopetalum Mastersianum* and *C. picturatum*, which, as curiosities among Orchids, are both interesting by reason of the peculiar formation of the flowers.

Messrs. B. S. Williams and Son showed a large collection of bulbous and other plants. These consisted of a collection of the best known kinds of Hyacinths and Tulips in capital condition, also several pots of Daffodils, among which *N. bicolor* Horsfieldi and *N. Emperor* were conspicuous, showing the value of the choice kinds for pot culture. Several good forms of *Amaryllis* were also staged, amongst them *Empress of India* and *Emperor*, a fine red with broad petals, being prominent. *Clivias* were well represented. Several profusely flowered plants of *Azalea Deutsche Perle* were shown (silver-gilt medal).

Messrs. J. Veitch and Sons showed an excellent group of forced shrubs, making a brilliant display. These consisted of numbers of plants of *Spiræa confusa*, a shrubby species of great value for forcing. Four baskets of double varieties of *Azalea mollis* were staged, two of which have been alluded

to. Two others were *Praxitele*, a pale primrose, and *Freya*, a pale buff, both distinct and useful colours. Three baskets of dwarf plants of *Azaleas* were staged. These were *A. rosaflorea*, with its intensely double flowers; *A. obtusa*, an old, but neglected kind of the small-flowered varieties, with deep scarlet flowers; and *A. amoena splendens*, a pink form of the well-known type. In protected situations all of these *Azaleas* may be planted out (silver Banksian medal).

Mr. H. B. May, Dyson's Lane Nursery, Edmonton, put up a comprehensive group of decorative foliage plants consisting of various useful Ferns, such as *Leucostegia immersa*, *Davallia elegans*, *Pteris cretica nobilis* (a valuable and enduring kind), *Pteris Mayi* (a variegated dwarf kind), *Selaginella amoena*, *Adiantum Capillus-veneris grande* (almost equal to *A. farleyense*), *A. fissum*, *A. glaucophyllum*, and *A. curvatum*, with *Gymnogramma schizophylla gloriosa*, and several *Dracaenas* and *Azaleas* (silver Banksian medal). Messrs. Paul and Son sent a group of *Amaryllis* and other plants; amongst the former were several promising seedlings, two of which were extra vigorous plants with large flowers; Anthony, a dark red with light stripes, and *Boadicea*, a paler colour of the same habit, were two of the best. A basket of a new *Polyantha* Rose, *Clothilde Souper*, was also staged; this has larger flowers than most of this section, but very double and of a pale pink, and freely produced. A boxful of varieties of *Hellebores*, several *Saxifrages*, *Hepaticas* and *Narcissus* minor were also comprised in this exhibit (silver Banksian medal). Messrs. James and Son, Farnham Royal, Slough, staged one of the best collections of their superior strain of *Cinerarias* that they have ever exhibited. The plants were very dwarf, the flowers large and of fine form, the colours being most decided (silver Banksian medal).

Messrs. Barr and Son staged a large collection of cut Daffodils and other early spring-blooming flowers. Besides those varieties noted in previous exhibits of the same firm there were *Narcissus odoratus* (the large Jonquil-like Daffodil), *N. Ard-Righ* (Yellow King), a fine kind, and several others notably *N. minimus*, a little gem. *Sisyrinchium grandiflorum album* and *Crocus biflorus argenteus* were here to be seen (silver Banksian medal). Mr. R. Dean, Ealing, exhibited a well-grown clump of *Primrose Blue Gem*, nearly similar to *Neapolitan* Violets in colour, with an orange-shaded eye. A silver Banksian medal was also awarded to Mr. T. S. Ware, of Tottenham, for a mixed collection of early bulbous plants consisting of such things as *Primula viscosa*, *P. nivalis*, *P. Auricula*, *P. rosea*, *P. Clusiana*, *P. cashmeriana*, with good tufts of *Hepatica triloba rubra fl.-pl.* and *H. t. corulea*. *Crocus vernus* var. and *Narcissus Ard-Righ* in pots, very dwarf; also *N. obvallaris*, *Scilla bifolia alba*, and *Chionodoxa Luciliae* were likewise shown here. Mr. Wythes sent from Syon House Gardens a very fine variety of *Anthurium Scherzerianum* resembling that known as Ward's variety. From the Royal Gardens, Kew, was sent a basketful of early-flowering plants consisting of *Saxifraga Burseriana*, very fine, *Narcissus nivalis*, *Chionodoxa Luciliae alba*, *Puschkinia libanotica compacta*, and *Primula denticulata*. A quantity of cut blooms of *Hellebores* in variety were sent by Mr. Hodges, of Chislehurst. Messrs. H. Cannell and Sons had a splendid boxful of cut blooms of large-flowered varieties of zonal *Geraniums* of the very best kinds.

ORCHIDS were contributed in considerable numbers, some very good things being shown. Mr. Malcolm S. Cook, Kingston Hill, sent a good plant of a highly coloured form of *Cattleya Lawrenceana*, *Odontoglossum Rossi majus*, and a pale-coloured variety of *Cattleya Trianae*. Mr. Thomas Statter, Stand Hall, Whitefield, Manchester, had a grand variety of *Lycaste Skinneri alba gigantea* with four superb blooms, to which a cultural commendation was deservedly awarded. From the same exhibitor came *Dendrobium nobile*, *Backhouse's* var., and *D. n. Sanderianum*, two superior varieties; also a highly coloured variety of *Cattleya Trianae*, with a spike of *Cattleya crispa superba* bearing six flowers, and two spikes of *Odontoglossum Humeanum*. M. Linden sent *O. luteo-purpureum*, *Linden's* var., a

fine form, and *Cypripedium Bragaianum*, much resembling *C. hirsutissimum*. Mr. F. Wigan, Clare Lawn, East Sheen (Mr. Young, gardener), sent two good examples of *Aeranthus Leonis* with their pure white flowers, *Dendrobium Farmeri*, a fine spike and splendid variety; also *Cypripedium Measuresianum* and *vernixium*. Besides the Orchids already alluded to as being sent by Sir Trevor Lawrence were other *Dendrobiums* of hybrid origin. *D. melanodiscum The Pearl* is a striking variety, with pure white sepals and petals, and a lip resembling *D. Ainsworthi*. Another from the same cross has more of the character of *D. Lindleyanum*; this was named *D. chlorostele xanthocentrum*; it is a decided acquisition, with flowers almost the size of *D. Wardianum*. A cultural commendation was awarded to *Dendrobium Brymerianum*, two plants of which were exhibited by Mr. C. J. Lucas, Warnham Court, Horsham (Mr. Duncan, gardener), one of which was an extra fine variety, the lip having a more deeply branched fringe than usual; this plant carried two dozen large blooms. Mr. Wythes, Syon House, staged a splendid plant of *Dendrobium thyrsiflorum* with nine fine spikes; to this a cultural commendation was also awarded.

A vote of thanks was presented to Mr. Whiteley, Hillingdon Nurseries (Mr. Godfrey, manager), for a group of well-grown *Odontoglossums* and other Orchids; amongst them were *O. triumphans* in good variety, *O. Pescatorei*, *O. Alexandrae*, *O. facetum* (somewhat after *O. luteo-purpureum*), *Dendrobium Wardianum*, *D. nobile*, *Cattleya citrina* and *C. Trianae*, arranged in a bank of Ferns. A fine spike of *Odontoglossum coronarium* was sent by Mr. Wall, Bromboro' Hall Gardens, Cheshire. This is quite a distinct variety, with its reddish-brown flowers edged with yellow. A vote of thanks was accorded to this exhibit.

The prizes offered by the society for *Cinerarias* and bulbous plants only brought forth one competitor, Mr. Hodgson, Shirley Cottage, Croydon (Mr. Shoesmith, gardener), to whom the first prize was awarded for *Cinerarias* with good-sized plants, and the second for bulbous plants, the collection of which consisted of Hyacinths, Tulips, *Narcissi*, *Chionodoxa Luciliae*, and other things in season. The lecture in the afternoon was upon "Hardy Bulbs and Plants," a paper being contributed by M. Max Leichtlin, and read in his absence by the hon. secretary to a fairly good audience.

THE GARDENERS' ORPHAN FUND.

THE monthly meeting of the committee took place at the Hummums Hotel, Covent Garden, on the 20th inst., Mr. William Marshall in the chair. Letters were read from Mrs. Cutler and Mr. George Dominy, of Southampton, acknowledging the votes of condolence passed at the last meeting of the committee, the latter enclosing a donation of £10 to the fund. The chairman proposed the following resolution, which was seconded by Mr. B. Wynne and carried: "The death of Mr. William Richards, a very active and zealous member of the committee of the Gardeners' Orphan Fund, having been reported, the secretary was instructed to convey to Mrs. Richards and family the condolence and sympathy of the committee, and their profound regret at the loss of such a sincere and valued friend." A donation of £2 was announced from the Wakefield Paxton Society. The quarter's allowance to the children upon the fund, amounting to £129 5s., was ordered to be paid. A letter was read from Mr. Henry Williams, Victoria Nurseries, Holloway, announcing the names of the two children he had nominated to the benefit of the fund in respect of the £250 contributed by the Williams' Memorial Fund, viz., Kate Emily Root, aged two years, of Hampstead Lane, Highgate, whose father was foreman to Mr. F. Sander, of St. Albans, and who died in April, 1890; and Robert Daglish Nixon, of Notting Hill, born in 1885, whose father had for a period of twenty years been gardener to Sir H. Cholmeley, Bart., Easton Hall, Grantham. The addition of these two brings the number of children on the fund up to 39, at an aggregate annual charge of £507.

A meeting of the stand-holders and growers in

the Wholesale Flower Market was, on the invitation of the committee, held later in the evening, Mr. William Marshall again presiding, there being an unusually large attendance of those immediately interested. The chairman having announced the preliminary steps taken by the committee, stated that, in accordance with the usual practice, the consent of His Grace the Duke of Bedford had been obtained for the use of the Wholesale Flower Market for a fourth annual fête in aid of the fund, and the committee had called the growers together in order to secure their co-operation and settle upon a suitable date. It soon became apparent the growers were by no means willing to take part in a fête during the present year, and on their behalf Mr. E. Sawyer proposed the following resolution: "That taking into consideration the very handsome way the growers have assisted the Gardeners' Orphan Fund during the past three years, the consideration of holding another fête be adjourned *sine die*." In proposing this resolution, Mr. Sawyer disavowed any hostility to the fund, to which many of the growers were subscribers, but he stated that the fêtes already held had been carried out with considerable loss to the growers, as, with a desire to contribute to the display, they sent in more plants than they otherwise would, which caused a glut in the market and a reduction in price. The crowded state of the market, owing to the visitors, had a deteriorating effect upon the plants and injured the sale, which entailed a serious loss also. Great inconvenience was caused to the growers, as it was necessary to stage their contributions at an earlier hour than is usual at an additional cost of labour. His resolution was not intended to shelve the fête definitely, but only for two or three years, by which time fresh blood would probably be forthcoming among the growers, and fresh energy be thrown into carrying out the fête. Mr. Sawyer concluded by stating the opinions he expressed were those held by almost the whole of the growers and stand-holders. The resolution was seconded by Mr. G. Wermig. The chairman paid a warm tribute to the growers for their valuable co-operation in the past, and said it was impossible not to feel the force of the objections put on behalf of the growers. At the same time he regretted that the committee was in danger of losing the assistance of the growers for the present year, and especially so as the consent of the Duke of Bedford had been obtained to holding the fête in the usual manner. An amendment proposed by Mr. H. B. May, that the consideration of the matter be postponed until that day month, was lost, and Mr. Sawyer's motion carried by a large majority. It was understood that a committee of growers would be formed to collect subscriptions, so that the fund should be benefited, notwithstanding the abandonment of the fête for the present year. A cordial vote of thanks to the chairman closed the proceedings.

NOTES OF THE WEEK.

Forsythia suspensa.—I send you a branch of *Forsythia suspensa* from a plant which drapes the roof of the conservatory here. It is extremely well suited for this purpose.—D. CONNING, *Lewis Castle Gardens, Stormont.*

. The finest piece of this beautiful climber we have ever seen. The branch was 9 feet long with five side branches each 3 feet long, one mass of bloom.—ED.

Asparagus plumosus.—I enclose for your table a couple of flower-sprays of *Asparagus plumosus*. A more delicate little beauty could hardly be imagined, with its tiny white stars and buds like miniature pearls.—GREENWOOD PIM.

. Certainly very beautiful. This is invaluable for cutting, as the sprays will keep in water for over three weeks, neither gas nor fire having the slightest effect on them. It ought to be as extensively cultivated as the *Adiantum* for cutting.—ED.

Primula Palinuri.—This is totally unlike any of the species generally cultivated. The flowers are bright yellow, appearing in bunches at the top of mealy or powdery stems, but small in comparison with those of most of the species. It is a good plant for the rockery, where in a sunny position and in light, rich soil it makes an interesting group. The best of the

Primulas for out-of-doors, however, is *P. Clusiana*. Nothing seems to disturb it, and after the severe weather since November, every plant is in perfect health and showing fine flower-buds. It may be divided easily, and by this means may be increased to any extent.—K.

Saxifraga luteo-purpurea deserves a high place amongst alpinists. It blooms very profusely, having soft primrose-yellow flowers and dense mats of dark green leaves in the way of *S. sancta*, which is one of the most shy-flowering species known to us. Its near ally, *S. juniperifolia*, is much freer and, if anything, showier.

Galanthus Fosteri.—Max Leichtlin sends us some flowers of this new Snowdrop, and in a note says, "I send you flowers of *Galanthus Fosteri*, the best from imported bulbs. If such half exhausted bulbs which were collected in May and arrived here in October can yield such flowers, what will they do after a few years' good cultivation." Max Leichtlin also sends blooms of *Iris reticulata histrioides*.

Chionodoxa Lucilæ alba.—Until the other day we had never seen a white *Glory of the Snow* (*Chionodoxa Lucilæ*). There are a few bulbs of this novelty now in flower in the alpine house at Kew, picked out, we are told, from some imported bulbs a few years ago. The flowers are quite as large and robust as those of the type and of a fine milky-white.

Saxifraga retusa when doing well on the rockery is second only to the finer flowered forms of *S. oppositifolia*. It is a native of the Alps and Pyrenees, flowering in the greatest profusion in early summer, always in rich peaty soil and in rather a sheltered spot. It is just now covered with its intense red flower buds ready to burst. The blooms, produced on short stalks several in a head, are of a much darker purple than any flowers of *S. oppositifolia* we have yet seen, the foliage and character being also quite different.

Dendrobium Cambridgeanum.—I enclose you a flower of *Dendrobium Cambridgeanum* which, I think, is a very good form. This, in my opinion, ranks as one of the best of the yellow-flowered section. Unfortunately, it is a shy flowerer, but the quality makes up for quantity. It requires well ripening. I generally hang mine towards autumn in a sunny position in the vinery and there let them remain till I see the new growth pushing, and then introduce into strong heat, as it flowers on the current year's growth.—WM. CLARK, *The Gardens, Eversley, Herne Hill.*

The pink Snowdrop.—I am still not convinced of the existence of a pink Snowdrop, and with all due respect to Mr. Webster, I should like to see it. Mr. Webster has, however, seen it, so in this case it is no mere hearsay, as it was in that of the late Mr. Threlfall. I am also glad that Mr. Threlfall gave up the idea of ever having seen such a thing, as in a conversation I had with him before his departure abroad he expressed himself as a little doubtful about the matter, and said he had been many times misled by second-hand information. Why, if such a plant exists, is it not in the hands of some of our Snowdrop fanciers?—D.

La Grosse Sucrée Strawberry.—This excellent early forcing Strawberry is again to the fore, and I contend it has no rival, being better in all points than *Vicomtesse Héricart de Thury*, *Noble*, *Pauline*, or *King of the Earlies*. *La Grosse Sucrée* possesses a strong constitution, and stands forcing in a higher temperature than the general run of Strawberries. It throws up stout stalks of flowers well above the foliage, followed by large fruit which swell away vigorously from the first. The fruit is firm and travels well—no mean advantage to a gardener who has to dispatch regular supplies to families residing in London for the season. The colour of the fruit is rich and tempting, and connoisseurs of flavour in early forced fruit speak highly of it. Here it is disputes arise, but it is my opinion something lies at the cultivator's door in this respect, as certain it is that Strawberries ripened on a dry warm shelf have no comparison with those ripened under opposite conditions—a close, muggy atmosphere. I always remove the plants from the house in which the Strawberries have been mainly swelled to the shelves of succession Pine houses, where the fruits are allowed to ripen up to a rich crimson colour before gathering, always having a chink of air on and watered at this stage with clean water only. It may

be said Strawberry plants enjoy a moist atmosphere to swell in as soon as they are set and supplies of varied liquid manure. Noble is useless as a first forcer, and I never could get *Vicomtesse* to throw its trusses clear of the pots. I always layer direct into fruiting pots, 5-inch for earliest and 6-inch for later crops.—W. CRUMP, *Madresfield Court.*

Keeping Lenten Roses.—In answer to a paragraph in *THE GARDEN*, March 21, it may be interesting to recall a suggestion made quite recently. A fortnight ago some Lenten Roses had been sent to me from Ireland, but as they were limp and did not revive, they were put into water in a cool place and left there for five days in my absence. Acting upon *THE GARDEN*'s suggestion, on my return I slit up the stalk about 1½ inches twice, and the four quarters immediately separated, the flowers revived, and some of the buds opened, and they were in the drawing-room for a fortnight from the date of their being cut from the plant.—M. M. C.

The Drabas seem quite as puzzling as the perennial Asters, and although there are many names, we do not seem to have many distinct plants. We noticed one the other day at the show under the name of *D. Haynaldi*. We also possess this plant, but cannot in the least distinguish it from *D. aizoides* and *D. lasiocarpa*. There are, doubtless, others, but these three occur to us at present, and may be taken as an example of what growers of alpinists have to put up with and pay for besides. We should like to see a few of the fine Asiatic species on our rockeries. We are told that many of them are really charming, with large flowers either of a rich yellow or white, the plants forming dense cushions of silvery-white rosettes.

Veronicas and the severe winter.—At Kew the other day we noticed that great havoc had been made amongst the New Zealand Veronicas by the late severe winter. We have no idea how much damage has been done, nor will we be able for some time to make even a rough guess. *Veronica pinguifolia*, *V. carnosula*, and *V. glaucocœrulea* have stood remarkably well; but *V. Traversi*, *V. anomala*, *V. epacridea*, *V. buxifolia*, *V. amplexicaulis*, *V. parviflora*, *V. cypripedoides*, and many others are, we fear, beyond recovery. It is curious that those three mentioned above should have escaped almost unhurt, while the others have been quite destroyed. They presumably all come from about the same altitude, and the only appreciable difference is that they are glaucous-leaved, while the others are all green. The idea that the New Zealand Veronicas were to take the place of Conifers and allied plants for window and balcony decoration has been soon dispelled.

Puschkinia scilloides is now beautifully in flower in the alpine house at Kew, and as seen there it takes a high place amongst early spring flowers. As its name implies, it bears a striking resemblance to the *Scilla* family. The flowers are produced in the variety compacta in close compact heads of delicate blue flowers, with a rib of darker hue through the centre of each segment. So far it has proved perfectly amenable to pot culture. The same bulbs are used year after year, and flower in the greatest profusion. It is also perfectly hardy in the open border, where, of course, it flowers later, though with improved vigour and more freely. It continues blooming for a great length of time, as when one bunch of flowers is open another is pushing up from the same crown. It is a native of shady districts of Asia Minor and increases fairly rapidly.—K.

Gardens and orchards.—No lover of gardens and flowers should miss the opportunity of seeing this exhibition of Mr. A. Parsons' work at the Fine Art Society's gallery in Bond Street. The subjects are chosen with a keen sense of what is beautiful in all forms of gardening, from orchards with their groups of wild Daffodils that require no praise, to carpet bedding of the most formal kind, treated with a just regard for its elements of beauty. The rendering is that of a master thoroughly conversant with his subjects and in love with them all. Most noticeable among the pictures are Plum trees in blossom and Daffodils, cottage with Michaelmas Daisies, garden at Broadway with Poppy heads, and a group of white Lilies.

WOODS AND FORESTS.

FORESTRY.

THE soft genial weather which we experienced in February betokened an early spring, and the buds of many trees and shrubs were beginning to expand. The cold frosty weather which we have experienced in March has, however, been the means of checking growth and vegetation of all kinds. This sudden change of the weather has stopped the planting of forest and ornamental trees. As soon, however, as the weather takes a favourable turn, planting should be resumed. Trees and shrubs, however, should not be planted until the frost and snow have left the ground and the soil become dry and friable. Pits may be dug for the plants, and every preparation made for furthering the work. Great care should be taken of plants that are laid into the soil by the heels. The roots should be well covered with loose friable soil, and the tops protected from the inroads of vermin and other animals. Ornamental trees planted at this season will require particular attention, and such as require staking and tying should be attended to. Any roots that are peeled or fractured at the time of lifting should be cut off at the damaged part. Apply a mulching to the surface of the ground as far as the roots extend. I have found Beech leaves or Fern answer this purpose remarkably well. Any sort of material that forms a close covering and prevents the air penetrating to the surface should be avoided. In some parts of the country last autumn and winter proved favourable for the growth of the different species of fungi which grow on trees and shrubs. Fungi do not appear to confine their attacks to any particular species of tree, as we see that wherever the spores find suitable quarters they settle and in due time commence to grow, as the following will illustrate: A specimen plant of *Sambucus racemosa* had got a branch torn off by accident some time ago, and as the wound had not become thoroughly healed up, the canker fungus made its appearance at the spot this winter, thus showing the necessity of dressing and painting over the surface of such wounds when they occur.

A young tree of *Populus macrophylla*, about 25 feet high, although it appears to be in perfect health, has been severely attacked by this fungus at four different spots along the trunk, and at a distance apart of about 2 feet. No doubt this tree had been wounded some time ago by allowing another tree to fall upon it in the course of thinning, so that workmen should be careful to prevent the trees which they have felled crashing into such as are to be left. A young Sycamore tree, about 12 feet high, whose head had been fractured by the wind and had to be cut off, was also attacked last autumn where decapitation took place. A Goat Willow was damaged in a similar way, and was also attacked by the fungus. I could give further evidence that this species of fungus attacks different species of trees under similar conditions, but it would be unnecessary. When the vitality of the common Bay Laurel is retarded by frost, the parts affected are apt to be infested by the fungus *Nectria cinnabarina*, and I have just examined a large Oak tree which is badly affected with the same disease. These illustrations show the necessity of cutting off dead and damaged wood from whatever cause, and burning it in order, as far as possible, to destroy the spores of the fungi and prevent them from spreading. When the wounds are dressed and before the fungus makes its appearance the spots should be painted with common paint

the colour of the bark of the tree, but when fungus has made its appearance it is better to use coal tar. J. B. WEBSTER.

MUTILATED TREES.

In rural districts there is great room for improvement in the arrangement, as well as management, of hedgerow and field trees, and the farmer has just right in many cases for grumbling at the evil effects produced on his crops by too many and too thickly planted trees. There is, however, in Southern England at least, far too great a tendency to lop and trim every hedgerow and field-side tree, and so impart to those districts in which such a course of mutilation is annually practised a by no means pleasing appearance. The bad results of continually pollarding trees, be they of whatever kind, are painfully evident wherever one likes to turn in certain parts of England, for there alone is such a ruinous and unsightly practice tolerated to any great extent. In looking at some pollard Willows not long since, I could not help wondering why such a method of pruning could be countenanced by any person having the least ideas of tree culture or love of the beautiful in Nature. There they were dragging out a most miserable existence by the brookside, the stems contorted and knotty by repeated beheading and side pruning, while the crown of the stems had become widened out by the ugly protuberances resulting from the yearly use of the hatchet and pruning knife. Much better in every way it would have been never to plant trees in such a position if the value of the Grass under their shade was of so great importance; or, better still, to have only planted half-a-dozen instead of the half-hundred, and allowed these their own free will in spread of root and branch. Some of the trees one is daily confronted with around here are truly lamentable sights, the impoverished stems of from 8 feet to 10 feet high bearing only an armful of branches, mop fashion, atop, and with the trunks showing evident signs of the cruelty to which they are exposed. Trees so grown are of no value whatever for the timber they produce, their only use being firewood, and that, too, is impaired in value by the knots and protuberances.

There is another equally bad system of tree management practised, and that is allowing the stem of the specimen to stand about half its accustomed height and yearly to chop over or prune off the branches close to the stem where each whorl springs out. This is even a more hideous method of keeping a tree in bounds than that which has been already described, for the tufts of branchlets cropping out every here and there along the stem of the tree, and at which point masses of knots are formed on the trunk, are anything but a pleasant sight. For such methods of tree management there might be some excuse were we confined only to spreading species, but with fastigate and semi-upright growing trees, the annual curbing of their growth by pruning and lopping is hard to understand. The Cornish Elm (*Ulmus cornubiensis*) would be an excellent tree for the London district where land is dear and trees must be planted. It is not excessively strict and stiff in outline, and yet not rambling to too great an extent. There is a fastigate form of the British Oak, a good all-round tree that I can confidently recommend for planting where ground space is limited. Numbers of neat upright-habited trees may be chosen from any nursery catalogue, so it is useless for me to extend the list. One thing is, however, quite evident, that for suburban gardens and small properties a reformation in the planting and after management of trees are much to be desired.

A. D. WEBSTER.

The Spruce Fir (*Abies excelsa*).—There is not a more elegant tree, perhaps, to be found than this, which, planted in a northern exposure towards the foot of a hill where the soil is loamy and damp, presents a most beautiful appearance, its horizontal branches touching the ground, laden with their large handsome cones in the proper season, and displaying such a lovely mass of green foliage from growing so closely that its stem

cannot be seen, and which, if left untouched, will remain so for sixty years. But plant a Spruce upon a dry sandy soil that would be appropriate for a Pinaster or Scotch Fir; it may possibly thrive for five or six years, but when it has attained an age of twenty years, its under-branches will be found withered and destitute of foliage, the bark covered with Lichen, and the whole tree at a complete standstill.

THE BEST FOREST TREES TO PLANT.

THERE are so many points bearing on this question asked by T. Canning in THE GARDEN (March 14, p. 256), that one is puzzled to know how best to reply. Had the timber merchant who confided to the land agent gone a little further and explained the quality of soil best suited for the two trees he recommended, it would have been well, for without a due consideration of soil and surroundings we cannot be expected to grow even these two hardy and very accommodating trees in anything like a remunerative way.

The Ash, one of the trees recommended, will not do on every estate, for it wants a deep and damp loam to grow to perfection, planting it on light gravelly soil, chalk, rock, or heavy clayey soils being sure death to the tree. As for the Sycamore, it must be admitted that a poor soil will never produce fine timber, it requiring that of rich and loamy texture to grow clean and valuable trees. That the Sycamore is a valuable forest tree cannot be gainsaid, for even at the present time, when many of our home-grown woods are almost unsaleable, sound trunks of Sycamore, and of fair size, will fetch readily enough 2s. per foot. I have sold unusually large and straight stems at 2s. 6d. per foot, but about 2s. may be considered a fair and paying price. Ash can be readily disposed of at from 1s. 6d. to 1s. 8d. per foot, large, well-rounded, and clean-grown trees fetching proportionately more. In certain districts, mining, for instance, neither of these trees is so valuable as the Larch, proportionately speaking; while in maritime districts, Elm, Larch and Oak find a ready sale for ship-building, boat repairs, &c. Good Oak can be sold at from 2s. 6d. to 3s. a foot, Larch at 1s. 3d., and Elm, if good, at 1s. 8d.

These are the very prices I received for ten years in a Welsh maritime district, but when we compare these prices with those realised around London the differences are great indeed. For Elm of the very best quality 10d. per foot can hardly be got, while Larch of fair quality may bring 1s. per foot, and Oak about 2s. per foot. These great differences in the prices of home-grown wood in various parts of the country, and not many miles apart either, plainly show that what is in reality a profitable tree to grow in one county may not realise one half the amount per foot 100 miles off. There is a great amount of truth in the advice to plant Sycamore largely for economic purposes, that is where the soil is suitable, for that it grows quickly and needs no unusual care is well known, while it will always command a good price, perhaps better in the future than in the past. Ash being largely in use for most purposes where great strength and elasticity are required, is likewise a valuable tree to grow, but it must be provided with a suitable soil, else the growth is meagre and the timber of but second class value. On many estates Larch and Oak would be quite as profitable trees to grow as the Sycamore and Ash, so that before planting it would be well to consider first the quality of the soil to be planted, and second, local or other demand for the timber.

A. D. W.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

IRON SUPPORTS FOR ROSES.

THE case of supposed destruction through the extra cold caused through these this winter, referred to by my friend and neighbour Mr. Sheppard (page 233), deserves more special attention than it has yet received. Doubtless the climbing Roses were hardy ones, and not such tender Teas as the Climbing Devonians or Niphotos, else such an experienced rosarian as Mr. Sheppard would not have cited the case in proof of the killing coldness of iron supports. So far as their recent planting immediately prior to the severe cold of last November is concerned, that, as I have already pointed out, was decidedly in favour of adding to and not detracting from their powers of resisting cold. As all the other Roses in the garden passed through the late severe weather unscathed, and as the Roses on the iron supports were the only ones injured at all, and even so much injured as to be likely to die, the inference seems plain that the iron killed them. This gives powerful confirmation to the common saying that iron, wood, bricks or stone warm in comparison. However, as a hard dry fact of science instead of a proverbial sentiment, the temperature of each substance will be found identical in the long run under the same physical conditions.

And yet there is a difference that may prove vital to the life of Roses and other plants between these three substances. Their powers of conducting heat vary very widely indeed, iron being by far the most active, wood the slowest conductor of the four. Now, practically, it makes little difference to the health or life of a Rose or other plant whether iron is really colder than other substances, or empties the plants fixed against them faster and more completely of their heat. The latter is really what takes place, but the result is exactly the same either way; the Roses against the iron are more suddenly or completely exhausted of their caloric than those against wood, brick, or stone. All Roses alike in the open air may be said to lose heat in the same ratio through radiation, though infinite small disturbances, accidents, &c., greatly interfere with and modify the results of this general cooling force. But the conductive powers of bodies in contact are so infinitely varied by their qualities, time, space, conditions of plants, &c., as to account for most of the so-called erratic effects of cold among plants.

Bearing in mind these peculiarities of the radiation and conduction of caloric, we will be the better prepared to discuss the wisdom or otherwise of using iron supports for Roses. The question is by no means new to experienced rosarians. Many years ago I resolved to banish iron rods and arches from the rosery if possible. But this is difficult. What so pliable, durable, slightly and cheap as iron for the support or training of Roses? Nothing. Hence various attempts to reduce to a minimum the cooling power of conduction in Rose stands and arches. Hollow pipes instead of solid bars were considered warmer and stronger, as well as cheaper. My own impression is that deaths from cold as well as from lightning are

more less frequent on hollow pipes than solid bars. Strength, lightness, and cheapness are also promoted through their use.

Frequent or occasional coats of varnish or paint also keep the iron supports warm as well as render them more sightly, and preventing the formation of rust add greatly to their durability. Most attempts to make iron supports warmer as well as virtually indestructible through coating the iron with enamel have failed. The process has proved too slow or too costly for general use, and, besides, enamelled bars could hardly be bent into arches without cracking the enamel. Hence it has come to pass that enamelled iron stakes and hothouses are still things of the future rather than of the present. Against the durability of iron must also be placed not only its extreme coldness, but the cost of keeping it in repair. Since the keen depressions in agriculture and horticulture, now, it is to be hoped, near their close, the latter has been much neglected, and this has doubtless increased its evil among the roots and on the tops of Roses. Those huge three-pronged iron Rose stakes once so common among standards in beds or borders have mostly disappeared in favour of common wood stakes, and where Bamboos or good wood and workmanship are fairly plentiful, no one need despair of forming Rose arches or bowers of such material. The first bower for Roses and climbers ever seen by me was made of very common timber indeed, and erected neatly and well by an estate carpenter who had never even seen one before. It stood for from fifteen to twenty years. The plants grew so well that the frame was soon wholly hidden, and this is more than can be said of most of our iron arches and ambitious stands for Roses. What with the losses from frost and lightning, and arches and poles, far too high for the plants, not a few rosaries show as much iron as Roses.

D. T. F.

GOLD MEDAL ROSES.

SINCE the National Rose Society was instituted it has given a gold medal to the best Hybrid Perpetual and best Tea-scented or Noisette Rose exhibited at its two annual shows. This has also been done at many of the shows held by societies affiliated with the National Rose Society. Although the fact of any Rose gaining this high honour, quite the "blue ribbon" among Roses, is no guide to the public as regards its suitability for any other purpose than exhibition, it so happens that all, with the exception of two Hybrid Perpetuals and one Tea-scented kind, are good growers and free bloomers. The two Hybrid Perpetuals mentioned are Horace Vernet and Etienne Levet, while the Tea-scented is Comtesse de Nadaillac. Though these three varieties are grand for exhibition, as their success in gaining the medal fully demonstrates, they cannot be styled good growers or free bloomers, and consequently are not suited to the general grower's requirements. It has struck me that the list of gold medal Roses would be interesting to many, and also form a guide to exhibitors, as there can be no question as to their being among the very best for that purpose. I have not taken account of those gaining the medal at any affiliated exhibitions, as there is often very weak competition, and therefore the returns would be of little service. Some of the Roses have been successful more than once. Among the Teas are Catherine Mermet and Souvenir d'Elise, which have taken the honour oftener than all the other Teas collectively; while Mme. Gabriel Luizet, Marie Baumann, Alfred K. Williams, and La France have shared it oftener among the Hybrid Perpetuals. The following are the varieties which have been awarded the gold medal:—

Hybrid Perpetuals.—La France, Camille Bernardin, A. K. Williams, Etienne Levet, Mme. G. Luizet, Dupuy Jamain, Ulrich Brunner, General Jacqueminot, Her Majesty, François Michelon, Horace Vernet,

Louis Van Houtte, Boieldieu, Lady Mary Fitzwilliam, Victor Hugo, Marie Baumann, and Mrs. John Laing.

Tea-scented and Noisette.—Catherine Mermet, Comtesse de Nadaillac, Marie Van Houtte, Jean Ducher, Mme. Cusin, Etoile de Lyon, Innocente Pirola, Mme. de Watteville, Souvenir d'Elise, and Mme. Caroline Kuster.

RIDGEWOOD.

EFFECT OF THE FROST UPON TEA ROSES.

THERE are Roses of delicate constitution among the Teas as there are also among the Hybrid Perpetuals, and if these are grown at all they should either be on their own roots or budded low down on the Brier and the stock buried in planting. Certainly these delicate Roses, to whatever class they may belong, are not adapted for standards. I imagine the losses are nearly as great among the delicate Hybrid Perpetuals as among the Teas, and these delicate Roses should never again be budded standard high. This, I think, is the lesson we should learn from the severe winter; buy none but the hardest Roses as standards. Had I acted on this principle the losses in my small collection would have been *nil*, for even Maréchal Neil and Niphotos are safe and sound at the base budded on the dwarf Brier, and will break away from the bottom with renewed vigour. The term "hardy" as applied to Roses or any other plant is a relative one, for soil, situation, and culture have a very great influence upon the hardness of any plant. Roses die more frequently in a badly drained soil, possibly heavily manured, than when the drainage is free and open and the soil fresh and sweet. There is quite enough in what is termed local conditions to account for the heavy losses sustained in some gardens over and above the deaths in others. In large collections a certain number will die annually from the natural order of things, as the duration of most things is limited. It is true certain varieties, Gloire de Dijon, for instance, possess wonderful stamina and are rarely injured by frost or snow, and this year has been no exception to the rule, for the young growths of Gloire when well ripened are as sound and healthy as ever. This is in fact the only Tea Rose which is thoroughly reliable as a standard. Some nurserymen pride themselves upon the wonderful growth their plants make, but these gross plants are not always the best. A strong plant, if the wood is firmly built up and well matured, is always better than a weakly one, but as a rule, both in Roses and fruit trees, the plants which have made moderate growth are best for the purchaser. These must, of course, be vigorous of constitution; a puny delicate thing is not worth the trouble of planting, and if all these bad growers were removed from every garden at once much expense and trouble would be spared. What most people who grow Roses require are plants that will grow well and produce plenty of blossoms. And whether these are struck from cuttings or budded on the Brier or any other stock, if the budder does his work properly, and places the bud low down, and the whole of the stock is buried when transplanted, in a year the plants will have thrown out roots independent of the stock, and in two years, if the stock was taken from them, there would be little if any check given. A short time ago I was lifting some Roses planted rather late in the spring of 1890, and in nearly every case clusters of roots had grown out of the Rose where it came in contact with the soil. In planting Roses rotten turf if the land is fairly rich is better to place round the roots than strong manure. Roses may be gross feeders in a porous soil, or rather, perhaps, it might be more correct to say they require more support in such a soil. And in all cases the land should be in good condition, but I fancy, in some cases, too much rank heavy muck has been given and the soil made too pasty and sour for the plants to do well, especially those of delicate constitution, which I think are often weakened, if not killed, by overfeeding.

G. H.

Roses and the past winter.—If a census could be taken of the varieties of Roses that have succumbed to the effects of the late severe frosts, no doubt it would materially assist those contemplating planting either for decoration or for marketing.

Were correspondents to adopt a systematic plan of describing the situation, as to its elevation, or otherwise, nature of soil, subsoil, aspect, shelter from north-east, or easterly winds, whether the plants were established, or lately planted, if the surface was covered with a good mulching of half-decayed farmyard or other manure. How they were worked, if upon Brier stocks, seedling Briers, Manetti, or own-root Roses. The ill effects cannot at present be fully known, as some examples may not at first show the extent of mischief, some may even nearly reach the blooming period and then die off. It would form a useful and instructive memento of the winter of 1890-91, if those interested in Rose culture would record their observations and experience as opportunity offers, and so give horticulturists the benefit of their experience.

—GEORGE CORNFORD, *The Oaks, Epsom, Surrey.*

New Roses.—In answer to the remarks of "A. H." (p. 295) upon my article on "New Roses," I am pleased to find it is of some service. Comtesse de Frigneuse, although a good grower and very sweet and free-flowering, has with me always come so cracked and quartered that I could not include it in my list. Probably it would come better during a dry summer. It is still on trial and much liked for colour and fragrance. Omitting Viscountess Folkestone was quite an oversight, to which I thank "A. H." for calling my attention. I had it on my notes, and until reading "A. H.'s" note I had no idea but that it was included in my list. I quite agree with all "A. H." says of this Rose, and consider it one of the late Mr. Bennett's best. Most of the new Roses have been purchased by me, and among them was Souvenir de Gabrielle Drevet, mentioned by "A. H.," but the plant died before showing any good qualities, and I waited to see if any mention or sight of it should turn up at the next few shows. Nothing respecting it, however, came under my notice, and I have not heard its name again until now, and "A. H.'s" note will induce me to give it a trial. Mme. Chauvry is a Rose I have never possessed.—RIDGEWOOD.

ORCHARD AND FRUIT GARDEN.

MIXED FRUIT HOUSES.

VERY few gardeners are in a position to devote a house or houses solely to the cultivation of one class of fruit, but, on the contrary, the majority have, perforce, to utilise them in various ways, this adding not a little to the care and worry inseparable from all horticultural undertakings. Much, however, may be done by those who go intelligently to work, or who do not resort to reckless or haphazard mixtures, while, on the other hand, there is a possibility of attempting too much and failing conspicuously all round in consequence. Very few employers care to see the back walls of vineries unoccupied by either fruit trees, Vines, or climbing plants, and for several years after the Vines are first planted along the front, the back walls can certainly be profitably utilised. For instance, both Peaches and Figs will do well in those positions, but the time soon comes when too little sunshine will reach them, and they fail to be productive. There is no avoiding this, unless, indeed, the Vines were kept sufficiently restricted to admit plenty of light and sunshine to the back walls. The Black Hamburgh and Black Alicante Grapes will succeed longer on the back walls of vineries than either Peaches or Figs, but even these fail to bear many bunches, though they are yet worth retaining in preference to having nothing but naked walls. Camellias and hybrid Rhododendrons succeed well on vinery walls, and Tea Roses fairly well, but the last being very liable to mildew and insect attacks, ought, perhaps, to be kept out of vineries. Market growers plant Tomatoes extensively in newly-formed vineries, and continue this plan, though in less numbers in after years, as long as it pays them to do so. Private gardeners might adopt very similar practices, especially if Grapes were not in great demand. It should be remembered, however, that very good Grapes can be obtained for two or three years from young Vines planted

thinly over the body of the house, also against the back walls, and treated somewhat similarly to Raspberries. These are the best supernumeraries that can be planted, as they do far less harm to the Vines intended to be permanent than do those more often arranged midway between them. Young Vines raised this spring and planted out in May next should attain a strong fruiting size during the summer, and give a useful lot of bunches next season.

Grapes and Peaches do well together, as before stated, provided they do not unduly encroach upon each other's space or daylight. Not unfrequently instances are met with of two or three Vines being grown in a Peach house with remarkable success, and in some cases the best show bunches grown on the place are cut from solitary Vines so situated. When the houses are three-quarter span-roofed, a Vine might be taken along the whole length under the ridge, but well clear of the glass, and this would not impair the productiveness of the Peach and Nectarine trees on the front trellises and against the back walls. Vines could also be planted and fruited for two or three seasons midway between the trees both on the walls and semi-circular trellises, but they would not do well on the latter and must be trained up the roof. If preferred, Tomatoes might occupy these positions and continue to do so as long as there are any unoccupied spaces. In each and every case the occupants for which the houses were originally constructed ought to be most studied, the supernumeraries being removed before they greatly interfere with the permanent trees or Vines. Good care should also be taken to restore to the borders much of the fertility taken out of them by the temporary crops.

Figs are such gross-rooting subjects that they are capable of more than holding their own against anything planted near them. If, therefore, a house cannot be given solely up to them, it is desirable that the roots be either confined to brick pits, or, better still, to portable tubs or large pots. Restricting the roots ensures productiveness, and when Figs are in either tubs or pots they can be turned out after producing one or two crops and rested. Unless, however, strong trees with their roots much confined are annually partially or wholly lifted, re-tubbed or repotted, as the case may be, and given further liberal treatment in the shape of rich top-dressings and plenty of liquid manure, the crops will be light and the fruit small. Strawberries in pots find their way into many Fig and Peach houses and vineries, and very often leave a legacy of red spider and green-fly. The high shelves on sunny back walls suit them well, especially if the plants are kept well supplied with water, but far safer positions, and which often answer admirably, are the light front stages of fruit and plant houses generally. In such places they can easily be kept properly attended to, and if not crowded and the fruit lightly staked, it will ripen very satisfactorily. Strawberries swell to a larger size, though the quality is not so good when grown in the stronger heat and more moist atmosphere of Pine stoves, Cucumber and Melon and forcing houses generally. Even under these conditions they are liable to be infested with red spider and green-fly, and ought, therefore, to be kept well clear of the other occupants of the houses.

Cucumbers and Melons succeed well together, the latter requiring quite as much moisture at the roots and in the atmosphere as the former, but the Cucumbers must be shaded from strong sunshine; whereas Melons do better with little or no shade. If the two kinds are grown in the same house, they ought, therefore, to be kept well apart, one half of the house say being shaded and the other not. Up to within the past three years I was able to grow good crops of Tomatoes in various forcing houses, or until the Cucumbers, Melons, and other plants might want all the room, but latterly this has become a much more difficult matter, owing to the prevalence of the destructive disease known as Cladysporium. This spreads with surprising rapidity in strong heat accompanied by a moist atmosphere, and only by the admission of much more air than is good for other heat-loving plants

is it possible to check the progress of this fungus? Plants affected by this disease must not be too closely disbudded, or there will soon be no healthy leaves left on them. Instead of pinching out the side shoots, allow a few of them to grow and stop the rest at the first joint. This will keep the plants furnished with leaves till the first crops are matured, and the unstopped shoots would, if required, produce smaller clusters of fruit. On the whole, however, those who have to combat this disease had better not depend much upon the plants grown in mixed houses.

W. IGGULDEN.

VINES INSUFFICIENTLY RESTED.

MR. W. IGGULDEN's article on the above subject (page 259) is at once interesting and eminently useful. I have long entertained the same opinion regarding the too short and imperfect rest given to late Vines, especially Lady Downe's, Mrs. Pince, Black Alicante, Gros Maroc, Mrs. Pearson, Trebbiano and Gros Guillaume. Even the bunches of Muscat of Alexandria are often allowed to hang on the Vines till Christmas, when they are cut and bottled. The Vines are then pruned, washed, and tied together, horizontally over the front pipes, the roof glass and woodwork cleaned, the borders being afterwards attended to in the way of removing the surface soil and replacing it with fresh sound loam, &c., with a surface dressing of horse droppings. In the middle of February or early in March the Vines are started. The vineries being in ninety-nine vineries out of every hundred filled with bedding plants, Cinerarias, Calceolarias, &c., the inside temperature is rarely allowed to fall below 35°, thereby showing most conclusively that the interval generally accorded Vines for rest is not only of too short duration, and that the temperatures maintained during that period being much too high to admit of the Vines obtaining sufficient and absolute rest, tend to make matters worse. Sun and light are in a great measure excluded from inside Vine and Peach borders during the interval from the end of October to the end of April or the first or second week in May by various kinds and varieties of bedding plants being stood closely together thereon, with the result that the soil becomes somewhat sodden and sour, and consequently unsuitable to the emission of a network of healthy fibres in the top-dressing. Hence it is that the roots of Vines in such cases push more freely into the outside borders when they can do so than they do into the inside ones.

Being quite convinced of the injurious effects produced on Vines by covering the borders with bedding plants, I endeavour every year to mitigate the evil by standing the pots, cutting and seedling boxes on platforms fixed several inches off the borders, so as to allow the air to pass between the border and the plants, and in that way to some extent prevent the borders becoming sodden and sour. I have frequently turned Vines outside during the winter months with most satisfactory results, taking the rods out through the front ventilating sashes, and tying them longitudinally to upright stakes stuck into the border. The only way in which they were likely to get injured was in taking them in and out after the Vines had attained to large dimensions.

H. W. WARD.

Grapes keeping well.—Our Grapes have rarely kept so well as they are doing this season. Naturally Lady Downe's and Mrs. Pince are keeping best, but we had Gros Colman good up to the middle of March, Alicante keeping a little longer. Lady Downe's is now as fresh and plump as when cut, but Mrs. Pince has shrivelled somewhat. Both would keep well into May if required, but frequent dinner parties are making great inroads into the stock, and it is doubtful if there will be any left after April. It is hardly possible to over-estimate the value of Lady Downe's as a late-keeping Grape. Not only does it keep well after being bottled, but the quality would seem to improve rather than deteriorate. So greatly is it appreciated, that I now much regret not having long since planted or grafted more of it, and even as a commercial speculation it would have paid well, good

Grapes being in demand now at from 5s. to 7s. 6d. per pound. If Lady Downe's is freely thinned out, there is little or no waste during the winter, and the Vines are capable of producing a greater weight of fruit if Mr. Thomson's plan of leaving two bunches on a lateral is adopted, as it may well be where the Vines are in good health. Most of our Lady Downe's were cut and bottled about the middle of December. Nothing but clear hard water was put into the bottles, and this has never been changed or added to. The room in which they were hung faces north and is ceiled. There is a fire-place, but no fire has been put in it, but instead of this both the fire-place and window have been kept closely blocked, and the entrance door also closed. Naturally, the temperature has frequently fallen much below freezing point, but this did no harm whatever. It would have done if the window and door had been set open directly mild weather was felt, as in this case much moisture would have condensed on the cold berries. Keeping the room close and dry is the true secret of success, though thorough ripening was also a factor in the matter.—W. I.

Apple Sturmer Pippin.—The good qualities of this late dessert Apple are too often overlooked by those making selections for planting. At the present time it is at its best, but will keep good till the end of May. As far as appearance goes, it is not particularly attractive, but it is a rich, juicy Apple, second to none in this respect when in season. It forms a good pyramid, and succeeds admirably as a standard, the trees commencing to bear freely after being planted two or three years. The trees attain a medium size, and for that reason are to be commended for planting in mixed fruit quarters or orchards.

Good keeping Apples.—At nearly all the Bath shows Apples are to be seen in excellent condition, and at the bulb show on March 18 there was quite a tempting display made. Some of the finest and most attractive in appearance were Streaman Pippin, alluded to in another note, Annie Elizabeth, Dumelow's Seedling or Wellington, Spring Ribston, London Pippin, Blenheim Pippin, Ribston Pippin, Calville Blanche, Hambledon Deux Ans, Nonpareil Russet, Beauty of Hants, Fearn's Pippin, Royal Russet, Court of Wick, Brabant Bellefleur, Winter Hawthornden, Newtown Pippin and Lemon Pippin. All were plump and fresh in appearance, and if large quantities of any or all of them could annually be so well kept and sent to the markets, there would be little need to purchase imported fruit.—I.

Drainings from piggeries.—Under heading of "Hardy Fruit Garden," "W. I." states that drainings from piggeries may be safely and effectively used before fruit trees are in leaf, adding, "afterwards it is unwise to apply them." Why unwise?—A GROWER.

PUBLIC GARDENS.

THE site for a public park at Wakefield, given by Mr. C. Milnes-Gaskell, M.P., is to be laid out by the Corporation at a cost of £2000.

Lincoln's Inn Fields.—A petition from 457 ratepayers and inhabitants, to throw Lincoln's Inn Fields open for the use of the people, has lately been presented to the London County Council.

New recreation ground.—It is announced that the Dowager Lady Howard de Walden has just offered Barbadoes Green to the Provost of Kilmarnock, together with some ground near it, as a place of recreation for the public, on the condition that the burgesses spend £2000 in laying it out before 1893.

Holland Park.—Two acres are to be taken off Holland Park for building purposes. Upon this plot private dwellings, with or without studios, are to be erected. The notion is that the houses shall each have a small private garden at the rear, devoting the remainder of the back land to a garden common to all the dwellings. No shops or residential flats will be allowed, and the height of the houses is not to exceed 60 feet.

Open spaces.—The Parks and Open Spaces Committee reported that it had been informed that the Greenwich District Board and a private gentle-

man were prepared each to contribute £2000 towards the purchase of 10 acres and 32 poles of land, in two plots, at the top of Telegraph Hill, Hatcham, for the purpose of an open space. The land belonged to the Haberdashers' Company, and they were willing to sell it for the sum of £8000, but proposed to give £2000 as a donation towards the purchase. The council's valuer put the value of the land at £7760. Under the above arrangement the land could be secured for the public by the council contributing £2000. Telegraph Hill was in the parish of Deptford, and was close to the crowded neighbourhood of Nunhead. It was at a considerable elevation, and commanded a view over a great part of London. Having regard to the comparatively small amount that the council was asked to pay, and to the desirableness of securing every open space obtainable at a reasonable outlay, and also to the fact that the cost of maintenance would be comparatively small, the committee recommended: "That, subject to the sum of £6000 being provided as above-mentioned, and to an estimate for £2000 being submitted to the council by the finance committee, as required by the statute, the council do purchase from the Haberdashers' Company, free from all conditions, the 10 acres of land at Telegraph Hill, Hatcham, shown on the plan submitted with the report."

THE CROMWELL ROAD MUSEUM.

AN important addition has recently been made to the public portion of the Botanical Department of the Cromwell Road Museum, which brings to a completion the scheme for showing the British flora by actual specimens in a way that is convenient to visitors, and avoids all the risk of damage in turning over a herbarium. It is now nearly two years since the work was commenced, and, though slowly, it has proceeded steadily. The plan adopted is, that around a strong mahogany pillar are hinged 24 mahogany frames, glazed back and front, having in them paper-covered boards, on to which the specimens and descriptions are attached. As each frame is used on both sides, the pillar carries 48 "pages," as they may be called, which are some 2 feet wide and 3 feet high. There are four such pillars in the gallery, so that they give a total of 192 gigantic "pages," which a visitor can turn over to any part he may want. The details of size and height have been carefully thought out, as it is hoped by the museum authorities that the arrangements may serve as an example for other places. The additions that have been recently made are the fourth pillar, which is exclusively devoted to the British mosses, while the third pillar has also been completed. For the first three pillars the classification and nomenclature followed is Bentham's "Flora," and for the mosses Hobkirk's "Synopsis of British Mosses." At the time of our previous notice only the first two pillars were completed, which come down to the Amentaceæ. This order is continued in No. 3, where, *inter alia*, are shown the 15 British species of Willow, the three Poplars, and so on. In the Naiadeæ even the little Duck-weed is shown, gummed on to card. Descriptions cut from the standard works referred to are affixed to the specimens, and pains have been taken to show not only "foliage," but "flower" and "fruit." In the Orchid "pages," on Pillar 3, good examples have been secured of what are commonly called the Fly, the Bee, the Spider, the Lizard, and the Military Orchid. There is also a good Lady's Slipper Orchid (*Cypripedium*). The Sedges (*Cyperaceæ*) occupy 11 pages, the Grasses 12, and the Ferns six. It is a rare thing to see a complete collection of native British Grasses. The Ferns are completely represented, and though dried and flat give an excellent idea of the more frequent forms that add so much to the charm of country rambles in different parts of England. Among the Grasses, as with many of the flowering plants, where a genus has many species, room has not been found for more than typical species. Owing to the large scale on which the work is planned this occurs, however, only in exceptional cases. In the Mosses all are shown. The genera are marked off

by ruled lines, and the definition of the genus, taken from Hobkirk's book, is placed at the commencement of each. There is also a much enlarged drawing of the characteristic fructification, and then follow the actual specimens of each species, with its printed description alongside, its habitat, and its time of "fruiting." Some slight re-arrangement will still have to be made in Pillar No. 3, but it is a great thing for the museum that this educational work is at length accomplished. In the studies of the Cryptogamic Section of the Botanical department, the fungi, algæ, and Mosses will be found brought quite up to date, and the Lichens are much advanced. This is the result of three years' hard work and with amateur assistance. During last year 34,650 specimens of fungi, algæ, and Mosses were labelled as representative species. In 1889 the number was over 44,100, and in 1888 34,200. The entire collection now represents the present state of world-wide knowledge of these groups.

NOTES OF THE WEEK.

Rose Souvenir d'un Ami.—I think it is very doubtful if this lovely Tea Rose is nearly as well known as its merits deserve. For two or three weeks past I have been gathering its exquisite pink flowers. These are of a most charming and welcome shade, and to-day (March 28) I have cut some very handsome, full flowers. It does admirably on the Brier when grown as a dwarf, as also on its own roots; while as a standard in a cool house it would be difficult to surpass it, either in its delicate shade of colour or its freedom.—J. E.

Violet Willsiana.—This is the giant of the single Violets, both for size of individual blossoms and also for the length of stem on which they are produced. Frequently the stems are 6 inches and even more in length where the plants are grown in favourable localities. When it is remembered that the small size of the blossom and the shortness of stem have caused an enormous amount of labour in the past, this variety should not be long in coming to the front, seeing it is more easily and readily gathered, and that one half the number of its flowers makes a very nice bunch.

Anemone, or Pulsatilla patens is now in fine condition on the open rockery. It is one of the best of this interesting section, though by no means the most profuse bloomer. We noticed a nice lot of *A. patens* at Regent's Park from Messrs. Paul's Broxbourne Nursery, and it was one of the most attractive plants in the group. It seems to do best on an eastern exposure, partly shaded, and in a rich vegetable soil. It ripens seed freely, by which means it may be readily increased. Division is often recommended, but we should advise no one to disturb a well-established tuft, as it will possibly be a long time before it will flower with anything like the same vigour.

Iris stylosa.—Why is not this gem more grown than it is? I have three or four clumps of it which this spring have yielded fully 100 flowers. We cut them when rolled up tightly like cigarettes, and, like others of its tribe, the buds open freely in water, and last good about three days. In mild seasons following a dry hot summer, this Iris often begins flowering in November and yields occasional blooms all through the winter. They are each over 4 inches across, of a beautiful tint between mauve and lavender and delicately perfumed. The clumps which have been most prolific are in a hot southern exposure on a bed elevated above the ground level by two or three courses of bricks, a situation in which, even in our heavy clay soil, *Ixias*, *Sparaxis*, and *Chionodoxas* do well. The last seed as freely almost as Groundsel. A good coloured figure is given in Vol. XXIV. (p. 68), but my flowers are always larger and brighter in hue. I have seen a white form, but do not consider it as good as the type.—G. P., *Monkstown, Co. Dublin.*

Tufted Pansy Bullion.—This is without doubt the most persistent flowering of all the tufted Pansies. In colour it is a rich deep gold and slightly rayed. The flowers are of medium size

and produced in wonderful profusion for about nine months of the year; in fact, we have not been without its flowers at any time during the year in mild seasons, and even during the unparalleled winter from which we are only just emerging many of its flowers were buried in the snow, and hundreds of buds merely awaiting the opportunity to expand. Anyone requiring a variety of exceptional merit should secure this; it is undoubtedly the best of its colour we yet possess.

New Zealand Veronics.—Mr. Wilson's puzzle, Why, amongst a batch of *Veronica Traversi*, "one should be taken and the other left?" may be, I think, explained by the fact that most stocks of *Veronica* spring, as those here did, from a batch of seedling plants, and vary both in foliage and in flower very much, and also, as this winter proves, in hardiness—some varieties being perfectly uninjured. Below are side by side lists of the survivors and non-survivors of New Zealand Veronics at our High Beech nursery, where Bays are cut, *Pinus insignis* unhurt, and *Laurustinus* foliage slightly burnt.

ALIVE.	DEAD.
<i>Amplexicaulis</i>	<i>Cataracta</i>
<i>Anomala</i>	<i>Diosmafolia</i>
<i>Armstrongi</i>	<i>Epacroides</i>
<i>Buxifolia</i>	<i>Hulkeana</i>
<i>Colens-i (vera)</i>	<i>Lavandiana</i>
<i>Cupressoides</i>	<i>Lewisi</i>
<i>Formosa</i>	<i>Ligustrifolia</i>
<i>Ignota</i>	<i>Parviflora</i>
<i>Laevis</i>	<i>Pimeleoides</i>
<i>Lycopodioides</i>	
<i>Rakaiensis</i>	
<i>Salicornioides</i>	
<i>Verrucosa</i>	

—GEORGE PAUL, *The Nurseries, Cheshunt.*

Mackaya bella.—Early last summer a friend gave me a struck cutting of this pretty greenhouse shrub about 6 inches high. Being somewhat pot-bound, I repotted it into a 4-inch pot, in which it is now growing, and placed it in a cool stove near the light. Here it started freely, making several side shoots, and now the leader is producing a nice spray of its lovely, delicate narrow flowers, with five or six smaller spikes from each side branch. On turning up the volume of *THE GARDEN* (XVI., p. 250), in which a capital coloured plate of it is given, I was much surprised to find it described as a shy bloomer. Surely six or seven blooming shoots in a 4-inch pot cannot fairly be called shy. My plant got no exceptional care as to water or anything else. The house in which it is contains a miscellaneous collection, chiefly Ferns and temperate Orchids, such as *Lycastes*, *Celogynes*, &c., with a minimum temperature of about 45° to 50° in winter; 50° is the nominal minimum, but it often gets below on a cold night. It being usually considered a shy flowerer, and with me blooming with such exceptional freedom and without special care, is my apology for this note.—G. P.

Valeriana Phu aurea.—In spring when Daffodils render our gardens attractive and gay with the vastness and richness of their flowers, we could wish for little else of a golden hue, but before the Daffodil hardly dares to expand, the golden *Valeriana* above named is in the heyday of its beauty. When seen in good condition the rich golden of its newly formed leaves even surpasses *Narcissus maximus* in point of colour, which is saying a good deal. To obtain this brilliant leaf colour it should always be planted in very poor and hungry soils, never in deeply dug or manured ground, and if rammed in position till the soil is quite hard so much the better, for obtaining the characteristic golden of its leaves. As a permanent edging in broad belts it is not equalled by any other plants at the present time, and where it cannot be thus grown, we advise growing a batch in 6-inch or 8-inch pots, plunged during summer in the reserve ground and transferred to their winter quarters each autumn. Too frequently the value of this plant is called in question, simply because it is grown when it should be starved to obtain its brighter hue, and though many years ago, we still retain a vivid recollection of a broad band of it planted adjacent to a gravel walk in Nottinghamshire, where year by year for weeks

during the spring months its wealth of golden leaves was conspicuous at 200 yards or 300 yards distant, the poorness of the soil as well as the close proximity to the gravel walk and a belting of gloomy Laurels hard by, no doubt materially assisting in the display.

Odontoglossum coronarium.—A fine spike of this handsome and remarkable *Odontoglossum* was exhibited at the Drill Hall meeting of the Royal Horticultural Society on March 24. Ever since its discovery in 1847 it has been noted as a difficult plant to bloom. The spike exhibited consisted of upwards of a score of flowers, which seems to be above the average number. The flowers individually are 2 inches across. The sepals and petals are almost orbicular, crisped at the margin, and remarkable for the glossy varnished surface, the colour being a bright reddish coppery brown, except at the margin, where it is yellow. The petals have also an irregular patch of yellow at the base; the lip is comparatively small and bright yellow. Mr. Bateman says that this species is shy-flowering even in its native state. One of its most successful cultivators was the late Mr. Spyers, who used to grow it near the glass in the cool house, using long boat-shaped baskets of Teak. It is distinguishable by the dark brown colour of its large compressed and one-leaved pseudo-bulbs, which grow at intervals of 2 inches or 3 inches on a stout rhizome. It is a native of New Grenada, and is said to never descend to a lower elevation than 7000 feet.

Rhododendron Gibsoni.—Although nearly allied to *R. formosum*, and at one time even identified with it, this species presents well-marked points of difference. The flowers of *R. Gibsoni* are slightly the larger of the two, measuring upwards of 4 inches across, and are also of firmer and more substantial structure. They are entirely of the purest white, and are thus readily distinguished from those of *R. formosum*, which in all its forms are always coloured with a patch of yellow. The leaves also are larger, some being 4 inches to 5 inches long; they are ovate-lanceolate in outline, dark green, with the surface and edges furnished with short hairs. The flowers are produced in terminal clusters of three or four, the unexpanded buds being of a pretty shade of rose. Flowering as it does in a small state, this species is well adapted for pot culture, and treated in every respect like a common *Azalea*, it never fails to beautify the greenhouse with its abundant bloom at this season. It is a native of N. India, and was named by Paxton in honour of a plant collector in the service of the Duke of Devonshire. Both it and *R. formosum* are now in flower at Kew.

Corokia cotoneaster.—The plant, which along with another species constitutes the genus, belongs to the Cornus family, and is one of the most striking and characteristic of New Zealand shrubs. It is of dwarf habit, and is remarkable for the curious zig-zag manner of growth, the branches interlacing in every direction. The leaves are very small, rarely exceeding half an inch in width, and the petioles being proportionately long and flattened out render the whole leaf almost exactly spoon-shaped. When young they are green, but the older ones assume a brownish tinge, the under-surface, however, always retaining its white tomentose character. The flowers are perfectly star-like, consisting of either five or six petals, which are of the brightest yellow. The whole flower is a little over half an inch across. A bush in the temperate house at Kew about 5 feet high is now thickly studded with flowers, and forms both a pretty and interesting object. In New Zealand it is said to grow on the hills, generally at the outskirts of bushy tracts of ground. It is an easily grown plant, requiring little more than protection from frost. It may be recommended for the conservatory because of its distinctness from the types usually found in that structure.

Hybrid between Chionodoxa and Scilla.—For the last four or five years I have had natural hybrids between *Chionodoxa* and *Scilla bifolia* come up in my garden. Some of the earlier plants have now become strong and give good trusses of flowers,

but I am sorry to say they show but little inclination to multiply, and so far I have only the original bulbs. The flowers are mostly self-coloured, although a few are lighter towards the centre, but none of the original hybrids have white centres like the *Chionodoxa*. Whilst showing their origin most plainly they are very distinct from both parents, and the flowers are very bright and attractive, and they look you straight in the face. Most of them have pale yellow anthers, adding much to their beauty. The first year the flowers are small, usually about the size of those of *S. bifolia*, and it is not till the third or fourth year that they show their true character. I have bloomed a few seedlings of the second generation and I think they will show improvement on the first break. One of these has given a flower with a white centre. I believe these hybrids will be most useful garden plants, and I have thought it well to give them a distinct name, and the one I have selected is *Chionscilla*, which recognises both parents. With this I send you a few single flowers, but they will give you but little idea of the brightness and beauty of the growing plant.—JAMES ALLEN, *Park House, Shepton Mallet.*

Hæmanthus natalensis.—A number of flowering specimens of this *Hæmanthus* is just now forming a striking group in one of my plant houses, the strong, erect scapes, each bearing a huge, very dense umbel of flowers, showing well against the luxurious, pale green leafage of the plants. Not the least attractive feature of this *Hæmanthus* is in the large, beautifully red spotted, sheathing scales at the base of the plant, and in the rich reddish-brown coloured bracts. This Blood Flower is of the easiest culture; after the leaves have died down in the autumn the pots are stored away in some dry place where frost cannot reach them. About the commencement of February the bulbs will show signs that their active period is at hand, when they may be removed into a light house where a temperature of about 50° Fahr. can be kept up. Very soon afterwards the foliage and the flower-stems are pushing up, and ere long the plants will be in full beauty. Considering the easiness of culture of this species, its certainty of flowering, and ornamental habit of the plants, which often attain a height of 4 feet, it, despite the somewhat dull colour of the flowers, must be regarded as one of the best of the genus. It is a native of Natal.—C. G. VAN TUBERGEN, JUN.

White Grape Hyacinth.—For the past three weeks I have admired a most charming pan filled with this delightful little plant, which has passed the winter in a greenhouse from which frost has just been excluded. The exquisite purity of its blossoms under these conditions is remarkable, and affords another instance of the benefit derived even by perfectly hardy subjects when so treated. In the ordinary course of cultivation there is a creamy tint in the blooms, but given a little protection this is replaced by spikes of flowers of snowy whiteness, the purity of which is retained for a considerable time. I wonder who, knowing the results, would object to a small greenhouse for the accommodation of treasures such as this, where their fullest beauty may be forthcoming, and where those possessing them may have every opportunity of admiring them with comfort. What a host of such things even a small greenhouse 20 feet by 10 feet might contain, and what an amount of pleasure would be afforded! Those, however, who go to the Royal Gardens, Kew, will be able to arrive at some idea of the usefulness of such a structure by a visit to the alpine house, which during the spring is full of interesting subjects.—E. J.

Adonis vernalis.—Among the very earliest of spring flowering plants this lovely *Adonis*, so faithfully represented by a plate in a recent issue of *THE GARDEN*, is without an equal. Its lovely golden flowers, as seen when fully expanded on a bright sunny April morning, are very effective. On cold and clayey or badly drained soils this charming alpine is never perfectly happy, while in deep, warm, light, loamy soils it sends its roots down fully 2 feet deep, making top growths quite 1 foot or 15 inches long.

FLOWER GARDEN.

COREOPSIS.

THE interesting genus of Tickseeds, of which a large number are now in cultivation, forms a group of exceedingly beautiful and very useful garden plants. All the species, so far as known, are showy and withal so easily accommodated, that they may be grown with perfect ease in almost any garden soil. The perennial section, such, for example, as *C. lanceolata*, *C. auriculata*, *C. tripteris*, and others, find a place in all good collections on account of their charming flowers and free habit. The annual species, which may be classed as hardy and require only

early summer flowering, the next in early spring to take the place of the autumn-sown ones, and so on. The hardiness of these annual *Coreopsis* gives them a great advantage over most of the other Composites, as they require simply to be sown where they are intended to bloom, the seedlings when ready to handle being thinned out to 2 inches or 3 inches apart. To make the most of them, the richer the soil the better, and if moist rather than dry, it will be found more suitable. In poor soil and in sunny positions they are always dwarfer, but florists have now succeeded in raising a dwarf strain that rarely exceeds 1½ feet in height, and flowers with remarkable freedom. The species shown in the annexed cut is *C. tinctoria*, that has given rise



Coreopsis tinctoria. From a photograph by Miss Marion Winter, Broomfield, Caterham.

to be sown in the open air in spring, are extremely varied both in habit and in the colour of their flowers. They are mostly used in mixed borders, but, as the accompanying drawing will show, they make handsome groups simply sown and allowed to grow as they will. In borders, where everything has to be kept neat and tidy, these *Coreopsis* lose a great deal of character in being tied up and kept within certain limits. If grown for the flowers simply, which are in much request in a cut state, this answers very well; but if effect be aimed at, let the *Coreopsis* have free scope. The varieties of these annual Tickseeds are now so numerous, that beautiful effects may be obtained by mixing or blending the various colours, and by making successional sowings, the first in autumn for

to most of the garden forms now in cultivation, many of them of the most brilliant hue, self-coloured, bi-coloured, and tri-coloured, and with various deep purple markings. They are all New World plants, and include *Atkinsoniana*, *aristosa*, *cardaminifolia*, *coronata*, *Drummondii*, &c. The genus known in gardens as *Leptosyne* has now been put under *Coreopsis*, but with the exception of *L. maritima*, none that I have seen are of much garden value. A good deal of attention is just now being centred on the perennial species, and in the introduction of *C. grandiflora* and *C. longipes*. The latter is said by Dr. Gray to be identical with *C. grandiflora*, and the name is still kept up in gardens. From three sources under the name of *C. longipes* I have received *C. lanceo-*

lata. Two or three firms claim to have introduced the true *C. grandiflora* at last, and are offering it to the public. Let us hope they have succeeded in getting the true plant, because it is certainly the best of the genus. K.

THE TIGER FLOWER.

(TIGRIDIA.)

AMONG the losses for which the past severe weather is answerable are the *Tigridias* which formed my collection of these gorgeous plants. I was able to grow and flower them in pots, and in the autumn I stored the bulbs away where I thought they would be perfectly safe, but the searching frost found them out, and not one survives. Many a subject that had braved the frost of the past ten years went down before the fury of the assault of the memorable one of 1890-91. We are not able to count our losses yet. Is it because the gorgeous *Tigridias* are so short-lived when in bloom that they appear to be so sparingly cultivated? I last year saw in the public park at Cardiff the Mexican Tiger Flower blooming finely in the flower beds. It was in the month of August, and each group of flowers appeared to be holding quite a little levee of its own, so numerous did the visitors crowd about it. The large majority of them were probably looking upon the brilliant South American bulbous plant for the first time. *Tigridia pavonia* has been in cultivation in this country for a century or so, and yet how rarely is it met with in gardens. But it does seem a pity so much striking beauty should be so short-lived. The plant compensates for this to some extent by producing one after another flowers from the same stem, and if one open to-day and is gone to-morrow, unless it is the last of the series, it will be followed by another. I found the bulbs did well in deep and good-sized pots in a compost made up of good yellow loam, well-decomposed manure, leaf soil, and sand. They rooted freely in it, made a vigorous growth, and bloomed finely. But the plants are impatient of drought, and I found it best to plunge the pots in cocoa fibre refuse up to their rims on a north border. *T. pavonia* is the original type of this. There appear to be several varieties, such as *grandiflora*, *superba*, *rubra*, *Wheeleri*, &c. The yellow form, *Tigridia conchiflora*, is very striking, and, like the brilliant scarlet *T. pavonia*, has the centre spotted with red and black. *T. canariensis* is supposed to be a superior form of this. The white form, *grandiflora alba*, is a great favourite of mine, and there is a marked contrast between the white segments and the crimson spots in the hollowed centre. There are other species and varieties, but the foregoing may be taken as representing three desirable and distinct forms.

When grown in the open ground the bulbs need to be lifted in autumn and put away out of the reach of frost. One way to preserve them is to lift them, place them in large flower-pots, and then cover them with fine soil or cocoa fibre refuse. If kept in a warm potting shed or greenhouse, an occasional sprinkling should be given to prevent the bulbs from shrinking through the effects of drought. Should the bulbs be left in the ground, a covering of some kind should be given them as a protection from frost.

Good cultivation has a remarkable effect in bringing out the gorgeous beauty of the Tiger Flower. I knew a grower some years ago who gave his bulbs very liberal treatment, making a bed 18 inches in depth with a compost made up of good leaves, plenty of cow manure and vegetable mould, and a fair amount of sand. In such a bed the *Tigridias* grew with extraordinary luxuriance, many of the flower-stems measuring nearly 3 feet in height, and each stem producing in succession from six to ten flowers. The late Dr. Maclean, of Colchester, who always regarded *T. pavonia* and *T. conchiflora* as merely varieties of the same species, made several successful attempts to raise seedlings, and bloomed a large number. He adopted the practice of taking half a dozen bulbs of each variety, placed them in small pots in a rich soil mainly composed of leaf-mould and one-third sand,

and plunged the pots in a gentle bottom-heat. As soon as the bulbs threw their foliage above ground they were removed to a greenhouse, and ultimately to a warm south border, care being taken not to injure or much disturb the roots in the act of shifting them. Here, if the weather proved unfavourable, they were protected for a time under hand-glasses. Thus treated they were found to flower much earlier than those planted in the open, and they were certain to ripen their seed. Plants raised from seeds were certain to flower the second year, and some during the autumn of the first year. This process suggests a like practice on the part of admirers of the Tiger Flower in the present day, and there is no knowing what fine new forms might be originated were the systematic raising of seedlings properly carried out.

R. D.

HARDY FLOWERS FOR FEBRUARY.

So many of my friends seem surprised at finding a garden with plenty of flowers all over it within a month of the end of one of the longest continuous frosts on record, that it may be worth while to say something about the way in which this effect can be produced. To do it all at once would require a large outlay, but those who make the most of their opportunities and increase their stock by frequent division and by sowing the seeds which ripen will find three or four years time enough to fill their garden without buying anything new. Winter Aconites, for instance, which do not seem to mind the exhaustion of soil caused by the roots of deciduous trees, make gay many a bare corner almost before the ground is thawed. They grow well where the soil is too poor for Grass, and the seed comes up spontaneously in great quantities if left alone. Snowdrops I need not speak about. We have read enough about them lately; so I will only say that *Galanthus Imperati* beats all the others easily here, both for increase and size of flower, and freedom from the very destructive mildew, which attacks some choice kinds in this garden, especially *G. Elwesi* and *G. plicatus*, and has already done for nearly all the *G. Fosteri* I bought last autumn. *Hepaticas* I have lately written about. *Crocuses* do not want recommendation; but if gardeners would plant them twice as deep as usual, they would be more out of the way of mice and would flower earlier and as well, if not better. The earliest and best *Crocus* is *C. Imperati*. It came out here the first week in February, and now on March 15 is not nearly over. It stands bad weather well and increases fast, and is now imported so cheaply as to be within the reach of all. Some which came to me from Naples are of a much richer colour than any I have seen before and flower later. Everyone now knows *Iris reticulata*, but may lose it through neglect; it is very apt to be destroyed by black mildew if not lifted and dried as soon as the leaves die. The fibrous persistent tunic seems to encourage disease if left in the ground, but if taken up in July and replanted in September it multiplies at least five-fold annually. The soil for it must be sandy and light. It has many varieties and near relations, all of which seem equally hardy and have done well in the open ground at the end of this winter. They began to flower the first week in February, and have endured frost and storm up to this

time without suffering. Of *Daffodils*, *N. minimus* came in with February, and is always the first, *N. minor* joining it in flowering about a fortnight later. The only other kind which began before the end of February this year was *scoticus*. Neither the roots nor the flowers of any of these seemed worse for the hard frosts. But it was not so with *Anemone hortensis* (*fulgens*), which last year filled the garden with scarlet all February, whilst this year there is not a flower on them. The hard winter killed the autumn leaves, and the growth had to start again from the roots, so they will be late and poor. *A. blanda*, however, which never ventures to show a leaf before winter, has had an excellent season. It began to flower the same day as *N. minimus*, and masses of it in the middle of March are still in full beauty. If the seeds are rescued from the birds and sown at once either in a box or amongst the parents they come up freely and abundantly at the close of the next winter, and flower when two years old. The colour varies from white to deep violet, the dark shades being scarcer and, I think, more ornamental. The tall-bunched *Hellebores* are a great resource for a February display. I do not name them, because I believe most of them are hybrids, but they do well in any shady corner, close to the overhanging branches of Douglas Firs, or other good shelter. In spite of storms and hard frosts I have never had a better flowering season for them. They seem to do best close against a north wall, where for some reason they appear to be proof against cold. Some of them are as beautiful as magnified bunches of pendulous Apple blossom, though they all have too much green in the colour. Seed ripens plentifully and sows itself, and if the seedlings escape slugs they flower when three years old, and are much better than divided plants. Besides the flowers mentioned there are endless *Squills*, of which *sibirica* is the best with the one exception of selected individuals of *Chionodoxa sardensis*, the uniform bright blue of which is unsurpassed, though some of *Scilla bifolia* approach it; the white and the pink variety of this last make a very pleasing variety, but flower later than the type. The white *Sisyrinchium grandiflorum* does not favour this soil, but the purple is an excellent early spring plant. So are *Leucojum vernum* and *Erica carnea*, both of them hardy against any frost we have had. I have something to say of February rock plants, especially one or two hybrids of *Saxifraga Burseriana*, the best of them being a free-flowering kind with petals of a good yellow, resembling *S. aretioides* in habit. I do not know its name, but it is of eminent merit amongst many which seem to be crosses of the same class. *S. sancta*, which has flowered profusely in many spots, has surprised me by its earliness and hardness this season; its flower-stalks have remained upright and healthy, whilst those of *S. Frederici Augusti* and *S. Molyi* (or plants bought by those names) have been prostrated by a temperature of 20°. Perhaps the most ornamental plant, not only on the rockeries,

but in all the garden at the end of February, is *S. oppositifolia*, which I cultivate extensively. By attention to one or two rules it is as easy to grow as *Sedum acre*, and spreads nearly as fast; cuttings taken just after flowering time make much better plants than transplanted divisions, though the pieces may have good roots. When the cuttings have grown to 3 inches or 4 inches across, they should be planted in a deep mass of finely broken stone in a place which is neither shady nor exposed to full sun, but if there is enough stone and not too much soil they will grow as well on the level border as on the rockery, and I have them all over the garden; a dressing of good soil and broken stone, so as nearly to bury them in summer, helps them to resist drought. The best varieties are the large-flowered *pyrenaica*, the rich coloured *splendens*, and the white, which sometimes is less floriferous, but this February has been exceptionally good. The closely allied *S. retusa*, with smaller leaves and flowers, but flowering in a compact mass, should not be neglected. It is about a fortnight later. I have already exceeded my limits, but must mention one more plant which I received from Kew as *Iberis rupestris*, no doubt rightly named, though I cannot find it described in any European or Asiatic botany. It is very dwarf and compact, not rising an inch from the rock, and with a hundred umbels of flower covering less than 6 inches square. In exposed spots it was a little pinched in January, but where sheltered amongst rocks it began to flower in December, and has been covered with flower ever since. There are other flowers belonging to February which have done well this year, especially the many varieties of *Primula denticulata*, of which the dark purple is the most showy. *P. acaulis* has been later than usual in making a show, but as these plants are all well known, though seldom made the most of, and my notes are already too long, *verbum non amplius addam*.

C. W. Dod.

Edge Hall, Malpas.

Alstroemerias.—Anyone who believes in the shallow planting of *Alstroemerias* will this season have learnt a very expensive lesson. These plants are not to be regarded as safe unless planted fully 6 inches deep, and they will be even better at 8 inches deep. Many years ago I saw several hundreds of *Alstroemerias* killed outright by frost when only planted at 3 inches deep. I cautioned the planter at the time, who replied he had never lost any in previous years under similar treatment. The ensuing winter brought quite a new experience, and the *Alstroemerias* proved themselves unable to endure a maximum of 22° of frost. Some few even that were in boxes of coconut fibre and passed the winter in frames have this year been killed outright, while the plants in the open ground at the above depth are quite safe. These useful and highly ornamental subjects are best in a bed, or at least a spot by themselves, and not associated with the generality of perennials in the borders. My usual way is to take out the soil to nearly a foot deep, then to dig in abundance of cow manure, and return the soil to about 4 inches deep above that just manured, afterwards placing the tubers at this depth and covering in with soil. A useful addition immediately over the tubers, and a beneficial one also, is an inch of sand; thus treated they will be safe for years, requiring

nothing more than an annual mulch or occasional soaking of liquid manure.—E.

BORDER AURICULAS.

WRITERS on the Auricula seem to be so devoted to the cultivation of show or frame varieties adapted for the winning of prizes at exhibitions, that they seldom refer even in the most cursory fashion to those hardy varieties which thrive so well in our garden borders. Whilst we have had a rough bitter time for all plants, none seem here at least to have suffered so little as outdoor Auriculas. Doubtless, the native character of the family is to revel in frost and snow, for the hard weather and the snow did the plants no harm, whilst other presumably very hardy plants were nearly denuded of their foliage and suffered severely. The hard leathery nature of the leafage evidently renders it somewhat impervious to fog poisons and does not retain sooty discolorations. Even under the snow new leaves are being produced, so that very early in the spring the plants bear a pleasing aspect. Quite apart from blooming, the tufts of Auricula leafage have a very pleasing effect in gardens. Even in our stiff clay soil, which gets at times sodden with water, plants not only do well, but endure for several years, and if but occasionally lifted, divided and replanted, may endure for generations. But it is so very easy to have plenty of young plants from seed to maintain a stock, that it is hardly worth while to trouble much about old ones, except they be of more than ordinary merit. There is room for considerable improvement in the border Auriculas because of the comparative weakness of flower stem which characterises so many plants. Of course, it may be pleaded that house-grown plants have not that failing, but these exist under specially favourable conditions. Still, a very poor aspect would many of them present were they left to rough it out on the flower borders. Whilst plants are so hardy we need them to give us clusters of flowers of bold character borne on stout erect stems. I have observed that as the strains are now, many stems which seem bent and weak at first become more erect as the blooms develop. Still, it would be better could we get strains which have stems as stiff and erect as are those of the border Polyanthus. Hard breeding or selection, if taken in hand with that object, might eventually do much to produce the desired strain, but effort in that direction is greatly discounted, because there is in the popular mind an impression that Auriculas are only fit for pot culture, and can only be grown in greenhouses and frames. Admittedly that is true enough of the fine show and alpine forms, for most of these would bear a very woebegone aspect were they left to bloom outdoors, but well selected, hardy, free-blooming kinds are really very beautiful border plants, and well deserve wider recognition. Edged, laced, or shaded flowers of any description are less effective in the border than are rich coloured selfs. Good yellows, mauves, reds, and crimsons are best, and the more entirely self the flowers are the better. The blooms should not be too large; some are too much so, almost equalling in dimensions those now found on the Chinese Primrose. Stout, flat flowers of moderate size are better for outdoor production than are these very large ones, although some people appear to be much in favour of them. There are flower fanciers for whom nothing is too big, too coarse, or too gaily coloured. Auriculas make moderately stout growth from the seed pan. If seed be sown now and pushed along as rapidly as may be under glass, very fair plants to bloom ought to be produced by next spring. Once a stock is started, however, it but remains to sow more seed every year, and if then care be exercised in selecting seed from the most satisfactory flowers, the strain may in time be materially improved.

A. D.

Calystegia pubescens fl.-pl.—Those who have stumps, pillars, &c., to clothe should not fail to cultivate this handsome, free-blooming climber. Hailing from China, a south or south-west aspect will be necessary to ensure vigorous growth and to show the real

character of the plant. The soil used should be of a light rich nature, and abundance of water given when fairly established. If syringed every afternoon in hot weather, it will amply repay the trouble taken. The flowers are of a pale rose colour, double, and from 3 inches to 4 inches in diameter. If started under glass and planted out the second week in May, it will produce a grand display by the end of June. When the plant is cut down by frost, it should be carefully lifted and placed in a house from which frost is excluded and kept moderately moist throughout the winter. If desired to increase the stock, division of the roots can be made in February or early in March.—W. H. OGGETT, *The Gardens, Oakdene, Guildford.*

HARDY PLANTS AFTER THE WINTER.

AFTER the exceptionally trying and prolonged winter there will be greater need than usual to carefully go through the herbaceous borders to ascertain the extent if possible of the mischief caused by the frost. This will not be an easy matter, for daily I am finding vacancies and deaths where it was least expected, shattered remains in several instances where the hardiness of the plants had not for a moment been doubted, while in some few instances reputedly tender subjects have come through the trying ordeal without even receiving a scar. The usually mild and wet winters in this district have invariably played sad havoc with *Megasea ligulata*, while *M. crassifolia*, *cordifolia*, and the handsome variety *purpurea* in beds side by side have been uninjured, the former generally being rendered leafless. This time, however, it has bravely stood the test, and is now pushing forth its flowers.

The shattered condition of *Iris stylosa* has surprised me. Frequently I have seen this winter beauty when in exposed or open places suffer greatly from the cruel winds of March, but never have I seen the plants suffer to anything approaching the same extent as now. A few are quite dead, though the majority will break away again by-and-by. The bed on which they are planted is fully exposed to the east, hence the reason. It is frequently said that this should be planted in sheltered positions on account of the delicacy and chasteness of its flowers, but here is also another reason why sheltered spots should be chosen for this charming winter *Iris*. *Tritomas* generally have suffered considerably, and particularly those which flowered most freely last year, the frost appearing to have obtained a more direct influence on the stools through the medium of the hollow flowering stems. The varieties of *Uvaria* appear to be somewhat harder, and though shaken very considerably, may push forth breaks later on; indeed some I have examined are already doing this, and will soon be in need of encouragement. Such kinds as *caulescens*, *Macowani*, and others are not satisfactory for the general border, and should only be planted outside in warm sunny spots in the most favoured localities. *T. caulescens* grows with the greatest luxuriance in the Birmingham Botanic Gardens in a warm border against the conservatory wall, but whether it has stood the past severe test unprotected is doubtful; with me *T. Macowani* even in a frame has been killed outright. In a singularly striking manner have the various forms of *Helianthus multiflorus* suffered; many clumps have perished entirely, while *H. rigidus*, *latiflorus*, *scaber*, *doronicoides*, and others are safe. In the case of *H. multiflorus* and varieties, it will be best to see to these at once, and those who have convenience will derive benefit from lifting the old stools, detaching the living crowns, and planting them in good soil in boxes or pots to be ready for planting out again in good ground about the middle of May. Much time will thus be saved, and at the end of the season the reward of the assistance afforded to the plants now will be reaped. *Schizostylis coccinea*, which I was quite prepared to find quite dead, has weathered the storm—at least so far as the plants which were grown outside are concerned; while a quantity of the same from Guernsey planted in boxes and wintered in a cold frame has been killed with scarcely a single exception, thus showing that plants grown in a warmer spot will not endure such a winter even with frame protection. The her-

baceous *Lobelias* are also sufferers to a considerable extent, and will in many instances need replenishing. Geums generally suffer the loss of much foliage in these very hard winters, but usually break away freely enough when the warm days of spring arrive. But while we have to complain of deaths, other plants will be found better than usual; among these the fragrant Violets, which for years past have never been in so flourishing a condition with ample foliage and so crowded with blossoms as now. These in my case generally suffer because they are kept in constant excitement all the winter long by the mild weather usually experienced, and when the rude winds of March have done their worst there is hardly a green leaf to be seen; whereas now the whole of the varieties, single and double, grown here are in the most promising condition and full of flower-buds that a little warm sun will quickly expand.

The hybrid forms of *Pentstemon gentianoides* are all dead in the open ground, though they had occupied the same position for three successive winters. Some very fine clumps of these last summer and autumn were quite a feature, crowded with flower-spikes and nearly 4 feet across. When they pass the winter unhurt they constitute some of the finest of decorative subjects one could plant in the open ground. What is more, they bloom fully six weeks earlier than young planted stock, while the length of spike and size of flower bear no comparison. Now and then in severe winters they are killed, but the prudent grower will always have a few surplus plants in frames ready to take their places. Such things as this should be procured at once and planted without delay. A fairly rich and deep soil with plenty of moisture in summer-time suits *Pentstemons* well. I have advised planting these without delay, but the advice appears to need some modification. Plant at once provided you obtain autumn-struck and hardy grown plants, but if winter-struck cuttings, then grow them on in a frame for a month longer at least, and harden off gradually as the weather improves.

E. J.

MOSSING & POTTING BEDDING GERANIUMS.

THIS being the season for shifting on Geraniums and other bedding stuff out of their store boxes and pots, I would like to say a word in favour of mossing them in preference to potting. I doubt if this old, but nevertheless excellent, practice is as universally carried out as its merits entitle it to be, even by those who are situated in districts where Moss is plentiful. I admit that the mossing takes a little more time than does potting, but, on the other hand, I contend that the loss in this respect is amply repaid long ere they are finally planted in their summer quarters in the shape of infinitely less time and labour being necessary in watering and attention generally, leaving out the superior powers of plants thus treated and for withstanding drought during planting and subsequently. The plants having received no check, and bearing a mass of bristling roots, they grow away freely, without either the loss of a leaf or any signs of distress. Having thus justified, I hope, this system for the benefit of those who may have Moss at hand and have not yet tried it, but who are anxious to do so, I will endeavour to describe it. Provide a quantity of wood Moss, some fine soil, and rather wide matting in strips a yard long, turn a number of plants out of the store boxes or pots, then commence the mossing by placing a thin flake of Moss in the left hand, held horizontally, keeping the thumb free. On this, near the top, put a pinch of soil, place the plant on it, spreading out the roots, keep in position by putting down the thumb of the left hand on the stem, add a little more soil over the roots, then wrap up over these the lower fringe of the flake of Moss, taking care not to turn up too much or too high, or the stem will snap. In this way the soil and roots are neatly enveloped in the Moss. To keep it firm, take a strip of matting and tie in a similar way to that in which nurserymen tie up their pots when packing. From the foregoing it will be observed that during the operation the plant is held throughout in the left hand until

it is laid on the bench to tie the final knot. This is important, as by so doing only can materials and plants be kept together and in position.

As mossing proceeds, the plants may be packed closely together either in boxes or on stages, soil around them at this stage being unnecessary, if not hurtful. They may remain thus until the roots begin to peep through the Moss, when they can be placed more thinly in boxes, filling in among the balls of Moss with any light soil, or be plunged in frames or temporary pits in any light material, spent sawdust which has been used for bedding horses being what we use. They require but little watering, as the Moss and the materials they are plunged in retain moisture, occasional sprinklings to keep all moist and fresh for a few days after mossing, a good soaking, if dry, previous to their transfer to the pits, and two or three while there until planted out being all that is necessary. By this mode of treatment a stock of strong healthy plants will be ensured, the balls of Moss bristling with white fibrous roots ready to push into the fresh soil and to grow quickly and satisfactorily when planted out. In planting, the Moss should be left entire and undisturbed. Economically this system is also to be recommended as a saving of pots, expensive and breakable ware, as they are. J. R.

* * The plan recommended above we have practised largely, and found it both economical and satisfactory in every way.—ED.

SPECIES OF PRIMULAS.

I AM glad "R. D." has broken ground on this subject. Interest in it may advantageously be excited in anticipation of the National Auricula and Primula exhibition in April at the Drill Hall. Our society needs and deserves better help than it gets, and the paucity of cultivators of these lovely and easily grown plants is even more to be regretted than the small list of our subscribers. A plebiscite recently taken by the committee among cultivators with a view to determining the best dozen species of Primulas has had a result almost ludicrous, and which needs to be recorded as a warning for the future. The fact is—and we might have anticipated it—there are very few cultivators indeed who grow or even know all the best species and their varieties. In the "chorus" at Mr. Bob Sawyer's evening party (if I may be allowed to quote "Pickwick"), "every gentleman sang the tune he knew best, and the effect was very striking indeed." Similarly every cultivator "returned" the twelve good Primulas which he knew best, with such results as the following, that the coarse, if useful, Japanese Primrose figured high on the poll, while the superb, but scarce, *Primula ciliata coccinea* secured a single vote, and was well outside the dozen chosen. Naturally, we concluded to publish the list as recommended and to say nothing about the first dozen. The result of the poll on the Auriculas was as remarkable. The really best are those very scarce in commerce and so least known. The result was that the best were often thus at the bottom of the poll.

Allow me a note or two on the family, following "R. D.'s" observations. *P. rosea* is certainly a beautiful species, of the very easiest culture in any moist soil, and not thanking us for winter protection. The large-flowered variety is now so plentiful and cheap, that it only should be grown. It is a grand waterside plant, as seen, for instance, in Sir William Bowman's garden at Joldwyns, near Dorking, and, unlike most Primulas as choice, sows itself freely. There is no better or more easily-grown alpine Primula than the varieties of *P. marginata*, and the amount of variation in this species is very marked. *P. japonica*, already referred to, is a fine garden plant, but not a good exhibition species. I refer to it for the purpose of recommending it for growing under trees in masses. Thus I have seen it used with great effect both at Kew and in Mr. Burbridge's garden at Dublin. *P. obconica* and *P. floribunda* we now all know as simply invaluable greenhouse and winter-blooming species, but as having no pretension to hardiness. In my view, these tender and non-alpine

species should, for exhibition, be classified separately from true alpinas; and it might probably be well to constitute still a third class out of the larger and more herbaceous sorts, such as *P. sikkimensis*, *P. japonica*, *P. denticulata* and many others, all valuable as garden plants, but lacking the finish and chasteness of the true alpine species.

My friend Mr. Douglas exhibited last year the best dozen at the Drill Hall. Otherwise a beautiful set, they, to my thinking, lacked this quality of homogeneity, by reason of their inclusion along with beautiful hardy and European species of these flimsy oriental species. *P. sikkimensis* is very fairly hardy with me, though not, it seems, with "R. D.," but a period of two or three years seems the normal life of the individual plants, which, however, seed freely. *P. Clusiana* (evidently wrongly written *P. Censiana* in "R. D.'s" article) is among the best, and I think it worth while to remark the error, lest would-be cultivators should go astray.

I am hoping to send to the Drill Hall next month a few rarely seen and good hybrids (mostly of *P. minima*), should they bloom at the right time. *Primulas Heeri*, *Forsteri*, and *vochinensis* are among the best, and should be more often seen.

Guildford.

H. S. LEONARD.

HEPATICAS.

THERE is a singular charm—a modest beauty—in these delightful flowers, which is perhaps unequalled, surely not surpassed by any of our true harbingers of spring. In point of earliness, Hepaticas, this year at least, are before the winter Aconites, for these are only now, March 4, pushing through the soil, while the earliest flowers of *Hepatica angulosa* opened in company with *Galanthus Elwesi* on February 16. The forms of *H. triloba* are a fortnight later, and even now are not in their prime. They will require a few days longer with bright warm sunshine. These modest beauties have frequently—indeed almost always—to face the rude winds of March, drying them up perchance, or bringing in their train a pelting storm to rob them of their simple grace and beauty. As with most things, so with Hepaticas, there is a suitable place for them in almost every garden if only that spot is known and duly utilised. The spot which these Hepaticas love is a cool, partially shaded one where they can receive the protection of shrubs of evergreen character. Here they revel, frequently retaining their foliage all the winter long. A capital position for such things is as a carpet to a bed of dwarf American plants, where they will flower in early spring before the other occupants of the bed have hardly made a move, or again as a belting at the foot of a bank of *Rhododendrons* where they would be shaded and cool, yet still enjoy a free circulation of air about them. Those who possess fine banks of *Rhododendrons* should also possess fine clumps of Hepaticas for no place or position is better suited to them than this, particularly if a north-westerly position can be given them. I wonder who, knowing the results, would object to devoting a margin of 18 inches wide to these dainty treasures of spring, where they may quickly form handsome tufts and become a feature in the garden. In my early days when I knew these things as Hepaticas and nothing more a fine lot of plants existed in my father's garden, and I well remember some huge clumps with stools a foot through and foliage above 9 inches or 10 inches high that would surprise not a few to-day. Our garden was a sheltered one, the soil a rich, but not retentive clay, and here they did well; so did the Christmas Roses; indeed the two may be grown perfectly in one spot, or under the same conditions, side by side, just as they do in Nature, for frequently seedling Hepaticas spring up in the imported *Hellebores*.

It was always a noticeable feature with the Hepaticas I have just alluded to that they retained all their foliage through the winter, and wherever this occurs then may we justly say that the plants are quite happy and content, but in and around London they are almost always deciduous or nearly so, and this annual loss of foliage to the plants

is a loss indeed. Given a pure clear atmosphere, a partially shady spot, and a deep well-enriched soil, we have few plants that can add greater charms to any garden. At the present time I have several thousands in my charge protected with hedges of Oval-leaved Privet, and it is a noticeable fact year by year that those plants growing at the foot of the hedge, and consequently dust-dry all the summer long, have foliage twice as vigorous and considerably taller than the plants 2 feet or 3 feet away; in fact, there is a gradual diminution in this respect, the foliage becoming dwarfer as the distance from the hedge is increased. This is a very useful lesson and an excellent illustration of their actual need, and where abundance of healthy foliage exists, there also will you have fine crowns and plenty of flowers as a matter of course. Hepaticas are not happy when under the influence of smoke near large towns, yet while they cannot be grown with a full measure of success, they may, by giving their shade-loving propensities due consideration, still be grown to constitute very pleasing masses of their singularly beautiful flowers. They are certainly worthy of a lot of care, and such they assuredly well and fully repay. Where established clumps exist, it is well annually in autumn and winter to mulch the ground round about with some well-rotted manure or to give them copious applications of manure water, for the innumerable mass of roots they produce is not easily overdosed with such. In planting or replanting, Hepaticas are not very difficult to please, but they may safely be planted during March and April, and when flowering is complete they soon put forth new leaves and roots. By dividing them they may be increased to almost any extent, while seeds are also borne abundantly, and produce an interesting variety in many shades of colour. I always prefer to sow the seeds as soon as ripe in the open ground, covering them lightly and placing a slate or a piece of board over them to keep off birds and to likewise stay evaporation, to say nothing of other advantages arising from this simple plan. In the autumn or spring ensuing the seedlings will appear, when they will need attention and slight protection from birds and the like. In three years with good culture you will be able to see what is the result.

Since I began these notes, I see in THE GARDEN for March 7 (p. 221) your correspondent "A. D." inquiring the name of a particular early variety with deep purplish-blue flowers. The plant no doubt is a seedling, for we have few plants from seed more wonderfully varied than these, producing every conceivable shade of blue, purple, lilac, mauve, flesh-pink, red, rosy-crimson; also white with white stamens, and white with red stamens. There is also the fine sky-blue of *H. angulosa*, a species with rhizomatous underground stems, the foliage and flowers distinct and twice the size of those of the ordinary forms of *triloba*; while we may not forget the rich deep colouring of the old double blue. A double white I have never seen. The flowers are equally varied in form as in colour, the petals broad or narrow; the flowers either flat or cup-shaped, and so on; while collected plants present a wonderful as well as interesting variation. Much may be done by selection, and patches or beds in distinctive shades would be very pleasing. I doubt not I could find half-a-dozen quite distinct shades among our blue variety, just as we may in *Gentiana verna* or *Chionodoxa Lucilæ* find many intermediate and varying colours. "Black peaty soil," I may inform "A. D.," is about the worst material that could be selected for Hepaticas; they never attain their fullest vigour in this. They root quite deeply in our gravel-drained soil, the ground being well enriched with cow manure, which suits them admirably. E. J.

SHORT NOTES.—FLOWER.

Carnation Souvenir de la Malmaison.—"C. H. H." states in THE GARDEN March 14 (p. 233) that he thinks *Souvenir de la Malmaison* could be classed as a hardy Carnation. I had mine placed with *Snowflake*, *Gloire de Nancy*, *Raby Castle*, and *Mrs. Reynolds Hole*, but the *Malmaisons* were killed; therefore, I quite agree with J. Douglas that they are not hardy. Well established plants may stand a severe

winter better, but mine were recently potted and were all killed with the frost.—CONSTANT READER.

Puschkinia libanotica compacta.—A charming spring bulbous plant with porcelain-blue and white flowers; its perfect hardiness as well as the handsome spike of Squill-like flowers render it a lovely object for growing in sheltered nooks on the rockery at this season, or for pot culture in a frame.

Chionodoxa Lucilæ alba.—"White" varieties of rare species are too often not white, but whitish with as much blue in its composition as anything, but in the above, which was exhibited at the last meeting of the Royal Horticultural Society, we have a variety of the Glory of the Snow with blossoms of snowy whiteness, singularly pure and free from any tint.

Saxifraga Burseriana.—A very handsome form of this gem among Saxifrages came from the Royal Gardens, Kew, to the Drill Hall on Tuesday, March 24, being represented by a large patch with some four or five dozen of its handsome white flowers, rather more reflexed than is usually seen. I do not remember if any distinguishing varietal name was attached to the specimen in question, but it neverthe-

sufficient proof that they like the treatment. The house they occupy is a lean-to, which was formerly a Vinery, but which of late has been used as a Tomato house. Good sized plants of Tomatoes are brought along in pots so as to be planted out immediately after the Arums are removed, and by getting them into bearing early the fruits have all ripened by the time the Arum plants require lifting in the autumn. During the summer months the Arums are planted out between the rows of Raspberry canes and are never potted.—C. W.

STOVE AND GREENHOUSE.

HYACINTHS IN POTS AND GLASSES.

ALTHOUGH the present season of the year may not be the most appropriate time to enter into detailed methods of cultivation, it is certainly a most fitting time for alluding to Hyacinths in general. One of the chief things to be done at

only one size larger than that accorded to a single bulb, taking thereby less room, less soil, and a saving of labour also, for one stick would be ample instead of having to use three. When grown singly it must be admitted that there is a certain amount of uniformity about a Hyacinth, especially one with an extra large spike. This is not so obviously apparent in the case of triplets; this in many a case might be further lessened by just dropping a seedling Fern, such as *Pteris serrulata*, in the centre. A surface dressing of fresh green Moss is a decided addition to the effect in either case with less need of watering if the plants are in positions where this is not always the most convenient. More might decidedly be done in growing Hyacinths in trebles than is usually adopted, especially so when dealing with the cheaper kinds. Hyacinths in glasses are not, I think, so popular as in years gone by, but why should they not be? It is an interesting amusement, and one that is instructive also, to watch the development both of roots and top-growth from the start to the final completion. This is a method which might be adopted a deal more in towns where good soil is not always at command. It is decidedly to be preferred to using any mixture of doubtful quality, and further still, it is not possible to make any mistakes in the way of watering, any need in this respect being plainly visible. Hyacinths in ornamental glasses are available for many purposes to which it would not be possible to apply those in pots without additional trouble. G.

Magnolias in pots.—A few Magnolias in pots are very useful for mixing with other plants, and they give a nice perfume when opening their flowers. I find small bushes of many of the larger kinds, such as *M. conspicua*, if grown in pots, charming plants for a winter garden or conservatory. When any of the large-growing varieties are used for pot work, they may be planted out in sheltered places when too large. They will do well for years in pots if carefully looked after, repotting occasionally, and plunging through the summer and autumn months in an open sunny position. *M. fuscata* is a charming small-growing species, and invaluable for this purpose. It is not so hardy as the other varieties, but if used for house decoration, very useful, being fragrant and, when well grown, a free bloomer. There are also other varieties, such as *M. glauca*, with pure white flowers. *M. obovata* is another suitable kind for pots. Most of these shrubs being natives of Japan and North America, require a good open compost with plenty of drainage; if loam is used, plenty of decayed leaf soil should be used also, and coarse sand. For the Chinese species, such as *M. fuscata* and other slow growers, I prefer a peaty compost and similar treatment to Azaleas, hardening off before placing in their summer quarters, giving plenty of moisture and feeding to encourage a nice set of bloom for next season's work.—G. WYTHES.

Dutch bulbs at Holloway.—A very pretty display of such things as Hyacinths, Tulips, Narcissi, Lily of the Valley, and other things is just now on view at Messrs. Williams and Son's nursery. Amongst the hundreds of spikes now to be seen, one of course can only name a few kinds which are noteworthy. All the Hyacinths are single-flowered. Amongst whites I may mention *Mme. Van der Koop*, with very large bells of pure white flowers, making up a splendid truss; *La Grandesse*, very fine truss of pure white bells; *Mont Blanc*, a compact and excellent truss with large clear white bells; *La Franchise*, very large bells and splendid truss, French white; *Mme. Talleyrand*, large bells and fine truss, pure white. Amongst reds the best appeared to be *Charles Dickens*, a very handsome variety with rosy-pink bells; *Von Schiller*, with bells of a deeper pink; *Macaulay*, dark rose bells streaked with crimson; *Princess Mary of Cambridge*, bright rose, the bells streaked with purple, very elegant; *Prince Albert Victor*, deep crimson,



Hyacinths in pots and glasses.

less contrasted in a most remarkable manner with some of the more puny forms exhibited from other sources.

Saxifraga Boydi.—Here we have a gem of the first water added to an already fairly good list of early Saxifrages. It is evidently a cross between *S. aretioides* and *S. Burseriana*; the flowers, of a lovely clear primrose-yellow, are much larger than those of *aretioides*, and widely expanded like those of *S. Burseriana*. A handsome plant of this sterling beauty, from Messrs. Paul and Son, was deservedly awarded a first-class certificate at the last meeting of the R.H.S. A coloured plate of it appeared in *THE GARDEN* for July 5, 1890 (p. 10).

Planting out Arum Lilies for flowering.—The practice of planting out Arum Lilies in the summer months is almost universally adopted, and the general practice is sufficient proof that it answers well. Most growers repot their plants again in the autumn, whether they are required for cut flowers or for the decoration of greenhouses and conservatories. For the production of cut flowers alone it is by no means necessary to pot the plants. At the present time in the gardens at Broadlands a whole house is planted with Arum Lilies. Their fine healthy foliage and the abundance of flowers are

this season is to take notes of varieties for future reference in giving the next bulb order. The various shades of colour in the Hyacinth are so numerous, graduating upwards from the purest white to those of a pale flesh or pale blue or straw colour until more intense shades in each channel are reached. The various shades of yellow Hyacinths do not appear to receive so much attention as they deserve. Some of the prettiest of all are in my opinion to be found amongst the yellow varieties; they also last in good condition unusually well. There is, therefore, no lack of variety from which to choose, and it must be an unusual instance if any desired shade of colour cannot be obtained. By taking notes now one has not to depend upon memory, nor upon the descriptions given in the catalogues to such an extent as he would otherwise do. The methods of cultivation most in practice are those of growing the bulbs singly in pots; this no doubt answers well. It does not, however, follow that they should not be potted up three together in a pot,

large truss. Amongst the blues in different shades the best are Czar Peter, clear azure-blue, more or less tinted with mauve; De Candolle, clear bright blue, very fine large truss; Pieneman, very fine bells of rich blue, excellent truss; Queen of the Blues, rich azure-blue, fine truss; King of the Blacks, very deep purplish black, large truss. The yellows apparently require working up, but the following were good: Obelisque, with a fine truss of large citron-coloured bells; Ida, bells of deep yellow, fine truss; Bird of Paradise, fine spike of clear yellow flowers; Joost Van Vondel, pale yellow shaded with salmon. Tulips made a grand show. There were many varieties, the best of which were Kaiser Kroon, a bold flower, crimson-scarlet, broadly bordered with rich yellow; Joost Van Vondel, a superb white well-formed flower, perhaps the best white grown; Joost Van Vondel, rosy crimson flaked more or less with white; Proserpine, a rich rosy carmine; Ophir d'Or, fine large flower of a rich golden yellow; Van der Neer, clear violet, very fine; Vermilion Brilliant, a large bold flower of a rich crimson; Molere, large flower, rich purple; Standard Royal, a very fine white flower flaked with crimson. Narcissi were very fine, but there is much sameness in their appearance. Horsfieldi was very good, while Sir Watkin and Emperor well deserve special notice. —W. H. G.

ACACIAS FOR POT CULTURE.

ONE of the most frequent complaints made by those who remember indoor gardening as it was forty and fifty years ago is that plants which are difficult to grow are now neglected, especially in regard to natives of Australia and South Africa. Looked at, as most things are in these days, from the standpoint of utility, it is difficult to say why a plant which produces as good an effect with little trouble should not have preference over those which demand twice the care and attention. It is in obedience, no doubt, to this law of the survival of the most useful that the few species of Acacia at present in general cultivation owe their preservation. Easily grown, elegant in habit, as well as free and regular flowering, they possess advantages surpassed by few of our greenhouse genera. It is, however, surprising how few species are grown considering the large number that are available quite distinct from those at present in use and with qualifications quite as good.

The genus *Acacia* is one of the most widely spread, being found in tropical Asia, South America, Africa, and Australia. It is with the species from Australia alone that the majority of horticulturists are concerned, those from other habitats requiring more tropical treatment and being chiefly of botanical or economical interest. The curious development of the foliage in the Australian *Acacias* has been too often remarked upon to require much comment here. The properly developed leaves of all these plants are pinnate, often again sub-divided two or three times. When the foliage, therefore, appears to consist of simple undivided leaves, it may be inferred that such are flattened expansions of the leaf-stalk called phyllodes, serving in every way the functions of true leaves. *Acacia melanoxylon* and several other species show both phyllodes and true leaves on the same branch. The flowers of all the *Acacias* given in the following selection are of some shade of yellow (which, so far as I am aware, is the colour of all the Australian species); occasionally it is so pale as to be almost white, but usually of a lively and even brilliant tint. This characteristic does not in any way detract from their merit, the striking distinctions of habit and foliage and the differences in the method of flowering affording abundant variety. Notwithstanding the enormous number of species native of Australia (probably between two or three hundred), it is

only a comparatively small proportion that can be deemed of garden value. So many of them do not flower until they attain a size unsuitable for most gardens, that the range of selection is greatly narrowed. A score of species could be selected which would probably cover the ground so far as applies to the requirements and convenience of ordinary gardens. There is no doubt that *Acacias* are seen at their best when planted out in a well-drained conservatory border in a sunny position. In the temperate house at Kew many species are treated in this way, and it would be difficult to mention any greenhouse plants more beautiful than *A. pulchella*, *verticillata*, *cultriformis*, or *armata* are during the spring months. It is not everyone, however, who has facilities for this method of cultivation, and in the following selection of species I have confined myself to such as flower in a dwarf state and may be satisfactorily grown in pots.

A. ARMATA.—No *Acacia* is more generally cultivated than this, and certainly none deserves to be. It is turned out by the thousand from some of the London nurseries, usually in the form of bushy plants in 6-inch pots, flowering profusely. From this, up to as large a size as it is convenient to grow it, it is equally satisfactory. In addition to its profusion of bright yellow flower-heads and deep green foliage it has the recommendation of being deliciously scented.

A. LINEATA.—Next to *A. armata*, this species is probably the most popular. It is an old occupant of our gardens, having been discovered in the interior of New South Wales in 1817, and flowered in England shortly after. In habit it is very elegant, the slender branches being thickly furnished with narrow phyllodes about half an inch long. The flower-heads are round, and borne in great abundance in April.

A. DRUMMONDI.—This species, a native of the Swan River region, is one that should be grown in every garden. It produces true leaves, which are pinnate and of a deep healthy green. The flowers are pale lemon-yellow in colour, and are borne in cylindrical heads over an inch long. Grown from cuttings, pretty flowering plants may be obtained in two or three years. There are some finely grown samples of this *Acacia* now flowering in Messrs. Low's nursery at Enfield.

A. CORDATA.—Being of comparatively recent introduction, this pretty plant had not had time to become widely known or cultivated. It is one of the most distinct of *Acacias*, and I know of none to which it can even be compared. The branches are very slender and closely packed with tiny heart-shaped phyllodes, pale green, and not more than a quarter of an inch long. The flower-heads are somewhat flat and of the palest yellow; individually they are small, but so numerous as almost to hide the stems and foliage. It is easily struck from cuttings, and to show its free-flowering nature, I may mention that I have plants in 2½-inch pots struck last summer crowded with bloom.

A. PULCHELLA.—Throughout the whole range of greenhouse plants it would be hard to find one which combines to such a striking degree as this the beauties of flower and foliage. The leaves are small and several times divided, producing in the aggregate a soft, luxuriant mass of foliage as beautiful as that of any Fern. The flowers are the brightest and most pleasing shade of yellow, the flower-heads being borne in such quantities as to render the plant one sheet of colour. It is necessary to grow this *Acacia* up to 4 feet or 6 feet in height to obtain its full beauty, 10-inch to 14-inch pots being required. It was introduced from New South Wales in 1803.

A. UROPHYLLA.—This is a distinct and easily recognised species, the phyllodes being almost exact reproductions in miniature of the leaves of some species of *Smilax*. They are 1½ inches long, with three prominent longitudinal veins, united by transverse nerves. It was found by Drummond in 1843 in the Swan River region. The flowers are in

spherical heads and are pale yellow. On account of its susceptibility to fogs, it is scarcely suitable for the neighbourhood of London. Another name for it is *A. smilacifolia*.

A. ROTUNDIFOLIA.—This is a useful, free-flowering species and one of the earliest, commencing as it does to open its blooms in February. In habit it is distinct from any of the preceding, many of the branches being pendent. The phyllodes are, as the specific name implies, very much rounded, but terminate in an abrupt point. The flowers are bright yellow and in globular heads.

A. VERTICILLATA.—This species is the finest of a small and distinct group in the genus, all of which are distinguished by the short, needle-like phyllodes being arranged in starry whorls. Besides *A. verticillata* may be mentioned *A. echinula* and *A. bruniades*. *A. verticillata*, no doubt, is better adapted for planting out and being allowed to form a large bush, but, provided its growth is well ripened off in autumn, it will flower in 6-inch and 7-inch pots. If possible, however, it should be grown in those 12 inches or 14 inches across. *A. echinula* is a plant of more straggling habit, but in other respects almost similar. *A. bruniades* is of much dwarfer growth than either of the others, and more suitable as a shelf plant. These three species have bright yellow cylindrical flower-heads and foliage of the darkest green. They bloom during March and April.

A. PLATYPTERA.—Both in the fact of its flowering in early winter and in its curious winged stems this *Acacia* is distinguished from most others, although there is another called *alata* also with winged stems, but flowering in late spring. Both of them are worthy of cultivation, not only for the remarkable growth, but for their abundant flowers. In *A. platyptera* the wings stand out an inch or more at each side of the stem, persisting until it becomes old and woody. Those of *A. alata* are about half as wide, but the whole plant is of stiffer and more branching habit, and the wings are cut into numerous angles so as to form spiny points.

Other species that may be mentioned as suitable for growing in pots are: *A. lunata*, with yellow, almond-scented flowers; *A. vestita*, a beautiful plant with the flowers in dense compound racemes, 5 inches long, and 2 inches broad at the base. It was cultivated by Sir Joseph Paxton, and figured by him in the *Magazine of Botany*, but it is doubtful whether it is now in the country. *A. cultriformis*, which, however, does not flower in a small state, but has strikingly handsome glaucous foliage and slender pendent branches, and *A. strigosa*, one of the dwarfiest of all *Acacias*, with small pinnate leaves and bright yellow flower-heads, may also be mentioned.

All the *Acacias* mentioned above are of the simplest cultivation, the cardinal points being a sufficient supply of water and abundance of light and air during growth. None of them require more than a greenhouse temperature, and all will bear a winter temperature a few degrees above freezing point. They are thus very well adapted for houses where a difficulty is experienced in keeping up the heat during cold weather. They are benefited by being stood out of doors for a few weeks in late summer in a position sheltered from winds, but this is by no means necessary. It is an important point, however, that indoors they should have a sunny position. Young plants raised from seeds or cuttings may be potted in sandy peat, but afterwards a considerable proportion of loam should be added. During growth it is almost impossible to give well-rooted, well-drained plants too much water. They are benefited by occasional waterings with liquid manure. The propagation of *Acacias* is the only item of any difficulty. This, of course, is not the case where seeds are obtainable, and some of the preceding species, such as *armata*, *cordata*, and *lineata*, strike readily from cuttings; others, however, are more difficult. After the plants are pruned back, which should

be done immediately the flowers are past, young shoots will push forth in great quantity. When these are a couple of inches long they make the most suitable cuttings, but those of soft growth should be avoided, and a little of the old wood ought to be left at the base of the cutting. The soil should consist of finely sifted peat and silver sand in equal parts, and after the cuttings have been firmly inserted, the surface should be covered with a layer of silver sand. A bell-glass must be placed over the cuttings and the pot stood on a cool bottom in a close propagating frame. Every morning the bell-glasses ought to be wiped dry and the cuttings watered if necessary, but if well watered on being put in little more is required until they strike. B.

THE COCKSCOMB.

In years gone by the Cockscomb was far better grown than it is at the present time. In the neighbourhood of Edinburgh, however, Cockscombs are cultivated well. Occasionally we come across these plants in gardens, but by their appearance either the strain or the condition of the plant does not reflect much credit on the cultivator. It is rarely a good strain of seed is obtainable nowadays. A well made hotbed should be provided in the first instance, and careful management of such is also very necessary. Sufficient heat would have to be kept up to prevent the night temperature from falling below 70°. The present is a suitable time for sowing the seed, which should be placed thinly in a 5-inch pot, the soil used being equal parts of leaf soil and loam with sand. Cockscombs to be perfect must be dwarf; the depth from the top of the pot to the top of the comb should be little more than 12 inches or 13 inches. It will, therefore, be clearly understood how desirable it is to prevent the plants from becoming drawn even in the seedling stage. The seed pot should be plunged in the hotbed within a few inches of the glass, and if kept fairly moist and shaded the seeds will soon germinate. After the seed has germinated, it being so desirable that the little plants do not become drawn, the frame will have to be carefully ventilated. As soon as the seedlings are strong enough, pot off singly into 3-inch pots, potting up to the seed leaves. The same kind of soil as used for seed sowing, but in a rougher state, will be suitable, taking care that it is in a sufficiently warm state before being used, as cold soil would be likely to cause a considerable check. After potting off the pots will have to be plunged, and this is a very essential point. Indeed the plants will have to be plunged up to the rims of the pots until the combs are fully developed and grown to their fullest size. The plants will have to be carefully watered, and as the sun loses power in the afternoon, both they and the frame should be sprinkled over and the lights closed for about two or three hours, afterwards putting on a small amount of ventilation for the night so as to let off rank steam. I have seen it recommended that to grow Cockscombs well the plants will have to be kept potted on, so as to prevent the roots from becoming pot-bound, but this is a very erroneous opinion if the plants are to be kept dwarf. From the 3-inch pots repot into 4½-inch ones, the compost now used being two parts fibrous loam, one part leaf soil, and the other part well-decayed cow manure, with a fair sprinkling of charcoal and sand. When repotting, place the plants as low as possible. Return to the frame and push the plants ahead as much as possible, shade being only needed to protect the foliage from the hottest sun. The plants seem to revel in tropical treatment. At this stage it is a mistake to allow the roots to become in any way pot-bound; therefore as soon as ready repot into 7-inch or 8-inch pots, or even 9-inch to get the biggest combs. Take care that the pots are efficiently drained. Give very generous treatment, sprinkling and shutting up with abundance of sun heat, when the combs will swell rapidly. As soon as fairly rooted liquid manure must be applied, a top-dressing of sheep droppings also being beneficial. As the combs ad-

vance in size more ventilation must be applied, especially during the hottest part of the day. As the combs reach their fullest development gradually harden off, eventually placing the plants in a warm greenhouse or conservatory. At this stage the watering must be carefully performed, too much causing the stems to damp off. During the late summer and autumn months the plants are very effectively arranged in the conservatory. Instead of dotting the plants about, I arrange them in good-sized groups with the addition of Maiden-hair Ferns, this greatly adding to the effect and taking off the lumpiness or monotony of the group.

Abberley Hall.

A. YOUNG.

EARLY SPRING-FLOWERING GREENHOUSE PLANTS.

VERY instructive lessons are being set before us just now in respect to these by the groups which Messrs. H. Low and Co. and Messrs. Cutbush and Sons are exhibiting at the metropolitan meetings. Those who have to supply either a quantity of cut flowers or to grow a large number of plants for decoration will do well to take note of the plants now in season. It clearly shows that there is no lack of plants suitable for either of the above purposes, and which do not require forcing into bloom. There is no doubt a desire amongst many to have things out of season, so to speak; this can only be done by forcing. But why should this be thought better than relying more upon material which flowers in a natural manner? In reply I can give no other reason than that just indicated. Plants which flower about their proper season are possessed of far better lasting properties than any forced flowers can possibly have. I am not condemning forced plants on the whole; in a moderate way they are of undoubted value, but it is when too much reliance is placed upon them as a means of supply that the mistake is made. It may be urged that the plants generally used for forcing are more easily grown; this I will admit, but the fact is not creditable. Again, to succeed well with forced plants from year to year, proper attention must be given them after they are out of flower; if not, there will be the loss of at least one year for the plants to recuperate themselves. When a fresh stock is relied upon chiefly, of course more expense is incurred, and this is not often at one's command. I would rather raise the standard of cultivation as it pertains to Cape and New Holland plants. In doing so many young men would be made eventually far better gardeners; it would teach others, too, more of the art of watering plants in a proper manner, a point that is often found to be grievously lacking. Briefly alluding to greenhouse plants now in season, I would point out the great value of the Acacias, such as *A. armata*, *Drummondii*, *cordata*, *Riceana*, and other kinds. *Aotus gracillima* is a most attractive plant. *Boronia* supply excellent material, notably *B. heterophylla*, *elatio*, and the delicious scented *megastigma*. *Chorozemas* are most distinct and attractive plants. *C. Lowi* is a marked improvement, both in colour and freedom of bloom in a small state. *C. Lawrenceana* and *cordata splendens* are both good kinds. *Correa cardinalis* should not be overlooked, nor should *Genista elegans*, which is quite distinct from *G. fragrans*. *Diosma capitata* has pale lilac flowers, in the style of a *Pimelea*. The *Epa-crises* are simply grand when well grown, especially the newer kinds with finer bells and bright colours. The *Eriostemons* are another fine race of early-flowering plants. *E. buxifolium* and *linearifolium* are two excellent varieties. *Pimelea spectabilis* and its rose-coloured variety are two of the best of their class for early blooming. Of *Azaleas*, the early kinds, such as *A. Deutsche Perle*, *punctata*, *obtusata* and *amœna*, with the improved hybrids raised from the last variety, should receive more notice. All the foregoing plants are such as can be grown with ordinary care and attention, and none of them involve additional labour in the way of tying. I recommend the attention of plant growers to be directed to these and other early-flowering plants more than has been done of late years. They will afford variety, which of itself alone is most desirable, and far better than having a large

number of one given kind of plant, such as *Cyclamens* and *Primulas*. These latter are of undoubted service, but mere quantity in time becomes tiring, creating a desire for something fresh.

PLANTSMAN.

DECORATIVE PELARGONIUMS.

THESE useful greenhouse plants are invaluable for early forcing to furnish our greenhouses with beautiful flowers during the early months of the year, but I was not aware that certain sorts could be had in bloom from November onwards until I saw a charming white variety with a delicate rose blotch on the upper petal, named *Venus*, in the nurseries of Messrs. Cannell at Swanley. A group of this variety formed a striking feature in the nursery, every plant being furnished with many trusses in the month of February. This class of *Pelargoniums* came well to the front when the *Pelargonium Society* was in existence. The plants, grown and flowered in 6-inch pots, and which were annually exhibited, were models of skilful culture. The growers for market led the way in the culture of these plants. In recent years the decorative *Pelargonium* has not been a popular plant in the market; consequently, the growers have neglected it to a considerable extent. I called on one grower after the interest in this plant began to flag, and found that he was adapting himself to the changed condition of things. Where thousands of plants had been grown, I found an almost equal number of what he called *Paris Daisies*, which did not require so much expense to grow into a flowering size, and for these he could more readily obtain 18s. a dozen than he could 9s. for a dozen *Pelargoniums*. It is pleasant to hear that there are yet many growers of *Pelargoniums* who appreciate and cultivate the flowers for their own gratification and that of their friends.

Their culture is very simple, and anyone possessing a greenhouse may easily grow a few plants of the best varieties, of which I think *Venus* is the chief. I find the month of May is a good time to put in strong cuttings, one in the centre of a small pot. They may be placed at once on the shelf of a greenhouse and be carefully supplied with water. When they are fairly well rooted the plants may be repotted, and should be grown on freely during the summer, so that in the autumn they may be placed in 6-inch pots. They will flower finely the following season. They are strictly greenhouse plants, and do best when placed near the glass roof in a light airy position. They can be forced into flower early, of course, but as soon as the plants are placed in a close warm atmosphere, green-fly makes its appearance. The fumigating material must be in requisition at once. I noticed that Messrs. Cannell's plants which were so well flowered early in the year had been placed in a light, airy, span-roofed house, where the blooms were within a few inches of the glass roof. The most useful plants are those that can be grown in 6-inch pots, and young ones are best. They do not produce quite such dense masses of flowers as almost or altogether to hide the leaves, but they produce blooms of a better quality with the beautiful deep green leaves intermixed with them. There is something wanting, or an unnatural effect is produced when the leaves of plants are not as fully developed as the flowers. In no case ought the one to overgrow the other. The *Pelargonium* is much valued as an exhibition plant, and is better grown now in such provincial centres as York than it is in London—probably because better prizes are offered. An exhibition *Pelargonium* grown into a huge specimen 21 feet in circumference is more an object of art than a natural production, but the cultivator knows that if he is to win the race for the prize, size counts for something, and all other points being nearly equal, the largest is likely to win. What the exhibitor has to work for as much as the grower of small means who has only a villa residence and a small greenhouse is a clean, healthy growth. In some cases the plants are trained to a flat surface over which the trusses are arranged with the most regular precision, too precise to please those who love Nature rather than art in the garden. I fancy the time is

at hand when the promoters of flower shows will find it to be their best interest to give such prizes as will encourage more fully the natural growth of plants, and make the exhibition a school of learning both for amateurs and practical gardeners.

J. DOUGLAS.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS IN JAPAN.

THOSE who have followed the interesting series of articles on Japan by Sir Edwin Arnold in the *Daily Telegraph* must have noticed from time to time the many allusions he has made to the extensive way in which the Chrysanthemum or Kiku enters not only into the domestic, but the public life of all classes of Japanese society. In this country we have long been aware that the golden flower was a popular favourite in Japan, but until within the last few years there was nothing very definite on the subject to be found in English horticultural literature. As the cultivation of the Chrysanthemum gradually became more extensive, so a desire to learn more of its history and literature made itself manifest, and at the present moment every little item of news is eagerly welcomed by the numerous admirers of a flower that is probably more widely cultivated and more enthusiastically exhibited than any other that could be named. For some few years past the American, Belgian, French, and English horticultural press have published articles upon the Chrysanthemum in its native land, and some of the foreign shows have been attended by Japanese gentlemen experienced in Chrysanthemum matters for the purpose of giving lectures concerning the Chrysanthemum and its culture in the far East. At Berlin in the autumn of 1889 Dr. Watanbé discoursed upon the subject, to the delight of his German audience. At Orleans last autumn another Japanese assisted to lend *écot* to the show there, while at Ghent the Royal Agricultural and Botanic Society secured the friendly services of Mr. Yoshida, the secretary of the Tokio Horticultural Society, for the purpose of enlightening the Belgian cultivators of the Chrysanthemum upon the most approved methods of producing large plants and blooms of the autumn flower.

The methods of cultivation adopted by the skilful gardeners of the East have for their object much the same as their western colleagues, viz., large specimen blooms and large trained plants. In these they succeed beyond expectation, if we can rely upon the reports which are given, and Sir Edwin Arnold in his article previously mentioned would have us believe that there is nothing in England to be compared with the marvellous blooms that are grown by the Japanese. It is much to be feared, however, that these accounts are somewhat exaggerated, and it is an open question as yet whether there is any Japanese gardener, no matter how skilful he may be, who could so immeasurably surpass anything that our ablest English Chrysanthemum specialists are capable of producing. A fair test could only be made by placing the same varieties in the hands of both Japanese and English growers.

It must not be forgotten that the English travellers to Japan have not been Chrysanthemum specialists, and that, therefore, their accounts must be received with reserve; while as for the Japanese gentlemen who have seen Chrysanthemums only on the Continent, we can scarcely be expected to rely upon their opinion until they have actually been present at some of our leading exhibitions of Chrysanthemums. Leaving cultivation aside for the present, it may be conceded that the Japanese are quite as enthusiastic in the flower generally as we. The time of flowering is called "kiku-dzuki," and the festival of happiness is held on the 9th day of that month.

Sir Edwin Arnold alludes to the making of images with Chrysanthemum blooms, as Fortune and Folkard have before him. We have read somewhere that the inventive, or perhaps we should say the imitative, genius of the Japanese gardeners goes still farther, for Fuzi-yama, the celebrated

snow-capped mountain, almost invariably depicted in Japanese landscapes, is said to be sometimes represented with piles of Chrysanthemum blossoms. Exhibitions are held in great numbers all over the empire, and they have been held for hundreds of years. Indeed, it is said they were instituted by the Emperor Ouda, who reigned about the year 900 A.D. I am not acquainted with any representations—other than a photograph in my possession—of a Japanese Chrysanthemum show, excepting a small woodcut in a modern English book on Japanese art. In Japanese literature the beauty of the Chrysanthemum has been extolled by the poet on frequent occasions; the artist, too, has not neglected it. Mr. Marcus Huish, in his work on Japanese art, gives a quotation from the "Genji Monogatari," a romance written in the 10th century, as follows: "We read that the Chrysanthemums were in full bloom, whose sweet perfume soothed us with its gentle influence; around us the scarlet leaves of a Maple were falling; it was altogether romantic."

The style of nomenclature adopted by the Eastern gardeners, both Chinese and Japanese, is extremely curious and oftentimes fantastic. From several sources I have gathered translations of such names, some of which are appended hereto, viz.: Ten Thousand Times Sprinkled with Gold, Mountain Mist, Autumn Cloud, Flying Crane, Hand of a Devil, Mikado's Palace, Fountain of Milk, Light of the Moon, Heavenly Beauty, White Bird of the Moonlight, Golden Glory of the Hill, Sunrise, Moon in the Window, Golden Throne-studs, Yellow River, Abundance, Star of Six Hundred Rays, Prosperity, The Bridgroom, Nightingale's Delight, A Thousand Sparks, Rising Sun, Eye of a Snake, Stork's Crest, Queen's Fingers, Talons of an Eagle, &c. The foregoing are all Japanese, and include those mentioned by Sir Edwin Arnold, but besides these I have upwards of 160 Chinese varietal names of Chrysanthemums, many of which seem to be far more curious.

CHRYSAETH.

THE CHRYSANTHEMUM IN ART.

At the recent centenary conference held by the National Chrysanthemum Society, Mr. Haite read an interesting paper entitled as above, but the time allotted no doubt precluded him from dealing very fully with the subject. For some few years past I have been looking out for instances of decorative work in which the Chrysanthemum has been employed, and have been much astonished of late to find how frequently designers are now drawing upon the popular autumn favourite in all its sections as a subject to display their skill. I am not alluding to art work imported from the East, because it is well known how the Chinese and Japanese have for ages past used the Chrysanthemum in this way, but intend my remarks to apply more particularly to art workers in this country. Chrysanthemums may at the present be found plentifully employed in the decoration of not only art pottery, but even in domestic ware, such as dinner, tea, coffee, and toilet services, in cretonnes, tapestry, tiles for fireplaces, but perhaps to the greatest extent in wall papers. In the latter class some of the flowers are very beautifully done, and reflect the greatest possible credit on the designers. Of course the Japanese form is specially preferred, although occasionally the incurved section is called into requisition.

The designers seem in many cases to have friends connected with exhibitions, for there are not wanting examples of Chrysanthemums that for mural decoration would require to be hung in rooms of abnormally spacious dimensions, the flowers being simply imitations of huge exhibition blooms. Two of the most artistic patterns that have come under my notice are by Messrs. Chappell and Payne, of 11, Queen Street, E.C., and they are worthy of a brief mention on account of the beauty of execution and artistic merit in design. One is a handsome frieze 21 inches in depth, with two kinds of flowers freely interspersed with foliage, depicted upon a dark bronzy gold background. One is almost an exact counterpart of the well-known crimson Japanese M. William Holmes, and the other is a deep, full yellow incurved bloom, and

both natural size. The other sample represents a cluster of immense Japanese flowers on a shaded sky-blue ground. There are three varieties, all with long, curly, twisted florets, some being white, others yellow, and a third variety having petals of a purplish rosy hue. These blooms, where represented as fully expanded, measure from 5 inches to 7 inches across, and the artist appears to have successfully caught the bold dishevelled appearance that characterises so many varieties imported direct from Japan. It must be gratifying to all who love the Chrysanthemum to find it occupying so prominent a position at the hands of workers in art subjects.

CHRYSAETH.

Outdoor Chrysanthemums.—Amongst the notes which have appeared on the above, I have seen no reference to a good old kind which used to be commonly met with in some districts outdoors, and which was generally known as Dr. Murray, though I believe it was also known by another name, which for the moment I forget. It belonged to the small-flowered reflexed section and probably has been overlooked or perhaps lost, since Chrysanthemum shows and indoor-grown flowers have become so popular. It would stand no chance, on account of its small size, in competition with others of the large-flowered reflexed class, while it was not a true pompon, so could not be shown as such. In colour it was very similar to Dr. Sharpe. It was one of the hardiest Chrysanthemums I have ever seen, and would put up with treatment which most varieties would resent; in fact, one of the best and freest-flowering plants of it that I remember came up from year to year high up on a rockery, over the face of which (for it was of a spreading habit) it hung, forming a conspicuous object amongst the many other plants which surrounded it and struggled to choke each other. I have not seen a plant of this variety for several years, but it would be well worth looking up by any who are interested, or are making a collection of outdoor kinds.—J. C. TALLACK.

GARDEN FLORA.

PLATE 799.

THE EUCALYPTI.

(WITH A COLOURED PLATE OF E. LEUCOXYLON.*)

IN his valuable "Eucalyptographia," Baron F. von Mueller tells us that the Eucalyptus trees form the principal timber vegetation nearly all over the wide Australian continent, and for all ages the inhabitants of this part of the globe will have to rely largely, if not mainly, on Eucalyptus for wood supply. Unfortunately, only two or at most three species are at all suitable for the climate of the British Isles; indeed, repeated experiments have conclusively proved that not even the hardiest of these is able to withstand an unusually severe winter without protection. True, in Ireland and the Isle of Arran are some fine healthy specimens, but they are not to be relied on, as was proved by the total destruction of the grand specimens on Lord Maurice Fitzgerald's property in the county Wexford. Some of these trees were fully 60 feet high, bushy in proportion, and had been planted some fourteen years.

The Blue Gum tree (*E. globulus*) and *E. coccifera* may do well enough when planted out of doors for a number of years, but an unusually severe winter is almost sure to kill them, as in my experience they cannot withstand even 17° of frost. I planted out a large number of *E. globulus* near the banks of the Menai Straits, in Wales, and they did well enough and grew with amazing rapidity during the following two

* Drawn by Lady Macleay in Mr. Charles Henty's garden at the Chalet des Rosiers, Mentone, in May, 1890. Lithographed and printed by Guillaume Severeys.

or three unusually mild seasons, but on the back of this came frost only sufficient to allow of skating, and every specimen perished outright.

In "the garden of England" *E. globulus* fares no better, for some fine, fast-growing specimens, growing in sheltered sites and guarded from all rude winds and sudden frosts, tell us plainly of their unsuitability for the British climate. To the expense even of covering up and matting over an unusually fine specimen in the home nursery we gladly went, but our most sanguine hopes of success have been totally thwarted, for when uncovered the other day the leaves were shrivelled, though green, and the bark of the stem peeling off in great flakes. Such experiences are the opposite of encouraging, but lessons thus learnt are of great value and far more indelible on the memory than mere hearsay. It would be interesting to know whether the fine specimen at Powderham Castle and that at Tynningham, the fine trees in Arran, the south of Ireland, and in Cornwall have survived the late severe weather.

The various species of *Eucalyptus* are amongst the most valuable of foreign trees, for they not only produce excellent timber, but the resins and oils are of great importance.

Sir George Macleay, of Pendell Court, Bletchingley, Surrey, has kindly sent us the following notes concerning the *Eucalyptus* figured in the plate:—

The flowers and foliage here figured are those of a species of *Eucalyptus* (there unnamed) now growing in the garden attached to the Chalet des Rosiers, the beautiful property of Mr. Charles Henfrey at Mentone. This individual tree, according to the gardener, was raised from seed sown twelve years ago and flowered for the first time in May this year. It is now a sapling about 30 feet high. Though it evidently belongs to that section of *Eucalyptus*, the largest, tallest, and most unsightly of the family called the "Iron-barks," the young tree in question is particularly graceful in appearance, and when in blossom and waving in the wind is a very lovely object. I could not find it in the magnificent collection at La Mortola, which is particularly rich in *Eucalypti*, or hear of it in any other garden in that part of the Riviera. I have heard of Iron-barks with rose-coloured flowers having been seen in the forests between Paramatta, Liverpool, and Sydney, in New South Wales; but these trees were very rare, and I myself never saw but one specimen, and that was of such enormous height as to baffle accurate observation. It is certainly not *Eucalyptus ficifolia*, the much-admired crimson flowering Gum Tree of Western Australia; the foliage is altogether distinct.

A. D. WEBSTER.

TREES AND SHRUBS.

LITTLE-KNOWN SHRUBS.

ALTHOUGH, perhaps, easily enough accounted for, still it does seem somewhat strange that not a few highly ornamental shrubs are so little known. Information regarding such—their names, habit, flowering qualities, and hardiness, as also soil and situation best suited for their individual wants—is what is undoubtedly first wanted so as to create a desire for possessing them. Unless from the curator of some botanic garden or the more highly initiated in shrub culture, rarely does the nurseryman get an order for any of the more uncommon kinds, and thus are the numbers of them limited, for where no demand exists propagation of the particular species is not undertaken to any great extent. How many beautiful and rarely seen shrubs outside the confines of a botanic garden may be met with in some of our public nurseries, but there they are only grown as specimens, or at

most in very limited quantity, for the small demand for such will not allow of a big stock being kept on hand. Even the pretty

CLERODENDRON TRICHOTOMUM, with its loose spurs of creamy white flowers, large acuminate leaves, and conspicuous rosy or, perhaps, rosy purple buds does not receive a tithe of the attention that it well deserves. Being perfectly hardy, of very free growth in most soils (I fancy it likes a light sandy peat), and decidedly ornamental, it is to be hoped that the demand meted out for it will be the cause of its more extended propagation in the future than has been the case of late.

PARROTTIA PERSICA is another shrub that is little known, although quite hardy and decidedly ornamental. Even the dying-off leaves have a wealth of glory in crimson and orange. The flowers are, perhaps, not of first importance, they being of no gaudy tints, though produced in great abundance on old specimens.

PLAGIANTHUS LAMPENII, with its rich abundance of white, or rather greenish-white, and deliciously fragrant flowers, needs no recommendation here, for everyone who has seen the plant is tempted to procure a specimen. It is not well known, however, but certainly should be, for a more ornamental wall plant it would be difficult to name. I think it is quite hardy; at least it is so in the more favoured parts of these isles. Not greatly inferior in point of floral beauty to the well-known Snowdrop Tree (*Halesia tetraptera*) is the new and far from common

H. HISPIDA, a shrub of exquisite beauty, and a decided acquisition to any collection. That it is quite hardy has now been satisfactorily proved, while the great abundance of snow-white flowers must soon bring it to the front rank as a desirable and much-to-be-coveted garden plant. Of the freest growth and simplest culture, it is a plant for the amateur.

BACCHARIS PATAGONICA is the favourite of all who see it, the pleasing green leaves and showy white flowers making it a conspicuous plant wherever placed. It has proved tolerably, if not quite, hardy, and should therefore be included in every collection of shrubs.

HYDRANGEA PUBESCENS is a worthy rival of the better-known and popular *H. paniculata*. The pubescent form is quite hardy, of free growth, and a prolific bloomer, all merits that are sure to attract attention. It is a Japanese shrub, but not for that reason one whit less hardy than if its habitat was in a colder and more northern climate. It deserves notice at the hands of those who are not content to rest satisfied with our present commoner species.

ANDROMEDA ARBOREA is a too seldom seen shrub, and yet one of the brightest ornaments of any shrub border. The brightly tinted bark, ample deciduous leaves, and wealth of distinct white flowers will sooner or later bring it into notice. Being of free growth, too, and tolerably hardy still further enhance its value.

THE CHILIAN NUT (*Guevina Avellana*) is another free-blooming and unusually handsome shrub, or rather small tree, for it is said to attain to 25 feet in height in its native wilds, and possesses features which render it very distinct and uncommon. Whether it will yet prove hardy I know not, for very few specimens have been experimented with, although in the south of England it has stood unharmed for a number of years and without being afforded any protection.

PRIVETS would be discarded by most persons as by no means ornamental shrubs, but yet I can assure such that some of the more uncommon species are plants of real sterling merit, and well fitted to take their place even beside the choicest occupants of this somewhat selected list. *Ligustrum sinense* nanum is a shrub which for wealth and purity of flowers would be hard to beat. It is of very neat habit, easily grown, and a decided acquisition wherever planted. *L. Iota* is another sweet little shrub with neat foliage and a compact habit, every branch being tipped with showy white flowers. It is well deserving of further notice. There are several other little known, but decidedly ornamen-

tal species of *Ligustrum*, and which, if the name Privet did not frighten most persons, might be dwelt on for a little.

FORTUNE'S FORSYTHIA (*F. Fortunei*) is a decided improvement on the old and better known *F. viridissima*, and as it appears to be quite hardy around London at least, should be taken in hand by lovers of uncommon hardy shrubby plants. The flowers, thickly produced as they are, are of a deep yellow, but prettier and of better substance than those of the yellow Jasmine, which, unless in point of size, they otherwise resemble. Pruning improves this, as it does all, or nearly all the members of the family. It is to be recommended as a first-class hardy, free-flowering shrub.

HABROTHAMNUS CORYMBIFLORUS, with its rosy lilac flowers, only needs to be seen to be admired. Free-flowering, quite hardy, unless in the colder parts of the island, and of easy management, this distinct and desirable shrub will soon rise in public estimation when more frequently brought into notice.

EMBOTHRUM COCCINEUM is not, perhaps, a stranger to every garden, but for all that it is far from well known or grown in the quantity that its merits entitle it to. The splendid leaves, large and bright of surface, and unusual scarlet flowers are at once great recommendations. It is here quite hardy and needs no special care or trouble in cultivation.

These are a few of many hardy free-flowering shrubs, and which from their rarity in most gardens we cannot but consider as little known species. Some, no doubt, would be more plentiful were they better known, and I think it is a pity that the better and more desirable kinds are not figured in greater numbers in our gardening papers than is now the case, for this above everything would ensure their popularity. Owing to having been lately introduced, a few of the above have not yet had time to get spread about, but that they must be so is simply a question of time. An ornamental shrub needs no more room nor care than some of our common, everyday species of no special merit, so by all means in planting select a good one.

A. D. WEBSTER.

Escallonia Phillipiana.—The different species of *Escallonia* in our gardens have suffered greatly in many places during the winter, but though difficult, in fact well-nigh impossible, to ascertain the extent of their injuries at present, there appears little doubt that the above-mentioned species is by far the hardiest of them all. Besides this, it is in every respect very distinct from the other members of the genus, and a most valuable little summer-flowering shrub. It is a free-growing, rather spreading, much-branched bush, with small dark green foliage, and is soon after midsummer so thickly studded with its little white blossoms, as to form when in full bloom quite a mass of that tint. Despite its many desirable qualities, this *Escallonia* is still very uncommon, though introduced by Messrs. Veitch from Valdivia about eighteen years ago. It is by no means particular as to soil or situation, but succeeds best in a fairly open loam that is at all seasons moderately moist. It will grow where pretty well shaded, but to ensure a display of flowers a moderate amount of sunshine is necessary. Cuttings of the weaker shoots put into a cold frame towards the end of summer strike root without difficulty, and by this means the *Escallonia* in question can be readily increased.—T.

Lonicera Standishi.—Though very much later than usual in expanding, the highly fragrant blossoms of this *Lonicera* are none the less welcome; indeed, during the sunshine of a bright spring day their delicious perfume is even more pronounced than it is earlier in the year. A considerable amount of confusion exists between this species and *Lonicera fragrantissima*, both of which bear white blossoms, and both flower in the winter. There

are a few well-marked features by which one may be readily distinguished from the other; thus *L. Standishi* is of quite a shrub-like habit, forming a somewhat erect growing bush, with leaves that are hairy on both surfaces when young, but when mature almost smooth on the upper side. The foliage of this is deciduous. Though it may be grown as a shrub in the open ground, this Honeysuckle is also a first-rate subject for training to a wall, where it will go up to a height of 8 feet or 10 feet and in such a position the flowers are better protected from very sharp frosts than if they were in the open ground. *L. fragrantissima* is more of a climber than *L. Standishi*, and differs also from it in the leaves being smooth on both surfaces and retained on the plants more or less throughout the winter. While the number of winter-flowering shrubs is very limited, a somewhat singular fact is that the blossoms of most of them are highly fragrant, there being, in addition to these two Honeysuckles, the Japanese *Chimonanthus fragrans* with its starry blossoms, which emit so agreeable a perfume, and the different forms of the *Mezereon*, which have been in most cases and in some still are profusely laden with blossoms.—H. P.

THE WEEK'S WORK.

THE FRUIT HOUSES.

FIGS.—These, in common with all other fruit trees, are remarkably productive this season, and the earliest crops are swelling up fast. If extra fine Figs are required, then ought the fruit to be freely thinned out, this being especially the case with those trees in pots and tubs. Where, however, the roots are less restricted, a heavy crop will do the trees good, this having the effect of checking gross unfruitful growth. Thin training is necessary in every instance, crowded shoots rarely producing many Figs. No harm will be done by cutting or thinning out branches at this late date, or now that it is seen they are spoiling each other. Those trees or bushes started early in the year will, if kept in heat, produce a second good crop of fruit, and in favourable seasons even those not yet far advanced will yield abundance of small fruit, these in the autumn being of delicious flavour. The earliest growths may well be stopped at the fifth or sixth joint, this favouring the second crop, but it is not advisable to stop the shoots on later trees, or the succeeding growths may be too late to mature properly, next season's crops being poor accordingly. Those with their roots at all confined should be very liberally treated now, top-dressings of turfy loam and good manure with bone-meal added being given—subsequently mulchings of manure only—these in addition to acting as a fertiliser also serving to keep the roots active near the surface. Keep all well supplied with water and liquid manure at the roots, and syringe overhead freely every morning and again when the house is closed early in the afternoon, also damping down frequently. The earliest house should be kept at from 60° to 65° at night with an increase of from 10° to 15° during the day, the highest figures being with sunshine. Admit a little air somewhat early in order to make the young growths firm and the leaves stout and serviceable.

PEACHES AND NECTARINES.—The progress made by these has been somewhat slow, and the more advanced flowers in unheated houses have actually been damaged by frosts. Few care to use the syringe very freely in cold sunless weather, and as a consequence of this and the slow growth of the trees, insect pests, notably red spider and green-fly, have in some instances put in an appearance. Unless these are kept under, the trees must suffer in health, both the present and very likely succeeding crops suffering in consequence. A free use of either the garden engine or the syringe, soft or softened water if available being used, will usually check the progress of red spider, while gentle fumigations with tobacco paper, or any substitute for the same, will destroy green-fly. The black-fly is not so easily got rid of, tobacco fumes merely causing many of them to drop off, only to ascend to the foliage again.

Winter dressings, or rather syringings with hot water and petroleum, are the best preventives of black-fly, these reaching any that are hibernating in the soil below. At the present time no insecticide is safer or more effective against them than tobacco powder. The clusters of young leaves should be opened somewhat, damped, and then have tobacco powder well puffed into them. Syringe off the powder in the course of a few hours. If this treatment is persevered with, the black-fly will soon disappear, but if this pest is not so grappled with, it will quickly ruin the trees. High temperatures ought to be avoided, especially if these necessitate turning on much fire-heat. Up to and during the stoning period the night temperatures may range from 50° to 55°, increased to 60° and 65° with air in the daytime, a further advance to 80° for a time after the houses are closed being beneficial. During the final swelling off of the fruit the temperatures may safely be increased from 5° to 10° all round. Keep late houses as cool and airy as possible, in order to retard the trees.

THINNING THE CROPS.—It is a great mistake to long delay thinning the crops of Peaches and Nectarines, nor is it wise to remove very many fruits at one time. Soon after the flowers drop or fade, a good syringing should be given in order to clear the trees and fast swelling fruit of the dead flowers, and what the syringe fails to dislodge ought to be cleared with the hand. Supposing there has been but little bud-dropping and the fruit appears to have set freely, all the worst placed of these or any in a bad position for swelling off may well be removed at once, and the rest lightly thinned out at short intervals. A considerable number more than will ultimately be required ought to be left on the trees, as it sometimes happens that the set has not been so perfect as imagined, many of the fruit reaching the size of Horse Beans, and then refusing to swell any more. A few or many may also drop during the stoning period, but leaving a great number on the trees in anticipation of this evil is one of the surest ways of inviting its occurrence. Better by far to thin out freely and finally when the fruits are about the size of small Walnuts, as the trees' energies will then be concentrated on the maturation of those reserved. It is when too much is attempted that most failures occur. It is a difficult matter to state off-hand what constitutes a good crop, so much depending upon the age and vigour of the trees, and also upon the root treatment. A heavy crop frequently does extra vigorous trees more good than harm, excess of vigour being one frequent cause of bud-dropping in the spring. Many strong young trees may safely be left to perfect a fruit to every 6 inches square of surface, but others not so strong must not be thus heavily taxed, especially if fine samples are required. One fruit to every 12 inches square of leafy surface is nearer the mark in this case, the happy medium being perhaps more often allowed. Seeing how much more valuable highly coloured Peaches are than pale ones, it behoves those responsible to leave as many of the fruit as possible, on the upper surface of trees trained over semi-circular trellises and also up the roofs, while those reserved on wall trees should face outwardly.

MELONS.—These are usually put out on little mounds of strong loam, these being rammed as hard as possible. With the aid perhaps of a brisk bottom-heat and genial surroundings the plants make good progress, the roots being active on the surface as well as below. When, however, no subsequent additions of loam or loamy compost are made the surface roots soon disappear, while later, those deeper running also suffer for want of moisture, it being next to impossible to keep these hard mounds properly moistened. The plants under these conditions may produce fairly heavy crops, but usually collapse before these are properly matured. In order to have fine well-flavoured Melons there must be no drying off or loss of the roots and foliage, and the best way out of the difficulty is to either plant on flat-topped ridges enclosed, it may be, with either turves or loose bricks, or else to surround the mounds first formed with more soil, so as to gradually bring up to a flat-topped ridge. The heat being well maintained, the roots spread

into the fresh soil quite as freely as Cucumbers do under similar circumstances, and being also more easily and more frequently supplied with water and liquid manure their activity is maintained. Plants rooting strongly are more easily kept free of red spider, and will, therefore, if required, produce second and third crops. In any case the collars of the plants must be kept up high and dry, or otherwise they are liable to canker. Fibrous, clayey loam, to which newly slaked lime at the rate of an 8-inch potful to one barrow-load of loam is added, suits Melons well, and bone-meal may with advantage be added to any of a poorer nature. A brisk bottom-heat of about 80° is still advisable, and the top heat may well range from 65° to 70° by night, increasing to 70° and 75° in the daytime, another 10° being allowed with sunshine and air, the houses being closed early and plenty of moisture distributed. If more seed is sown now, the plants resulting should produce ripe fruit early in August.

CUCUMBERS AND MELONS IN FRAMES.—These have had a very bad time of it, the plants being almost at a standstill during the greater part of the month of March. So sickly do they look, that in the case of Melons, at any rate, it would probably pay better to root them out and make a fresh start with a new hotbed and healthy young plants. The least that can be done is to undermine the old hotbeds and to work in some well-prepared stable manure, a moderate lining all round also being given. This may put new life into the plants, and rapid progress be made. The trial sticks must, however, be frequently examined, or the linings may become too hot and injure the roots of the plants. Give a pinch of air to the frames directly the sun reaches them, and a little more towards 11 a.m., this being better than having to admit much more at one time. If there is much steam in the bed, a chink of air must be left on during the night, and in any case cover heavily with mats and litter, though not to enclose dangerous heat and steam. It is during April and May when most frames and pits are at liberty, and in anticipation of this more plants should be raised, preferably in frames on hotbeds, the seed being sown thinly in 3½-inch pots. Prepare also a good heap of stable manure and leaves for hotbeds. **PRACTICAL.**

THE KITCHEN GARDEN.

MAIN CROP CARROTS.—The Carrot delights in a deep, warm, and fertile soil. The soil requires to be deeply worked, but should not have been recently manured, as fresh manure tends to render the roots forked. The ground having been deeply worked and laid up to the action of frost, it must be levelled down, and would be greatly benefited by a good dressing of well-burned garden refuse and soot. This latter is especially valuable where the grub is known to attack the roots. Where the grub is known to be troublesome, a slight dressing of gas-lime applied to the plot in the autumn would prove of the greatest advantage. Old garden soils rich in humus would also be greatly benefited by applications of fresh slaked lime, this improving the texture of the ground wonderfully. The ground having been prepared, it should be trodden equally over. Any time after the first few days of April when the ground is in suitable condition should be selected for sowing, and I would sooner wait until the end of the month than sow when the ground is not in a suitable condition. The plot intended for the crop should be marked out in drills not less than 12 inches apart and 1 inch in depth. The seed should be sown thinly. As soon as the seedlings are through the soil the ground must be carefully hoed over, this stimulating growth. Thinning must take place gradually, eventually thinning out to 6 inches apart. The smaller growing varieties, such as the Short Horn, may be thinned out as required for use. There are now some excellent selections of varieties, especially of the Intermediate. On shallow soils it is as well to rely more on the stump-rooted varieties. On deep soils previously well prepared the Altringham and Long Surrey types are to be recommended.

EGYPTIAN TURNIP-ROOTED BEET.—Except for an early supply, I do not advise any Beet to be

sown as yet, for if sown at this early date, the roots, if they do not run to seed, as they often certainly will, are of such a coarse and ugly description that they are worthless. For early sowing, the variety above-mentioned should be selected. The soil for the production of Beet should be of the best description, for although the roots may be right enough as regards size, on poor soils the texture is woody and the flavour anything but palatable. The ground should not have been recently manured, this favouring the production of coarse and ugly roots. A plot that was well manured last season for a crop would be in a suitable condition this season for Beet. Salt is an excellent fertiliser for Beet, an ounce to a square yard being a fair dressing. This is best applied previous to getting the ground in order for seed sowing, it thereby being more equally mixed with the soil. The seed should be sown in drills 15 inches apart and 1 inch in depth, and the germinating power is hastened by soaking the seed in water twelve hours before sowing. Sow thinly, or two or three seeds may be dropped at intervals of 6 inches.

VEGETABLE MARROWS.—Where there is convenience for growing on the plants when large enough seeds may well be sown now, but unless this is the case the sowing had much better be deferred. More often than not where the plants are raised early, they are starved in pots, with the result that their vitality is considerably weakened, and even when set out, the plants are very slow in starting into growth, and it is late in the season before the fruits form. Vegetable Marrows raised early come in readily for planting in any spare frame which may have been previously utilised for Potatoes or any other early vegetables. If the frames should not just then be ready for planting out the Marrows, a few roots in the centre may easily be removed, when the Marrows may be planted. Sometimes the plants are put out on what is little better than heaps of raw manure, and although on such material they make a free growth, the produce is anything but satisfactory, the fruits turning yellow and dropping off instead of advancing to maturity. What we may term spent hotbeds is a good position for planting, and the foot or so of soil employed for the previous crop forms an admirable rooting medium for the Marrows. The plants may also be put out on prepared mounds by excavating a space 4 feet square and 18 inches in depth and filling up with fermenting material or even old manure, the whole being well trodden in and surfaced with a foot of good soil. On these the plants when ready may be planted out under handlights. For plants that cannot be protected when planted out, the sowing had better be deferred until the latter end of the month. Good produce may also be procured by sowing in the open in May on a prepared bed and covering with a handlight.

RIDGE CUCUMBERS.—These may be raised and treated much in the same way as Vegetable Marrows, but instead of planting separately on a mound, the plants should be set out 3 feet apart, either on spare hotbeds or a ridge bed prepared for the purpose.

Y.

PLANT HOUSES.

GREENHOUSE CLIMBING PLANTS.—Without climbers for furnishing the roofs of plant houses, which are of only moderate size even, there is a bare, barren appearance. This can be overcome in nearly every instance by the exercise of a little ingenuity on the part of those in charge. If it is not possible to plant out in borders, then either large pots or tubs must be depended upon, in which way, with good attention given to watering, very good results may be obtained. In conservatories, planting out is decidedly to be preferred wherever possible, as better and more enduring growth is thereby made. This is a good time of the year for seeing to this sort of work just before growth commences in earnest. When planting out see that a good amount of drainage is secured, but do not for the first season or two provide too great an amount of soil, otherwise some portion of it will probably become sour before the roots reach, or at least penetrate it. It pays in every instance to provide good soil for these permanent subjects. Do not, however,

depend too much upon peat; some is needed in many instances, but a small proportion of loam will tend to keep the soil in better condition. The plants should be chosen in accordance with the requirements, whether for the roof or pillars, or for a cool house, or one slightly warmer. For roofs the Tacsonias and Passifloras, *Solanum jasminoides* and *Mandevilla suaveolens*, also climbing Roses, are all suited to sunny aspects in a cool house. *Lapageria rosea* and *L. alba* prefer more shade and a rather moist position where the frost is just excluded. For a warm greenhouse or conservatory, the Bignonias, the Jasmines, *Plumbago capensis*, *Bougainvillea glabra*, *B. spectabilis*, and the Tacsonias are all appropriate. For pillars or arches, *Habrothamnus elegans*, *H. aurantiacus*, and *H. scaber*, with *Lonicera sempervirens* minor, *Acacia Riceana*, *Clematis indivisa lobata* and *Chorozemas* in variety are all good selections and suited to a cool house, omitting the last two genera for a warm one, using *Hoya carnosa* instead. Before planting out examine closely for any insect pests, for if any of these once gain a foothold upon climbers there is a deal of trouble and annoyance in store. It pays to be extra cautious in this respect; climbers become unpopular with some for no other reason. When very rapid growers are required, *Cobæa scandens* and its variegated form should be chosen, and if a wall has to be covered, the *Heliotropes* should not be lost sight of. For a very damp or shaded place, *Ficus repens* could be chosen, whilst in the way of foliage plants there are the climbing varieties of the African Asparagus and the light and elegant climbing Ferns, *Lygodium scandens* in particular. With such a selection there is no excuse for leaving the roofs and walls bare any more than is absolutely necessary.

SOFT-WOODED GREENHOUSE PLANTS.—Where the room is much limited some relief may be now afforded by removal of the hardier plants to pits and frames where the frost can be excluded. Calceolarias, both shrubby and herbaceous, will now do infinitely better in cold, moist pits than in houses which are very airy. In this way they can be specially treated to suit their particular requirements. If very much exposed to sunshine they will need a slight shade soon; this will be better than giving an extra amount of air. Any, but more particularly the herbaceous section, which have now filled their pots with roots will stand in need of another shift; this will be far better than letting them stand over to flower as they are. Only just a shift should be given, every care being taken not to damage the leaves. Cinerarias for late flowering should now be kept in frames or pits, and if a north aspect so much the better for retarding them. This portion of the stock will be found useful just before the Calceolarias come into flower. Keep a watchful eye for green fly, and fumigate immediately any are seen. Autumn-sown intermediate Stocks should now be potted on into pots one size larger; these will now grow away freely and be found useful when in flower. Cuttings of Chrysanthemums put in now will make very useful decorative plants. This applies equally to the early-blooming varieties as to the later sections, to the singles, the pompons, and large-flowering alike. In my own case I have been struck with the rapid growth made by spring-struck cuttings, particularly of the early kinds. In every case where dealing with plants now well rooted see that plenty of air is given to keep them as dwarf and robust as possible. Where cuttings of winter-flowering Carnations have not struck so well as usual, layering should now be followed up to save time; fairly good plants may even then be had before the season is far advanced. Those struck and not potted off should not be any longer left in cutting pots, but placed singly in small pots, being kept close for a few days and then hardened off, so as to stand in a cold frame near the glass. If seed of the newly introduced *Marguerite* type of Carnations has not been already sown it should not be any longer deferred. Sow in a gentle heat, and as soon as above ground gradually harden off, guarding against drawing the young plants up in a tender manner. By taking this precaution, a close stocky growth will be maintained, which is an

essential point to aim at. This race of Carnations bids fair to be of extreme value for autumn flowering.

HARD-WOODED GREENHOUSE PLANTS.—**EPACRIS.**—The earlier flowering varieties will now be past their best; these should, therefore, be pruned as soon as possible, so that the growths may come away as evenly as can be. If they have been much used for cutting, some of the wood from which the spikes were taken will be already breaking. If in cutting the spikes the wood was severed sufficiently low, no further pruning to those shoots will be needed; otherwise, they must be cut back. It is not necessary to leave more than an inch or so for breaking out afresh. If left too long, the plants will in a few years become leggy and consequently unsightly. When pruned, they will break better in a moist atmosphere, such as a vinery just pushing into growth. In the course of a week or ten days' time, potting should be seen to wherever necessary. This does not require attention every year; in fact, if done well when done and good peat used, extra-sized plants will not want disturbing at the roots more than once in about three years. Avoid over-large shifts; oversight in this respect is the bane of hard-wooded plant culture, unless in the most experienced hands. As soon as others which are now making a good display can be spared, treat them likewise so as not to lose more time than can be avoided. The later varieties—represented by the *E. miniata* section, of which *Eclipse* is one of the finest—should not be pruned like the others, but the stronger wood tied in, merely pinching out the points of strong growths.

The winter-flowering *Ericas* will now have ceased to be of any service. These, such as *E. hyemalis* and others of the softer-wooded type, should be treated in a similar way to the *Epacris*; others, such as *E. Wilmoreana*, will do good service for some time to come. In potting these plants, endeavour by all possible means to use only the best of peat. This should be of that description which handles hard, not, like some, soft and spongy. When it has a tendency towards the latter, make more use of charcoal and crocks broken up fairly fine, with an additional amount of sand. Always pot firmly, for upon this depends greatly the future well-being of the plants. *Ericas* and other Cape, with New Holland plants, especially such as are showing for flower, will now require closer attention for watering from now onwards. Excess must be guarded against, but if allowed to get over-dry when in a forward stage, the *Ericas* in particular will develop crippled flowers in many instances; when not so forward, some of the flowers in the trusses will turn yellow and die. These indications come all too late for remedy that season, but the experience gained may be of use during the following one. Plants of *Dracophyllum gracile* and *Pimelea decussata* and *mirabilis* may be made to flower a month or six weeks later by now pinching out the points of the shoots. Ventilation in fine weather can now be more freely given to all greenhouse plants, but avoid cold draughts of air striking direct upon all choice plants more particularly. Shading will not be needed for some time to come; the application of this does harm to all permanent plants rather than otherwise. By full exposure to the beneficial effects of the sun the colours of the flowers are greatly intensified and are developed with more substance also. Keep a sharp watch for mildew; this will at times make its appearance during a few sunless days with an easterly wind. It generally attacks *Ericas* and other plants where the growths are over-dense, such, for instance, as *Erica Cavendishi*. When this plant parasite is seen, dust at once with sulphur, using the black kind if there is any objection to the ordinary colour, and see that it penetrates well into the central portion of the plant where most harm is often done.

GREENHOUSE SUCCULENT PLANTS.—Before the season is any further advanced attention should be given to the potting of these where such work is needed. Agaves are frequently allowed to stand for years without fresh potting. This cannot be

wondered at considering the awkward character of the work, but it should not all the same be put off too long, for when well cared for these are most noble plants as permanent ornamental objects to any conservatory. The stronger growing kinds do best in nearly all loam with a free use of old lime rubble to keep the soil porous and otherwise assist the plants. Smaller growing varieties may have peat added more freely, but not to any great excess. Always pot firmly and select the strongest pots available, so as to guard against any contingency from breakage. After having been kept dry throughout the winter a good watering should be given previous to potting. Any that do not require a shift would possibly be benefited by a top-dressing of good soil. These remarks apply in general to other genera, such as *Bonaparteas*, *Dasyliirions*, and *Yuccas*. Smaller growing things amongst succulents, which should be grown in fairly good quantity for decoration, must not be overlooked. Of these *Rochea falcata* is a valuable plant for late summer blooming, but in order to have it in good condition it must now have more generous treatment, potting if necessary, otherwise supplied with more water and encouraged to make a good growth. *Kalosanthus* for July flowering should not be potted between this and then, but in other respects be well cared for, being fully exposed to all the light possible. *Epiphyllums* should now receive more attention in watering to encourage a good growth in conjunction with a slightly increased temperature if possible. These and other members of the Cactus family where in need of fresh potting should have this attention given to their requirements, following upon the same lines as advised for *Agaves*. Most of these will now be kept in better condition with a slight increase in the way of watering. J. HUDSON.

ORCHIDS.

WE have now seen March out, and truly glad are we to get into a month that is likely to be better as regards an equable temperature and more warmth. Although the past month has been exceptionally cold, with the prevailing winds either east or north, the plants are already showing, by their deeper green colour and the production of young rootlets freely, that they appreciate the greater degree of sunlight. It is not difficult in these days to maintain exactly the degree of temperature needed with a constant admission of fresh air. What we cannot give them is sunlight, and without this the plants will not continue in robust health. We must give our plants as much sunshine as we possibly can, but the foliage seems to be more susceptible to injury in the spring than in the summer or autumn, and if the large leaves of *Cattleyas*, *Lælias*, or indeed of any other Orchids become scorched, they carry the marks for years. Accidents of this kind are not likely to occur on those days of bright sunshine, when the blinds may be let down in the morning and left so until it is time to run them up again in the afternoon. Scorching is likely to occur, and does so, when the air is thin and cold outside, and we are afraid to open the ventilators because of the cold wind causing injury to the tender growths. Presently the sun comes out for a little time after an hour or so of its being hid behind clouds, and all day it may be alternate sunshine and total obscurity; therefore the cultivator must be watchful and rather err on the side of too much than too little shade during the present month. We still continue to repot any Orchids in all the sections if they really need it, and amongst other things not alluded to as requiring repotting, is the pretty *Masdevallia towarensis*. It would have been better if the plants had been repotted a month earlier, as I could easily see by the mass of rootlets which had been formed. These newly formed rootlets ought to have been made into the fresh potting compound, but the work was done very carefully and not much check will be put upon their development. When this plant cost a guinea a leaf collectors longed to possess it; now that good flowering plants are worth 5s. it is not much cared for, but the intrinsic merit of the plants is the same, and hundreds of amateurs enjoy its delicate transparent

flowers who could not afford to purchase it when it was a rarity. Another charming little plant we failed to repot at the right time is *Pleione maculata*; this is, I think, the prettiest species in the genus to which it belongs, but flowering with it are other distinct specific forms, such as *P. Wallichiana*, *P. lagenaria*, and *P. Reichenbachiana*, each having its admirers. The best time to repot is in the early days of the new year, when they have passed out of bloom. Most of our plants were repotted in January, 1890, and these need not be repotted this year; the few that were repotted in 1889 ought to have been done, each bulb being planted separately, about a dozen of them in a 6-inch pan or pot. I will repot them now into larger sizes without disturbing either the bulbs or the roots. As we are now rapidly getting into long days and warmer nights, the most important note of warning to sound is the necessity of cleanliness amongst the plants. Take those beautiful *Miltonias*, *M. vexillaria*, *M. Phalaenopsis*, *M. Roezli*, and the allied species, of which there are a few rare ones, and hybrids not likely soon to get into the hands of the inexperienced. Many cultivators cannot keep them for long in good health. Why? Because they do not keep them clean. The yellow thrips, of which I fancy we have more than one species to deal with, get into the young growth. The insects are invisible at first, but soon traces of them can be seen on the tender leaves. You dare not fumigate the house where the plants are, for if so much tobacco smoke is puffed into the house as will kill the insects, the plants will suffer. Therefore, all such plants as these must be kept clean by dipping in a solution of tobacco water. We make it ourselves from the best tobacco paper. The paper is boiled for ten minutes, and a little soft soap, about 2 ounces to a gallon, is added; this brings the tobacco quite out of the paper or cloth. It must not be used too strong, and a dipping once in six weeks at this season is enough to keep the plants clean. *Cattleyas*, *Lælias*, *Cœlogynes*, *Vandas*, *Aerides*, *Cypripediums*, *Cymbidium* will stand the tobacco smoke, and need not be dipped. Red spider attacks many Orchids, but this can be washed off with a sponge, or it may be destroyed by dipping and sponging the plants afterwards. The above hints have been given for the use of those who may happen to have their plants in a languishing condition and are not satisfied as to the cause. Green-fly has attacked the flower-spikes of such *Dendrobiums* as *D. Paxtoni*, *D. thyrsiflorum*, *D. Farmeri*, &c. They are not perceived until they are found all at once clustering on the spikes almost as soon as they protrude from the stems. It is waste of time to try to brush them off. The best plan is to fumigate the house.

J. DOUGLAS.

FLOWER GARDEN NOTES.

ALL the evergreen and semi-evergreen climbing plants have suffered more or less this winter; the foliage in the majority of cases is badly cut and they will be late both in leaf and flower. Some of the deciduous things have also been affected. The *Chimonanthus*, for instance, only yielded a few of its fragrant blossoms; we have had none since the middle of December, the spell of hard weather proving too much alike for flower and bud. *Cydonia japonica* and its varieties seem quite indifferent to weather; they are pushing away rapidly, and the earliest of the family, nearly a pure white, will soon be full of flower. It is a pity this is not oftener met with, for it is undoubtedly one of the best wall plants we have, and given a suitable soil (a rather holding loam) will grow very fast. *Spiræa prunifolia* fl.-pl. is plumping its flower-buds rapidly. This is not perhaps one of the most desirable of wall plants, but is very graceful and pretty if allowed to have its own way and is not confined too closely to the wall. We do not as a rule cut the semi-evergreens as represented by some of the Honeysuckles and *Ceanothus* more than is absolutely necessary, but they must be spurred back rather hard this season to clear away dead points and foliage. The silver Buckthorn, which usually winters remarkably well, is this season badly cut.

This will be a loss, as it is a plant we depend on for cutting, and is in its particular colour one of the most useful of all plants for the purpose. The *Euonymuses* and *Escallonias* are also looking brown and unsightly and must be cut back to pushing buds. Roses on walls represented by such sorts as *Gloire de Dijon*, *Mme. Falcot*, *Maréchal Niel*, *Ophirie*, *Safrano*, *Lamarque*, and the *Banksians*, have also suffered considerably. The two first named have wintered best; the others will require a lot of thinning out to render them presentable. Among *Carnations*, I am sorry to say the old *Clove* has wintered very badly. We have three separate plantings, one forming a bed in the flower garden, another under a south wall for the growth of extra-sized flowers for button-holes and specimen glasses, and the old bed, this last being, as a rule, kept a second season to provide a supply of smaller blooms. Of the three, the younger plants under the south wall have weathered the storm best, the percentage of loss here being not more than one-fourth. In the open garden three-fourths are gone and the old plants look very sickly. I have tried the experiment of wintering this *Carnation* in pots in a cold frame, but it was not a success. The plants when they should have been ready in the spring for removal to the borders were much smaller than when potted up from the open the preceding autumn, besides being badly affected with spot. That section of the family known as border *Carnations* is fortunately all right; there is hardly a plant lost here, and the best among them, notably such favourites as *Countess of Paris* and *Raby Castle*, will be called upon to supply the necessary cut blooms which are usually furnished by the old *Clove*.

If the natural soil is not well adapted for the successful cultivation of *Verbenas*, the beds may be at once prepared. They like a compost from a heap of fairly good road sidings, and a thickness of some 3 inches of this may be placed on beds from which a similar depth of the natural soil has been taken, and the addition incorporated with some 6 inches of the remaining soil. To secure good plants, the cuttings must be struck in February and transferred to boxes as soon as possible. Pinch once or twice to secure a compact growth with plenty of shoots, and give weak manure water when the boxes are full of roots. A slight mulching of spent Mushroom manure or of half decayed leaves is advisable at planting time if the weather prove hot and dry. For the last few years the favourite plan of using *Verbenas* would seem to be in connection with variegated or tricolor *Geraniums*, but I think they are seen to best advantage alone, and a large bed or border of mixed colours makes a bright and lasting display. A few foliage plants of graceful habit, such as *Grevillea robusta* or some of the feathery *Palms*, may be introduced sparingly at intervals, and I have also found the following arrangement help to break the flat surface. Take a few twigs from pea boughs, and sticking them in the soil, bring the points nearly together about 18 inches above the ground level. If the plants as they grow are directed on the twigs, and then allowed to ramble at will, there will by the time the bed is covered be some nice little irregular pyramids scattered here and there above the mass of bloom. I consider *Begonia Worthiana* the *Begonia* for bedding. True, the different colours in the large flowering section, especially in the scarlet and pink shades, are very showy and effective, the only drawback at present being the drooping habit. The skill of the hybridist will doubtless soon give us plenty of varieties with upright stiff-standing stalks and flower. It is usually seen in a mass, but a better way is to employ it on a carpet of *Mesembryanthemum* in clumps that may be large or small according to the size of the bed. A handsome bed last year was composed of the foregoing, with in addition a few clumps of *Dell's Beet* and centre plants of *Acacia lophantha*. Annuals, as previously pointed out, are not as a rule well adapted to work in with summer bedding arrangements, their beauty being short lived. There are, however, a few exceptions, and if other things are likely to be scarce, some beds can be filled with *Mignonette* (always welcome), *Phlox Drummondii*

and *Tagetes signata*. The last named, indeed, is almost always necessary if a preponderance of yellow is required at any given point, for it is not in many places that the *Calceolaria*, for which it appears to be the best substitute, can be thoroughly relied on.

E. BURRELL.

Claremont.

FERNS.

A FERN NOOK.

THE illustration represents a very pleasant and interesting corner, one such as I have frequently recommended friends in the suburbs of London and other large towns to use for Ferns. These corners, especially if surrounded

grow permanently. These, of course, do not succeed, and a long time elapses before any show is made. For such situations, or any position where quick growth is required, some varieties of the so-called Irish Ivy (*Hedera canariensis*) are the best. The ground should also be covered. The Ferns to select for this purpose should be strong growers, such as large forms of *Lastreas*, *Polystichums*, *Athyriums*, and other British kinds; there are also many forms of the same genera from North America and Japan equally suitable. The Fern in the illustration appears to be *Dicksonia antarctica*.

W. H. G.

Gleichenia rupestris (F. M. B.).—This is your Fern. It is a rare species, as indeed all the species of

RENOVATING FERNERIES.

THIS is a very good time for overhauling ferneries, replenishing and re-arranging the plants as may be necessary. If left much longer the new growths will be advancing, and injury to the young fronds will ensue. The first thing to observe is to closely scrutinise the Ferns for scale; many of the fronds can now be spared where they are much infested, those which are already fading being removed. By doing this in an effectual manner now, much trouble will be spared later on, particularly if another close examination be made a few weeks hence for any stragglers. Re-arrangement of the plants can often be done with advantage; perchance some free-growing kind will have outgrown its position, and such an one may possibly bear removing. Some kinds thrive most luxuriantly and soon become masses of growth. Too much of this



A Fern nook.

by a fence, may be made interesting and beautiful by planting Ivies on it. These if properly planted will soon clothe it with verdure, and will always produce a cheerful appearance. Ivies of the green and common kinds should be planted in a well-drained border in deep rich soil, and be well supplied with water. Ivies of the variegated or tender kinds should have the soil made lighter by the admixture of a quantity of sand and leaf-mould. Many people imagine that any soil is good enough for the Ivy, but where rapid growth is essential, it can only be obtained by using good rich soil and large well-rooted plants. I have seen pieces of Ivy stuck into the ground where they were intended to

the genus are now; but when they were grown largely, grand specimens of it were shown by Mr. Shuttleworth, of Preston, in Lancashire, and fine plants of it were to be seen in the collection of Ferns gathered together by Mr. Sam Mendel, of Manchester. The colour is light green on the upper side, very glaucous beneath. You should take care of it and work up a collection of these fine plants. It requires a cool house, but it should be kept in a little higher temperature than our ordinary greenhouse. It comes from New South Wales.—G.

Pteris cretica nobilis.—This is a very handsome Fern, of a close compact habit, and one that is specially adapted for room decoration. The fronds are each about a foot or 18 inches high, beautifully crested and of a pleasing bright green. This variety was raised and sent out by Mr. H. B. May, of Edmonton.—G.

should not be allowed, if the position is at all a good one for other kinds that will give greater variety. The deciduous Ferns must not be overlooked or allowed to be too much smothered by the evergreen kinds. Some of the former are most handsome; notably so is *Adiantum pedatum*, which for a cool house is well worthy of more recognition by Fern lovers. Before any fresh soil is added, either as a top-dressing or for replanting, as much as possible of the old should be removed where it can be done without injury to the roots, and a good watering be given when the soil is at all on the dry side. Peat and loam should be used in a general way; some leaf soil will also be an assistance with a good amount of silver sand. Rough pieces of peat are very useful for building up, so that better

facilities are afforded for watering and for retaining finer soil in its position. When finished, some *Selaginella denticulata* should be pricked in upon the fresh soil to form a carpeting or undergrowth. It does not pay to leave this from year to year; it is rarely ever satisfactory the second season. Some rooted cuttings of *Panicum variegatum* may very well be interspersed amongst the Moss with good effect. Another good *Selaginella* for ferneries where it can hang in a natural manner is *S. cæsia*: this can be treated in the same way as *S. denticulata*, and will be found to do well in a damp position, also where shaded; in this way its beautiful bluish tint is brought out to perfection. For rather dry positions in cool ferneries some young plants of *Sedum carneum variegatum* might be planted, another good thing for similar use being *Saxifraga sarmentosa* and its variegated form. Where it is impossible to turn out fresh plants from pots for making up, seedlings may often be used with advantage, taking less room and frequently establishing themselves in a more effectual manner. In order to succeed well with Ferns when planted out, the peculiar requirements of each variety should be carefully studied. Some will do well in one position, whilst in another they would fail, and *vice versa*. For very moist, cool, and shaded positions the Filmy Ferns should by all means receive their full share of consideration; none are more handsome or interesting when well grown than these. In dry and exposed situations some of the *Nephrolepis* family will succeed; so also will most of the *Davallias*. Another good thing or two for extra dry spots is to be found amongst the *Niphobolus* and in *Platynerium alcorni*. For a prominent position the Bird's-nest Fern (*Asplenium nidus-avis*) is a splendid object when well grown. *Pteris argyrea* should not be overlooked, looking best when partially shaded. For clothing pillars or for working around doorways *Davallia elegans* is one of the best. Where the position affords but little room for soil, such as covering a wall, then *Nephrolepis exaltata* or *N. pectinata* (a smaller growing variety) are reliable kinds. For the same purpose also as the last the variegated-leaved *Begonias* afford fine material; these also thrive well in damp places with but little soil when established in a small state. For covering the rafters or for very damp walls *Ficus repens* and the minor variety are excellent. When overhanging projections have to be clothed those Ferns with long arching fronds should be chosen. For this purpose *Adiantum concinnum latum*, *Asplenium flaccidum*, *Goniophlebium subauriculatum*, and *Nephrolepis davallioides furcans* are all suitable.

In dealing with Tree Ferns, I always have preferred to keep them in pots or tubs; when planted out they are difficult of removal, and also grow more vigorously, which in many instances is not very desirable. When in pots or tubs it is an easier matter to make sure of their requirements as to watering through knowing exactly where the roots are. Where any pools of water exist some few kinds of aquatics will be appropriate; for this the Sedges (*Carex* sp.) are very suitable; so also are *Aponogeton distachyon* and *Vallisneria spiralis*. For lighting up a nook or corner, *Ligularia Kämpferi argentea* is a capital plant; a moist place suits this well. These and other plants, which are useful accessories to a fernery, assist greatly in the general effect, being quite at home with Ferns. After the completion of the aforementioned and sundry other work, a moister atmosphere with a slightly raised temperature should be maintained. This should be more particularly observed when much moving or replanting has been done, with a considerable amount of the *Selaginellas* pricked in upon the surface. By these means this latter will quickly re-establish itself and that before much air has to be admitted. Excess of moisture must, of course, be guarded against; very light sprinklings with a fine rose upon the can, or gentle bedewings with a syringe will answer the purpose well if applied at frequent short intervals. Ferneries are more often than not shaded far too heavily; this produces a softer growth at the expense of durability. Tree Ferns, in fact, can be grown well without any shade at all, provided good glass is used in the glazing. Damping is far more

likely to occur when much shading is practised. For the roofs of ferneries I would decidedly prefer rough plate glass usually known as Hartley's. I have proved that Ferns do well under this glass with but little shading, even in hot weather. Those kinds which need the most shade can generally be arranged so as to receive the friendly shelter of tall growing Tree Ferns. With a less amount of shading there is need of closer attention for watering, but this will be found congenial rather than otherwise when no extreme of dryness is permitted. No ferneries will need shading yet for some weeks, unless the position is a very exposed one. There are just a few kinds of *Adiantums* which are very susceptible to scalding; these are those of the *A. trapeziforme* type and *A. cardiochloana*, with a few more after the same style of growth. These should be especially guarded against injury from sudden outbursts of sunshine.

Rats and mice are frequently very troublesome when once they gain a foothold in a fernery. I have found great destruction done by the nibbling off of the fronds for nests; every care should therefore be taken to prevent the ingress of these animals. If so be they are showing signs of appearance, trapping should be resorted to, or if this is not found successful, some ground Oats should be laid down for a few successive evenings. If they take this freely, then mix some fresh plaster of Paris with the meal in about equal parts, placing at the same time some water within their reach. After partaking of the mixture they will drink freely; then the plaster will act, frequently causing their death before they have time to get out of sight. Poisoning should only be resorted to if these means are found to fail. If ferrets are handy, they could of course be usefully employed.

G. H.

ORCHIDS.

PHAJUS.

THIS genus is an old representative of the Orchid family in our gardens, *P. grandifolius* having been in cultivation upwards of a hundred years. Some very elegant species have been introduced from Madagascar during the last decade or two. Phajuses are mostly strong-growing terrestrial plants. They have a thickened root-stock, and produce somewhat ovate pseudo-bulbs, rising only to a few inches in height, and bearing large, plaited, deep green leaves, which reach 3 feet or more in length. The flowers are borne on an erect spike, the prevailing colours being yellowish brown, intermingled with other tints in the various species. They are easily grown, and the most of the older kinds thrive admirably with other stove plants. They should be planted in well-drained pots, as the plants require a large quantity of water. They must be potted as ordinary stove plants, that is, with the pseudo-bulbs beneath the level of the rim of the pot, in order to allow of a good amount of moisture being supplied to their roots. The mixture for potting these plants should be composed of good light turfy loam, rough fibrous peat, Sphagnum Moss and old cow manure, well mixed together. The plants may be kept in a temperature of about 55° during the winter months. I know of a plant that was accidentally placed in a position where the temperature fell below the freezing point during the past winter, and it is now flowering beautifully. During the summer-time, which is their season of growth, the temperature may range from about 70° to 80°, and 90° with air, and a moist atmosphere; they should be shaded from the direct midday sun. The following are all deserving attention at the hands of the Orchid grower:—

P. GRANDIFOLIUS.—It is now over a hundred years since this plant was introduced from China and Cochin China to our gardens. Although there

are many more beautiful, it still retains its hold. The scape is erect, from 2 feet to 4 feet high, having on the apex a long raceme of many flowers, each measuring about 3 inches across; the sepals and petals are spreading, white on the outside, yellowish brown within. Lip large, the outside creamy-white, the front lobe rosy-purple, with a white margin.

P. TUBERCULOSUS is one of the more modern species, having only been introduced in a living state some ten or twelve years. It was known for a long time to exist in the island of Madagascar. It has hitherto been rather difficult to manage, but it evidently requires a great amount of heat and a constant supply of moisture in the atmosphere. Under these conditions I have seen the plant doing well in Sir Trevor Lawrence's garden at Burford Lodge, and more recently I have seen it in quantity at St. Albans with Mr. Sander, its introducer, growing upon rafts upon a turf of peat, these being hung up over the tank in the Water Lily house. It is the most beautiful species I have yet seen. The pseudo-bulbs are spindle-shaped, the leaves somewhat thin, scape erect, a foot or more high. The blooms each measure about 2 inches across, the sepals and petals pure white, lip three-lobed; the ground colour deep orange-yellow, profusely spotted and blotched with purplish crimson. The front lobe is wavy at the edges, white, spotted and blotched near the margin with rosy-purple, with thin deep yellow raised plates on the disc. It is in bloom at the present time, and has been flowering with Mr. Sander for two months past. It was figured in THE GARDEN, July 19, 1884 (p. 46).

P. WALLICHI.—This is an old acquaintance, having been introduced about fifty years ago. It resembles *P. grandifolius* much in growth and general contour, but it is larger in all its parts; the erect scape is stouter and longer, and it carries a larger raceme of flowers. The sepals and petals are white on the outside, buff within, much stained with brown; lip large, deep yellow at the base, stained with dull purple in front. Native of Northern India.

P. COOKSONI, said to be a hybrid between *P. Wallichi* and *P. tuberosus*, was raised by Mr. Cookson, of Wylam-on-Tyne. Flowers recently to hand from Mr. Sander show it to be a most beautiful variety. The plant in growth somewhat resembles *P. Wallichi*, but it appears to be less robust and the raceme of bloom is smaller. The flowers partake of the *Wallichi* character, being white on the outside, the inside light rose more or less suffused with brown; lip funnel-shaped, the basal part rich yellow, the side lobes bright purple, and the crisp margin blackish-purple.

P. IRRORATUS is another hybrid, raised some years ago by the late Mr. Dominy whilst in the service of the Messrs. Veitch and Sons, of Chelsea. It is a cross between *P. grandifolius* and *Calanthe vestita*; the sepals and petals are about 3 inches across, colour creamy white, more or less suffused with rose, and slightly tinged with green at the base; lip large and flat, pale reddish-purple bordered with white, and stained with yellow. A variety of this plant raised by Mr. Seden, called

P. IRRORATUS PURPUREUS, has the sepals and petals pure white, the colour of the lip being much deeper, whilst the white border is broader. Both kinds bloom during the winter, and on this account are valuable and specially interesting.

P. HUMBLOTTI.—The growth of this is very different to that of *P. tuberosus*, although its blooms are similar in shape; the scape is erect, bearing a raceme of about ten flowers, which are each 2 inches across; the sepals and petals are white tinged with rose. The side lobes, neither so large as those of *P. tuberosus* nor yet recurved at the margins, are reddish-brown; the front lobe white in the middle, the margins soft rosy-purple. This plant was found by M. Humblot, who also discovered *P. tuberosus* in the island of Madagascar.

P. MACULATUS was introduced to our gardens nearly seventy years ago. It may usually be distinguished by its plaited deep green leaves, which

are freely spotted with yellow; the scape is shorter than the leaves and bears from five to ten flowers, these being each about 3 inches across, of a bright yellow; lip three-lobed, the side lobes bright yellow, whilst the front lobe has a broad plaited margin or incurved edge of a deep orange-red or brown. It comes from Northern India.

P. MANNI.—This is a very fine plant in the way of *P. Wallichii*, but the flowers are much larger and richer in colour; it seems to be a native of Northern India. The sepals and petals are rich deep bronzy-brown in colour, with a marginal border of pale green; the funnel-shaped lip is white in front, having a broad deep crimson streak running down into the throat.

The above comprise the best of the kinds at present introduced—*P. bicolor* from Ceylon, *P. Blumei* from Java, and *P. Bernaysi* having little interest for the grower of these plants, whilst the Veitchian hybrid *P. Sedenianus* I have not yet seen. **W. H. GOWER.**

Epidendrum arachnoglossum (G. G.).—This is the name of the flower. It was introduced about fifteen years ago, and is tolerably well known now. It has slender stems about 5 feet high, upon which are produced the trusses of rich crimson flowers with a bright orange crest. It likes cool treatment, and when it arrives at flowering size it will continue to bloom for half the year. This species used to be conspicuous in the collection of Mr. Lee, of Downside, Leatherhead, and it may nearly always be seen in bloom in Sir Trevor Lawrence's collection at Burford Lodge.—**W. G.**

Orchid flowers from Liverpool.—I am favoured with a box of flowers from Mr. Reginald Young, of Linnet Lane, Sefton Park. No. 1 he calls *Cattleya Trianae marginata*. I am not aware that this name has been used before, and if not, it is very appropriate. The flower has broad petals slightly tinged with rose; front lobe of the lip is of a very bright magenta with a conspicuous marginal border of white. No. 2 is a handsome form of *Cattleya Trianae* with sepals and petals of the same shade of rose as No. 1; it has, however, a much larger lip, which is beautifully frilled round the margin, and the colour is rich magenta; the orange in the throat is deeper, but it is without the white border. No. 3 is an exquisite form of *Lycaste Skinneri alba* with broad sepals, which make a good round flower. I am told the plant had twenty-seven blooms this season. No. 4 is *Dendrobium nobile* of the nobilium type, a wonderfully rich and deep coloured flower, but I have no means at hand for comparing it. No. 5 is *Vanda teres Aurora*. The variety called *Aurora* I do not know; it is a very handsome round flower, the sepals and petals large and pure white, the lip three-lobed, the side lobes bordered round the front edges with rose, the rest white; the front lobe rose coloured, passing into white at the margin. This is a very pretty and pure flower, but I do not think, as Mr. Young does, that it is the same plant figured in the "Orchid Album," t. 409, as *candida*; it has too much colour in the lip.—**W.**

Calanthe striata.—The widespread popularity of the deciduous types of *Calanthe* appear to have overshadowed the more modest qualities of the evergreen section of the genus, yet such species as *C. veratrifolia*, *masuca*, and *striata* are in every way worthy of cultivation, even in small collections. The flowers in each instance are enhanced by the deep green foliage, and remain a long time in good condition. *C. striata*, which is now flowering at Kew, is a native of Japan, where it is found in various districts, but chiefly in the woods near the town of Nagasaki. The leaves vary from 6 inches to a foot in length, and are lanceolate and plaited. The spike is erect, a foot to 18 inches high, bearing flowers each $1\frac{1}{2}$ inches in diameter. The sepals are of a cinnamon-brown colour, bordered by a line of golden yellow, an arrangement that gives a pretty and rather curious effect; the petals differ only in being slightly smaller. The lip, which has the tripartite shape common to *Calanthes*, is of a yellowish white. This *Calanthe* should

be grown in a compost of peat and loam fibre with a little silver sand and Sphagnum added. It requires an intermediate temperature, and should be kept moist at all times.

Cirrhopetalum picturatum.—We are indebted for the comparatively few *Cirrhopetalum* now in cultivation more to accidental introduction along with other Orchids than to any special efforts of collectors. Owing to the enormous number of showy Orchids that have been introduced in late years *Cirrhopetalum* have been pushed into the shade, and now-a-days, although several species are attractive enough to deserve cultivation, it is their curious and interesting structure more than their beauty that chiefly recommends them. *C. Medusæ*, for instance, noted in THE GARDEN when flowering at Kew some time ago, is one of the strangest looking Orchids known. It is now followed by *C. picturatum*, which well sustains the peculiar character of the genus. It has dark green prominently-angled pseudo-bulbs, each bearing one oblong leathery leaf between 3 inches and 6 inches long. The scape is 8 inches in length, with the flowers clustered in a semi-circular umbel at the end. The upper sepal is small and hooded, green, almost covered with black-purple blotches; the apex is terminated by a filament half an inch long. The lower sepals, which, as is the case throughout the genus, form the most conspicuous part of the flower, are 2 inches long. Although separated at the base, the outer margins of both sepals are twisted over and unite, forming one long blade of a pale green colour. The lip is small, but conspicuous, being black, and rocking to and fro when the flowers are moved. Messrs. Loddiges cultivated this plant in their nursery at Hackney fifty years ago. It is a native of Burmah.

SHORT NOTES.—ORCHIDS.

Dendrobium nobile (W. J. M., Dundrum).—I am in receipt of some flowers of this species, asking my opinion. They are very large, broad-petalled, and round blooms. The deep maroon blotch is very large. It must, however, be considered a light-coloured variety and a very good one.—**W. G.**

Odontoglossum Alexandri (W. J. M., Dundrum).—Yes, this is a very nice flower, and no doubt it will become a very handsome form as it increases in strength. The sepals and petals are broad, the former tinged with rosy-lilac, the latter white and beautifully fringed; the lip large with just a few dots of chocolate on the disc.—**W. H. G.**

Dendrobium Falconeri giganteum.—A fine flower of this variety comes to me from Mr. G. Cypher, gardener to Mrs. Studd, the Royal Crescent, Bath, and I think if he looks in vol. vi. of the "Orchid Album" he will find his plant well portrayed. The flowers measure some 3 inches across the petals, which are white heavily tipped with bright magenta; lip large, heavily tipped with rich bright magenta, behind which is a zone of white, behind this being a blotch of bright orange, on which are two large blotches of deep maroon-crimson. This variety, although much knotted in its stem, is very much stouter than the typical plant. It is still very rare.—**W. H. G.**

Seasonable floral arrangements.—Forced plants, shrubs, and bulbs can now be had in good quantity; these with early-flowering hardy subjects will afford a greater variety. Amongst forced plants nothing probably is so much appreciated as Roses; these can now be had with considerably less difficulty than a month back. The utmost, however, should be made of every one; this cannot be done if many are arranged together in the same vase. In such a way there must be a certain amount of waste, which ought to be strenuously guarded against. It is far better to choose small vases and use only two or three blooms in each than to attempt to gain effect by mere quantity alone. When small vases are chosen, each colour and kind can be kept by itself; this is in every way better than mixing colours to any great extent. Take, for instance, *Celine Forestier* or *Maréchal Niel*; no improvement can be effected by adding any other colour. *La France* or *General Jacqueminot* are other instances in the same direction.

The foliage of forced Roses is always rather tender; it should not, therefore, be relied upon to a great extent, but rather select neat clean foliage of *Mahonia aquifolia* with a few fronds of *Maiden-hair Fern*. The stems of the Roses should be inserted as deeply as possible in the water. Forced Roses when intended for use in a cut state should be taken before they are half expanded; they will not open afterwards to such a full size, but may be relied upon to keep better. Amongst forced shrubs now in flower, note should be taken of *Spiræa confusa*, a valuable shrubby species; in a cut state it looks well for medium-sized arrangements. It is an apt illustration of the association of flowers and foliage even as seen upon the plant. This *Spiræa* would do well for mixing with a truss or two of *Azalea mollis* or *A. pontica*. Guelder Roses are far more effective when kept by themselves and upon rather long stems, which can usually be obtained. Trusses of *Rhododendrons* (forced) cannot very well be mixed with other things either advantageously or effectively. Each truss of fair size should be kept to itself, using a bowl of water rather than a narrow-necked glass vase. *Deutzia crenata* fl.-pl. is a good variety to last well when cut; a few sprays of this would look well intermixed with *Cytisus racemosus*, both of these possessing a similarity of habit in a measure. *Deutzia gracilis* in medium-sized sprays associates well with *Lachenailla tricolor*; this latter is possessed of capital lasting properties. Failing the *Deutzia*, a few spikes of *Spiræa japonica* could be substituted. In either case an addition might be made of a few pieces of *Mignonette*. Forced flowers of any kind will not bear so much exposure to sharp draughts as those grown in a natural manner, nor will they, as a rule, withstand an undue amount of warmth.—**J. H.**

KITCHEN GARDEN.

CELERY.

CELERY being considered one of the most important crops grown in the kitchen garden, more than ordinary care is necessary that it should receive good treatment from the time of sowing the seed until the growth is fully finished. Poorly grown Celery is hardly worth the time bestowed upon it. Being equally suitable for salad as well as for cooking, Celery is doubly valuable, especially in a winter like the past when for weeks together in many gardens green vegetables were hardly worth the gathering, let alone the difficulty in procuring them. All soils will not produce first-class samples, but still there are very few gardens where Celery may not be grown satisfactorily. Some people like heads of strong growth, and various are the means adopted to gain this end. It is rarely, however, that large heads of Celery remain solid in texture, as very often the leaf-stalks are hollow and rough. I have seen it stated that Celery cannot be too highly fed, especially with liquid manure, but this surely is a very erroneous opinion, as however beneficial liquid manure may be when used in moderation for a healthy growth, my opinion is that Celery may be easily overfed and early decay engendered. Celery is frequently raised too early, and especially so for what is termed the main supply. This is a mistake, for when growth is finished too early the Celery more quickly decays, and oftentimes the natural decay is attributed to the action of the frost. From the middle of March until early in April is a favourite time for sowing the main crop of Celery, and as a general rule it suits most localities. The seeds being sown thinly on a shallow and mild hotbed, the plants make an early and healthy growth. When sown thinly in boxes of good soil good results are obtained if the seedlings are not allowed to remain too long before being pricked off. It is during this earliest stage of growth that the above evil

is laid. In some localities good Celery may be secured from plants entirely raised in the open air, the growth made being very sturdy. A sheltered corner should be selected when sowing in the open air, and the seed bed must also be of the best description.

When the seedlings are raised in boxes or seed pans, take particular care they are not allowed to remain in heat longer than is really necessary. Water must also be freely given and the seedlings exposed to the full light. When fairly started into growth, the plants should be removed to a cold frame and placed within a foot of the glass. When the seedlings are raised on a hotbed, the lights must be tilted so as to ensure a sturdy growth. Some people prick off the seedlings into boxes or pans, but this practice is not to be commended, as thus the plants are apt to receive a severe check through becoming stunted previous to being planted out in the trenches. The best plan is to prepare a bed in a shallow frame, or even by placing 9-inch boards on edge, so as to confine a space. The bed must be prepared on a level and hard surface. This is very essential, for when formed on a loose bottom the plants root too deeply and cannot be lifted with the roots confined to a ball. Over the bottom of the frame or rough shelter spread a layer of rotten manure to the depth of 2 inches, and over this the same depth of good loam, leaf soil, and pulverised horse droppings in equal parts, the whole being pressed down firmly. Light or sandy soil, or even old potting soil, as used by some, is not a very desirable rooting medium, as in this the roots cannot take a free grip, and the balls will not hold together when taken up for transplanting. Prick out in rows 5 inches or 6 inches apart and 3 inches or even 4 inches in the rows. The lights need only remain over the plants until established, and oftentimes a few mats have to suffice for covering, these being raised off the plants by strips of wood or hurdles. Water must be freely applied, and the surface stirred occasionally to encourage free growth. At this stage of growth or a little later, sometimes the dreaded Celery fly will put in an appearance. Dusting the foliage with soot is a good preventive. The grubs, if in the leaves, should be pressed between the fingers and killed, or the parts removed and burned. The fly is not destructive in all seasons, and sometimes it will be frequent in one district and not in another. The soot is best applied in the early morning whilst the plants are wet with dew.

PREPARATION OF THE TRENCHES.—This is an important part in Celery culture. Here the character of the natural soil and surroundings has to be taken into account. On deep and well drained soils the trenches may well be deeper, but on heavy cold soils with an indifferent subsoil, the shallower the trenches the better. Planting in single and double rows in the trenches is the usual way, but I prefer the single rows, as when these are earthed up, the banks may be placed at an angle to throw off wet, and so prevent decay. The bed system is sometimes adopted by planting three or four rows together, but this plan has little to recommend it. The usual width for single trenches is 15 inches, but for double rows 2 feet. The trenches should be taken out from 9 inches to 12 inches in depth, the shallower being for cold soils. The distance apart between the rows is very important, as when the rows are too close together there is not sufficient soil for earthing. A distance of 5 feet is none too close, as the intermediate space may well be occupied with French Beans, or, better still, Lettuce. The trenches having been taken out,

the bottom should be forked over, and over this a layer of well rotted and solid manure placed. Over this place 3 inches of the best soil taken from the top of the trenches, as being in a well pulverised and fertile condition. Some well-burned garden refuse mixed with the manure conduces to free growth, and should be applied in all cases where this excellent material is at command. When ready for setting out each plant should be cut out with a sharp and flat trowel. When being taken up, carefully remove all traces of sucker growth clustering about the base of the plants, for if this is not attended to at this stage the plants will persistently send out suckers, to the great disadvantage of the parent plant. Plant out firmly in the rows 9 inches apart, pressing the soil well about the ball. Plant out as soon as ready, afterwards giving a thorough watering to settle the soil about the roots, and a few sprinklings overhead at the close of the day should start the plants.

The after treatment will consist in frequent and thorough waterings if the season should prove dry, and an occasional soaking of liquid manure may be given with advantage, but this can easily be overdone by forcing a strong growth, which is liable to injury from decay and frost, the flavour and texture being thereby very indifferent. As soon as the plants become established and are growing freely the surface should be stirred about the plants and receive a slight sprinkling of salt, afterwards spreading an inch or so of soil over the surface and about the base of the plants. This assists growth wonderfully, and prevents the plants from spreading out. Previous to surfacing a few suckers may show, but these should be removed forthwith.

The earthing up of the plants so as to ensure a perfectly blanched growth free from decay must be carefully performed, and this operation, or rather how it is carried out, will decide the condition or quality of the produce when placed upon the table. The piecemeal system of earthing up is bad, as, irrespective of checking growth, it causes decay to set in earlier than it otherwise would. The plants should be earthed up about twice, or at the most three times, and should be nearly full grown before this is done. A dry day and whilst the soil is in a dry state should be chosen for the work, and a little fresh slaked lime or salt sprinkled over the soil previous to earthing will keep slugs in check. Care must be taken not to allow the soil to work in amongst the hearts of the plants, and to prevent this each plant should be pulled up together and tied with a piece of matting, care being taken to remove the matting immediately after each earthing, for if allowed to remain it would cause the growth to become crippled. At the last earthing up bank the soil well up, firming the outside with the back of the spade, bringing the top of the ridge up sharply, which would be the means of throwing off wet. Do not be sparing with the soil in the course of earthing as a safeguard against frost.

A. Y. A.

Early Radishes.—I believe the forcing white Turnip-rooted to be the best early variety in cultivation, and superior, therefore, to the red form. It is of very quick growth and only needs to be very lightly thinned out in any place where the seed was sown extra thick. Bulbs form well even when not more than 1 inch apart, and quite a long succession can be had from part of a single light in a pit or frame. No fault can be found with the quality. The French Breakfast is only two or three days later, and this is a really excellent Radish. It forms but little top, bulbs quickly, is of attractive appearance, and very tender. By way of variety, several other Olive-shaped varieties are

grown, and also the old Wood's Frame, the latter being particularly good for open-air culture. Several of the early Radishes are very bright and attractive in appearance, and are wholesome enough if eaten in a young state.—I.

EARLY VEGETABLES.

I WILL do my best to bear in mind "W. I.'s" request to be favoured with the date at which the earliest gathered Peas from the open fields are sent into market from this district. There are other districts, Addlestone and Chertsey for instance, which, because of the warmer nature of the soil, are usually several days earlier than is this district, although hundreds of acres of Peas are grown about here for market, one grower alone sending up so many as 5000 bushels in one week. Naturally, therefore, where the getting of an early picking into the market but one or two days before the general bulk comes in is a matter of such moment, that every effort is made to secure that additional earliness by selecting the warmest sites and soils for the earliest, and sowing as early as possible also. Very early sowings were not possible this year, for the old practice of sowing in November has been discontinued, having been found to result in disappointment. Because of the hard weather and snow it was not till early in February that Peas could be sown, and yet even on the lightest soils so little encouragement has Nature given, that few have yet shown through the ground; indeed, it may be said that none are fairly through the soil, and yet I am writing on March 21. As evidence of the cold which keeps germination so backward, I see the entire surface of a large breadth of early Eclipse Peas which were got in early in February white with snow. What prospect, therefore, is there of any early gatherings resulting under such conditions? Now I would ask "W. I.," whose position so far south-west should make him fully a week earlier than in Middlesex, to give the readers of THE GARDEN some idea as to the present condition of his own early Peas, so that it may be fairly judged as to what start walled gardens and sheltered borders give. I have been in many gardens where what is called the coddling business has been largely exercised with regard to the production of early Peas, and have found that under the pressure of such treatment private gardeners have gathered Peas at least a week before market growers did from the fields. Seed sown in January if weather permitted, protected so soon as up with Pea guards, and covered at night, the plants having been stuck as early as possible and well earthed, have led to a very early growth, and I have not noticed that Sangster's No. 1, William I., or other very early varieties have been exceptionally tall or lanky in consequence. After all I should like to hear what some other gardeners have to say on this point.—A. D.

—I quite agree with "A. D." in saying "that market gardeners are at a disadvantage as regards earliness of vegetables, notably Peas, as compared with private gardeners with their warm borders and walled-in gardens to give needful shelter." If "W. I." sowed the same varieties of Peas in south borders on the same date that his market gardening friends sowed theirs in the open fields in the same district, and was then three or four days later than they in making his first gathering of green Peas, it is a proof that something was wrong in the cultural treatment, soil, and presumably a second early variety instead of an early one was sown. I have grown Peas and other vegetables extensively during the last twenty years for exhibition and home use, and, like other gardeners, I have always put my early and late crops of Peas, French Beans, and Lettuces in south, south-west, and west borders, that is, in borders immediately in front of walls commanding these aspects, and always with the most satisfactory results. I have sown Peas of the same varieties on the same day in the borders indicated, and in open plots of ground within the same walled-in gardens, the latter sowing being always made as a succession to the one made in the borders, and they always yielded us gatherings of green Peas a week or ten days before those growing in the open.

The results have been the same with regard to Peas raised in pots or square pieces of turf and transplanted out of doors. The results are exactly the same in the case of Cauliflowers, Cabbages, Lettuces, French Beans, and Broad Beans; the supplies are always several days in advance of those obtained from plants growing in the open. "W. I." is quite right in his inference that shallow, ordinary ploughed ground would tend to the production of a dwarf, sturdy growth in the plants. But plants thus grown that do not attain to within 1 foot or 15 inches of their normal length of haulm cannot well be looked upon as being productive; it may be, and in fact is, precocious growth, but assuredly not profitable, and therefore not desirable. Just fancy William I. Pea grown under conditions as regards soil and climate as to render the support of stakes unnecessary. A haulm normally 3 feet long being so dwarfed and sturdily grown by shallowness and poorness of soil and exposure as not to require support when the pods are ready for gathering does not commend itself. "W. I." says in reference to the Peas grown by his market gardening friends, "stakes being simply out of the question," adding, "in fact they would probably do more harm than good." In what way would they do more harm than good? "W. I." says "the haulm does not trail on the ground far," but the "points draw up to the light and sunshine, and with plenty of the latter the pods fill quickly, and early crops are the result." He then says "contrast this with what happens in walled-in gardens; in this case the Peas are either planted or sown on heavily-manured, deeply-dug ground, sheltered, staked, and otherwise coddled, with the result that the haulm grows to nearly double the length of that in the open fields, this being at the expense of earliness." The contrast is all in favour of the quantity, quality, and earliness of the produce obtained from Peas grown as described in the last dozen lines. Strong-growing haulm of early as well as late varieties can always be induced to flower, and consequently pod several days earlier by pinching the points after they have made 2 feet or 3 feet of growth. It would be interesting to know when "W. I." gathered his first dish of early Peas.—PISUM.

EARLY DWARF BEANS.

MANY late vegetables, such as Kale and Broccoli will be much missed this spring, owing to severe weather. The supply of Cabbages and Cauliflowers later on will also be very short. No time should be lost in sowing a few early dwarf Beans in frames or houses for planting out on a warm south border during the early part of May. This sowing may be placed in a cold frame or any other structure with a little warmth, putting the seed into $\frac{1}{4}$ -inch pots, and if the soil is moist no water will be required till the Beans push through the soil. I have adopted this plan for years for the first early Beans in the open ground, and it is a great gain. Many persons are unable to find room to force Beans in pots that could spare space for a few Beans for planting out. The Beans may be sown in boxes in a light compost, sowing thinly. This lot of Beans will not require heat if sown now as advised; indeed, a strong heat is objectionable, as it causes a rapid growth, that is very weakening and does more harm than good. If raised in a cold frame near the glass, the plants are strong and better able to resist cold winds. When planting out, a ridge of soil should be drawn against the north or east side, according to the position, and a few pieces of Yew or Spruce placed in front of the rows for a time. Another plan, and a better one if ground can be spared, is to plant at the foot of a south wall and cover over with a few sticks and some protecting material at night. The plants should be exposed in the day-time, weather permitting, as if covered too much a tender growth is created. There are many ways and means to hasten on the crop a few weeks. Many frames that have been used for bedding plants and salads can be turned to good account at the end of April if the Beans are sown now as advised. There are now many varieties of dwarf Beans, but they are not all suitable for a first early crop in the open. I do not think the one called

Syon House can be beaten for this purpose. It is exceedingly prolific, dwarf, and very early, and not easily surpassed for this work or frame culture. Two years ago I planted a number of early varieties on a south border, and this was one of the best. I also like Mohawk for a first early; it is a really good Bean, and one of the earliest. Ne Plus Ultra is also a first-class variety of the newer introductions and a heavy cropper; indeed, for early pot culture it is a valuable Bean. For size it is difficult to get a better Bean than the Canadian Wonder, but then it is not early enough. As a late pot Bean or a succession to those named, it is invaluable. With me Syon House and Mohawk were the best and earliest, the latter being a few days earlier than Syon House, but not so prolific. These useful Beans last much longer in bearing if kept moist at the roots and the produce frequently gathered.

Syon House.

G. WYTHES.

RUNNER BEANS.

I OBSERVE that a new runner Bean is being offered in commerce just now. Judging by the known vegetable-producing qualities of the raiser, it should be a good thing. The fact is, we are getting along very well in the matter of runner Beans. It is not so long since that the ordinary stocks consisted of the common scarlet, the white and scarlet, or Painted Lady, with its bi-coloured seeds, and the common white variety with its white flowers and seeds. Now we have almost a score of varieties, or assumed ones. Last year I selected from Ne Plus Ultra, one of the handsomest and best runner Beans ever introduced, white-seeded, bi-coloured, or Painted Lady, and black seeded, thus making, with the original, four diverse sorts, if worthy of being so-called. The incident shows admirably how varieties are created. We have Giant, Mammoth, Exhibition, and other designations *ad infinitum*, although, perchance, the real distinctions are not appreciable. However, that does not matter very much, as there is room for congratulation that we have so many varieties of fine character, that a very superior opportunity is now given to gardeners to select the best as compared with what was the case not so many years since. I cannot get up any considerable enthusiasm for very large-podded varieties. Ne Plus Ultra, so far as I have seen, is the best, but the pods, if gathered at the proper stage, are not broad and only of reasonable length. The colour is excellent, the beans somewhat smooth, and even in size. Generally, a sample of this variety excels all others on the exhibition table, whilst as a cropper it is equally excellent. It is odd, but a fact nevertheless, that none of the smooth type of Bean has ever become popular to any appreciable extent. It is not so many years since that a runner selected from one of the French dwarfs, bearing pods like to the Canadian Wonder, was in commerce, but after a few years' existence it seems to have disappeared. People will not have the French type of pod so long as the broad, rougher, and better flavoured forms of the Scarlet Runner are available. Then these latter forms are the most enduring and prolific; indeed the productiveness of the runner Bean is almost remarkable. Next to the ever popular Pea we have no summer vegetable which can compare in popularity with runners. They can be grown almost anywhere; they can be produced in enormous bulk and cheaply. They are soft, succulent, and pleasantly flavoured, and have also the merit of making an acceptable dish for a long season. The chief drawback to the Scarlet Runner as an article of trade production is its exceeding tenderness, so that early sharp frosts often destroy the plants whilst in the height of productiveness. We do not want runner Beans too early, but they come in whilst Peas are in their full flush of popularity. We cannot often have them so late as could be desired, because early frosts will often come and cut off the bloom and settle the crop. There have been many seasons when it would have paid well to give a good row just in the height of productiveness some sort of protection for a few nights in October, as these dangerous rocks avoided, there might be

mild weather for fully a month afterwards, when a fine crop of most useful Beans could be gathered. In private gardens it pays well to give runner Beans high cultivation. Deeply trenched and highly manured soil is better on the whole than is a narrow trench, because the former affords more root area and greater moisture. When the soil is deep and rich plants will run to a height of 10 feet provided the stakes supporting the plants be tall enough. It is just as well, however, to stake to a height of some 7 feet or 8 feet, as if the Vine be pinched the back growth is increased, and the crop all the greater. Where there is liberal dressing, liberal soakings of manure, and general good cultivation, a proper line of Runner Beans, especially where not too thickly sown, will continue bearing heavily for some three or four months. A couple or three sowings made at intervals of 10 or 14 days will most certainly keep up an abundant supply of pods all the season, whilst in gardens sowings may be made early in April, or plants raised in pots thickly be transplanted. Out in the fields it is not safe to sow till the end of April; indeed, the plants are seldom safe from late spring frosts until the middle of May, and being so tender it is unwise to tempt Nature. Market gardeners sow in single drills at about 4 feet apart, or in very strong soil at fully 5 feet apart. It is not infrequent to see rows of white and Scarlet Runners alternated for the sake of effect. No difference is found in the pods when gathered, but the seed of the white form is invariably the cheaper and the pods have the reputation as the autumn draws on of not discolouring so readily as those of the scarlet. Where the rows are so wide apart, lines of Brussels Sprouts are invariably planted out between the Beans, and it not infrequently happens that these two crops for the year's production give a better return to the grower than will any other vegetables.

A. D.

Seed sowing.—Those who were not in undue haste to sow in the open Onions and Parsnips have reason to congratulate themselves, and especially so on heavy soils. February was very fine indeed, and rarely has there been a better opportunity for getting the ground into a well worked and pulverised condition; such being the case, Onions and Parsnips were sown in many cases. Considering the past very unseasonable weather which we have experienced throughout March, seeds sown at that early date cannot turn out very satisfactorily, as from lying so long in the cold ground their germinative powers are considerably weakened. Those sown now will germinate far more quickly, and the after growth will be much more rapid. Where these early sown seeds are coming up weakly, sooner than rely upon them the safest course will be to sow again. Those who took the precaution to sow the early vegetables under glass, as I have previously advised, will have little to fear, as these have been coming steadily on irrespective of the weather. In warm and genial seasons the majority grow along well enough when sown in the open air, but the present season is an exception, and shows the great need of having frame space wherein to forward the crops. In those gardens where little frame space is provided early vegetables should not, or rather cannot, be expected. Potatoes, Radishes, and early Horn Carrots are now coming in. Lettuce of the early Paris market type are also large enough to be used for salad, where these have been forwarded in a gentle hotbed or even grown in ordinary shallow cutting boxes placed along the front of vineries or Peach houses. I have some scores of the latter, which will soon be ready for cutting from seed raised in January. The present season has also shown the advisability of forwarding the autumn Cauliflowers, and also Veitch's Self-protecting Broccoli, by sowing under glass, as so far it has been an impossibility to sow such things in the open air. With relays of young plants coming on in frames, such as Lettuce and Cauliflowers, they will soon push ahead with the return of more genial weather.—Y.

—All seeds, however hardy, committed to the soil during February or the past month have found a very cold ungenial time in the open, and have made very little progress. It is

extremely doubtful whether in seed sowing much is gained by any effort to take time by the forelock, as is not unfrequently replied, "Time refuses to be so handled," and rather persists in keeping in the background. Time still rolls on all the same. March is gone and April is in, but the weather remains very cold; the soil, though fairly dry, is very cold, and nothing can be said to move. We find again this year ample evidence of the wisdom of late rather than early sowing. Nothing is gained by committing seeds to the soil, let it be ever so friable and inviting, until there is some prospect that the sun and weather will give the light and warmth needful for healthy germination and growth. It may have been wise once to sow so early as February many hardy seeds. I have seen large breadths of Brussels Sprouts, Autumn Giant Cauliflower, Savoy Cabbage, Wallflower, and similar seeds got in so early as February, and showing a plentiful plant in March. This year even such hardy things as white round Peas have taken six weeks from sowing to push their points through the soil, and then do so so slowly and irregularly that the birds seem to find little difficulty in making the earlier worms pay the penalty of their laggard precocity. Clearly those who have, in spite of the tempting condition of the soil and the generally dry weather, held their seed sowing over until the present month have been wise. A quick growth is always best. The greater the light and sun heat the better the chance for seeds of dubious quality, whilst rapid growth puts all which grow the more quickly out of the way of birds and insects. There can be no doubt but that, so far as all vegetation, but especially that from seeds, is concerned, we have a spring which almost beats the latest record.—A. D.

UNCROWDED PEAS.

In innumerable cases if less seed by about one-half was sown in a drill, and a less number of rows to the extent, say, of a reduction of about one-third, the same amount of ground being devoted principally to this popular vegetable, the chances are, far heavier and more continuous crops would result. There is some excuse for sowing the earliest varieties somewhat thickly, as these do not, as a rule, branch strongly even if given more room, and besides, a quick rather than a continuous crop is desired from these. But when we come to the stronger-growing Marrowfats, including Telephone, Duke of Albany, Stratagem, and such like, then ought their strong branching habit to be taken into consideration. Supposing the ground has been freely manured and deeply dug, the plants if given good room will grow strongly, branch freely, and give a longer succession of large well-filled pods than would be the case if grown much more thickly together. Few or no second early maincrop and late Peas will fail to branch strongly, and in most cases one pint of sound seeds would be ample for a row or rows equal to a length of 30 yards. Rather wide drills ought also to be drawn for them, this being far better than crowding the seeds into narrow drills. Few gardeners can have failed to note how extremely productive isolated rows of Peas usually prove, and that, too, in exposed positions where fine rows would have been least expected. Cottagers rarely sow more than two or three good rows of Peas, and these are usually in different parts of the garden. Manure is not often very plentiful, and it is not often the rows are given water or liquid manure, unless exhibition pods are required, yet the plants grow strongly and produce abundance of pods from near the ground to the top of the haulm. Mildew is a complaint which seldom affects these isolated rows, but is frequently very troublesome to the private gardener who arranges his rows of Peas somewhat closely together and in sheltered quarters. The plan of disposing the rows 10 feet or rather more apart, planting a few rows of Cauliflowers, Savoys, Cabbage, and such like between them, answers well, the room given favouring the Peas, while the intermediate crops are but little injured by them. The least that can be done is to arrange the rows fully as far apart as the height it is known the varieties

will attain under favourable circumstances. Previous experience is a better guide than catalogues. For instance, the height of Ne Plus Ultra is given as 6 feet, but in many seasons it will grow very much higher, and the rows of it may well, therefore, be disposed 7 feet apart. Medium height varieties rarely exceed their catalogued heights, but the rows of these might with advantage be arranged not less than 4 feet apart, an extra foot not being thrown away on the more vigorous of them.

I. M. H.

SPECIAL PREPARATION OF SOIL.

THE special preparation of the ground in kitchen gardens for certain crops is one that does not as a rule receive the attention that it deserves. Take, for instance, the production of good crops of Carrots; for the first three or four years of my experience here I never knew what it was to have a supply of Carrots. Myriads of insects such as wireworms, Carrot-fly, and other pests made such havoc, that if a supply of roots was kept up during the summer and autumn they were generally so damaged before winter was over as to be rendered of little use, and the remark was often made to me "Carrots will not do on this ground." However, I made a start to alter or endeavour to alter this state of things, and not without success. The first thing was to see that no manure, especially decomposed leaves, was given this particular piece of ground, but instead it received a coating of chalk, which was spread on the ground in the winter months so as to get the action of frost and air upon it before digging it in. Some time before sowing, the ground received a good dressing of the old soil from under the potting shed bench, and this was well worked into the surface before sowing the seed, which is always done early in the month of April. Slugs being very troublesome, a watch was kept, and as soon as the young plants could be seen, a dressing of lime and salt was applied, sowing it broadcast over the whole surface. This application was repeated again about the time the young plants were thinned and with the best results. Instead of changing the ground for this crop I keep to the same piece, which now receives a dressing of chalk, charred garden refuse and the soil from the potting bench every alternate year, and the usual dressing after the plants begin to appear. No manure is given. The result is we obtain better crops and cleaner and firmer Carrots every year, and this has been going on for five years. Celery is another crop that is very difficult to get in the best condition on somewhat heavy soils. The application of chalk in this particular instance would not answer, as it is not so much the want of lime in the soil as it is the making of the ground distasteful to insect pests, and instead of chalk we apply gaslime in sufficient quantity to whiten the whole surface of the ground as early in the winter months as we can get at it—that is after the ground has been dug, and on all favourable occasions the ground is moved about so that the surface may be well pulverised and the lime the better mixed with the surface. In addition to this the piece of ground in question will receive a liberal dressing of charred garden refuse, and also a light dressing of soot later on. I do not care to use soot and lime at the same time, as the lime destroys much of the valuable properties of the soot. I intend to keep to this piece of ground for the production of the crop of Celery, and shall follow up the dressing and working until I make it suitable for the Celery crop. However much one may wish to give each and every crop a change of soil and situation, there are instances when it is an advantage to do otherwise with certain crops, as I have shown above.

C. WARDEN.

Clarendon Gardens, Salisbury.

Substitutes for Spinach.—"A. Y. A." in his interesting article on this subject in THE GARDEN, March 21 (p. 257), has overlooked what I consider to be one of the best substitutes for Spinach we have. I would like to recommend a trial of Cabbage Lettuces. They possess several advantages, not the least important of which is the lengthened period (with some varieties a month or more) during which they remain in

a usable condition even in very hot weather; whereas in the case of the true Spinach, as "A. Y. A." correctly states, in hot weather it seems to bolt almost as soon as the seed germinates. No art is required in the preparing for table beyond that which is necessary for Spinach proper, and when properly dressed the flavour is excellent, although the colour is not so deep as that of the latter. I am of opinion that the adoption of this substitute would be of great advantage to the gardener in enabling him to supply a choice and delicate vegetable at a season when such a thing is scarce.—AJAX.

THE FOG AND A VITIATED ATMOSPHERE.

IN the district in which I reside (Ealing) the effects of the fog, in combination with an atmosphere charged with many impurities hostile to vegetation, have been in not a few cases lamentable. Even on so elevated a position as Hanger Hill House, the highest part, and also on the north, and thus considerably removed from the Thames valley, the fog proved deadly in its effects. Mr. Chadwick, the gardener at Hanger Hill House, reports the loss of a promising crop of forced Strawberries, French Beans, and Early Grapes, and it was only by maintaining a high temperature in his Peach houses that he has been able, as he hopes, to save his crop of Peaches and Nectarines. In this locality also cases have occurred in which the leaves of large-flowering and fancy Pelargoniums have turned quite yellow, which means a loss of foliage at an unfortunate time of the year; houses of Cucumbers have been completely destroyed, to the great grief of growers for market. At a recent gathering of gardeners here, at which Mr. Wythes, of Syon House Gardens, Brentford, was present, he detailed a series of losses of a melancholy character. At the time the fog first came his early crop of Strawberries had made considerable progress, but the foliage turned black and the crop utterly failed. The next batch of 300 plants had to be thrown away. He had planted Cucumbers five times, and there was not a plant worth seeing. Tomatoes were very much affected, and many of the plants had failed entirely. Peaches in bloom were much injured, and the fruit which had set was dropping off the trees. Early Grapes had been entirely destroyed, but a crop would possibly be obtained from pot Vines. Forced Potatoes were also injuriously affected; the foliage had turned yellow. He had tried to cultivate Violets for three years, but had been compelled to abandon it, and it did seem as if early forcing in localities near to London would have to be abandoned. Mr. Denison, Orchid grower at Gunnersbury Manor House, stated that the only means by which he was able to keep the blooms during the fog was by placing them as near the hot-water pipes as possible. The general testimony of the gardeners in this locality—generally an elevated and very healthy one—is to the same effect. Is it to be wondered at that the attention of the Government is being called to the prevalence of fog and its results, not with a view of preventing the fog, for that seems to be beyond the power of man, but with a view, if possible, of doing something in the way of curtailing the combustion which appears to fill the air with particles injurious to vegetation?

So keenly are the effects of fog in combination with an impure atmosphere felt at Manchester, that the Town Gardening Committee of the Manchester Field Naturalists' Society nominated some time since a sub-committee on air and fog analyses, and some of the results of their investigations have just appeared in a preliminary report. The committee was assisted in their investigations by some of the leading scientists of Owen's College and by Dr. J. F. Tatham, Medical Officer of Health of the city. The report states that the number of deaths from respiratory diseases increased during the prevalence of fogs, in consequence of their being impregnated with sulphurous acid and other injurious matter. Taking the normal number of deaths per week in Manchester from the above causes at sixty, they found that during the period of the exceptional dense fog which preceded Christmas this number went up to over 200. They knew definitely that the sulphurous acid of the air arose wholly and solely from the combustion of coal,

which contained from 1 to 2 per cent. of sulphur. Experiments had been made simultaneously at the Owen's College and at the Town Hall. The results showed considerable variations in the amount of sulphurous acid present in the atmosphere, but there was a larger amount near the centre of the city. Experiments had been made to determine the deposits from the air. The experiments in this section had been carried out, first, by observing the amount and nature of that carried down by snow; second, by collecting the deposits on the roofs of greenhouses; third, by examining the incrustations which formed on the leaves of outdoor plants in different parts of Manchester and Salford. Some estimate might be formed of the actual amount in snow when it was stated that during three days' fog there was carried down per square mile in the neighbourhood of the Infirmary, by no means the worst part of Manchester, nearly 6 cwt. of sulphuric acid; while at Owen's College the amount was over 4 cwt. The "blacks," even at the latter station, were over 2 tons, and the hydrochloric acid about 2 cwt. The leaves on which observations were made were gathered for the most part before much foggy weather had been experienced. There had been, however, no rain during the previous fortnight. In nearly all cases the leaves examined were those of the Aucubæ. The central districts of Manchester showed by far the worst results, both in regard to the incrustation on the leaves and the acid present in it. The leaves from several districts were actually acid to the taste, though this was not necessarily a sign of the presence of an excessive amount of acid, for, indeed, the acid was much more perceptible when the deposit was small in quantity. Some idea would be formed of the injurious nature of such deposits on the leaves when it is noted that the sulphuric acid formed 6 to 8 per cent., and the hydrochloric acid 5 to 7 per cent. of the whole deposit. The foregoing report appears to be a very useful contribution to our knowledge of the action of fog on vegetable life.

R. D.

TRIAL OF SPRAYING ENGINES.

CRYSTAL PALACE, MARCH 21, 1891.

FOUR distinct machines were entered for competition, but owing to their being of such diverse form and size the judges felt unable to award a medal for any of them, because in its way each appeared of equal value for the purpose for which it is peculiarly adapted, they therefore beg to present this report. In future trials (which they think desirable) they respectfully suggest that the schedule be divided as follows, when the machines can compete on equal terms.

A. Prizes for machines capable of spraying fruit trees with Paris green or other insecticides in large orchards and plantations, to a height of 20 feet or 30 feet, not requiring more than three men to work them by manual labour only.

B. Prizes for machines to spray dwarf fruit trees, wall trees, and plants in large conservatories, to be worked by not more than two men.

C. Prizes for hand machines capable of being managed by one boy or man, suitable for amateurs and private gardens.

Ease of working, economy of water and solutions, evenness of delivery, fineness as well as power of spray, and simplicity of construction to be fully considered by the adjudicators.

The "Stott" patent distributor was first tried, and found to work satisfactorily when attached to the Crystal Palace Company's main, the materials used in spraying being well diffused and under perfect control, but for the purpose of the competition the judges consider the patent "Stott" distributor, combined with a Farringdon Hop-washing machine, to be a most valuable sprayer for Hops or fruit trees. It is worked with ease, requiring one man to pump and one to deliver and manage the hose, and the patent Stott nozzles (double and single) give a remarkably fine and well diffused spray. This machine appears simple in construction, is durably made, and delivers a continuous stream, while the price, £6 14s. complete, is a reason-

able one. The judges were not quite satisfied that the distributor would deliver Paris green at a uniform strength, but with Stott's "Killmright" its action was all that could be desired, and they recommend a first-class certificate for the combination.

The judges were struck by the utility and handy "Stott" syringe and distributor, and they recommend a first-class certificate for this also, as being likely to prove of great value for amateurs for garden and glasshouse use. The spray produced was of the most dense description, and they believe it will prove of service for those who wish to destroy insects on plants within arm's length. This is priced at 19s. 6d. for ladies' size, and 21s. for a full-sized machine.—The Stott Distributor Co. (Limited), Manchester.

Vermorel's French knapsack spraying pump was next tried. This is a copper vessel made to sling on the operator's back, and the power is generated by a handle under the right arm, the liquid being delivered by hose on the left side under control of the left hand. It is delivered in a continuous cloud of vapour-like spray, while simple nozzles and arrangements prevent clogging at the outlet, and for tall trees the delivery hose can be lengthened and erected by a light cane or stick. Vermorel's machine is specially valuable for its portability, and can be used by one man. Being constructed of copper, it is light and strong, and is well adapted for passing round and spraying Cob Nuts, bush trees, and young standard trees, or rows of trees in nurseries, while taller ones could be sprayed with the help of a boy. The price is 35s. complete, and it delivers Paris green or other insecticides readily. Its weight when full is 40 lbs., and it will then work for two hours without recharging, effecting economy in the liquid used and delivering a fine spray covering all parts of the foliage. The judges award a first-class certificate for this machine. Agents, Messrs. Chas. Clark and Co., 20, Great St. Helens, London, E.C.

Hemingway's American spraying machine was next examined. Those exhibited stood on three legs, but can be fixed on a water-barrel, paraffin cask, or be fed from a pail. It is remarkably easy in action and simple in construction, delivering a dense spray in a considerable volume as high as 20 feet. The nozzles used are simple in character and unlikely to get out of order, while two and three can be used on one delivery, the latter combination throwing such a stream of well-diffused spray that a large tree could be covered in one minute. The judges consider this machine most valuable when furnished with two outlets, as one can be turned into the vessel and used to keep the contents in motion for effecting a complete mixture, and thus preventing injury to foliage by its being applied of unequal strength. The flow of spray is continuous and powerful, and the machine is equally valuable as a sprayer for Hops, tall or dwarf fruit trees, and also as a fire-engine. The recent machines are made in gun metal, and appear strong and durable. The price, with one suction and two delivery hoses, pipes, and nozzles complete, is £4 2s. 6d., a similar machine with one delivery being £3 10s. The judges award this a first-class certificate.—Messrs. Hemingway and Co., 60, Mark Lane, London, E.C.

Snow's patent garden pump is a compact machine which can be easily worked by a boy; it can be fastened in an ordinary pail, and works most easily, delivering a continuous stream of water, which can be charged with insecticides if desired, and this stream is broken up into a fine vapoury spray by contact with a cleverly designed jet called "Snow's patent helmet sprayer," which can be adjusted readily to suit the plant or tree acted on. The inventor has also introduced a capital plan of shutting off the outflow, thus economising the solutions used, and permitting movement from tree to tree without waste. The judges consider this a very useful invention, specially fitted for syringing or spraying wall trees, Roses, and trees of moderate height, as well as for garden use generally, the price being 40s. complete, and they recommend it

for a first-class certificate.—Messrs. Osman and Co., 132, Commercial Street, London, E.

A. F. BARRON
GEORGE BUNYARD } Judges.
J. WRIGHT

P.S.—All the awards were unanimous.

Bamboos and the frost.—"S. D." (your correspondent of March 19) was fortunate with his Bamboos. B. Metake, which "no amount of cold seems to injure," has here belied its good reputation. It has, however, stood the severe cold far better than the others (a few only) which I have planted out. Mitis, Henonis, and Simoni have suffered a great deal and now look deplorable; nigra, in a less degree, although planted out only last summer. Metake has certainly fared the best, but is disfigured. The plants themselves I do not think are permanently injured. They are in a border not wholly sheltered from the wind and protected with fibre. During the sunless months of last summer they made strong shoots, several over 5 feet in length, but in the case of mitis and Henonis they are not sufficiently matured (having been thrown up late in autumn) to stand the early and severe frost of October 28, which destroyed them. A friend who lives in the Oxfordshire hills told me last autumn that he had the following sorts growing in the open and well established:—aurea, Metake, Simoni, nigra, striatafolia aurea, and violescens. It would be interesting to learn the experience of "H." after the long and memorable frost.—F. COWSLADE, *Erleigh, Reading.*

Grubs in Auriculas.—Can you give me the name of the enclosed maggot? It was found in the stem of an Auricula plant, having eaten a passage upwards from the root to just below the crown of the plant. It is one of several I have found at the roots of similar plants.—GEORGE EDGAR FRERE.

** The grubs which you find attacking your Auriculas, &c., are the grubs of the daddy long-legs (*Tipula oleracea*). This is a very difficult pest to destroy, as the grubs, commonly known as "leather-jackets," seem to be proof against any insecticides which can be applied with safety to the plants. They may, however, be trapped by burying slices of Potatoes, Carrots, or Turnips in the ground just below the surface near the plants, and examining them every morning. Stick a small wooden skewer into each slice to assist in finding the bait. Pieces of turf or slate laid near the plants are useful, as the grubs will often hide under them.—G. S. S.

Scandinavian, Brevete, and Tortoise stoves.—Will Mr. Cullingford and Mr. Douglas kindly say if these stoves will burn any other fuel than anthracite coal, which is difficult to get where I am, also where they are to be had?—H.

BOOKS RECEIVED.

"Handbook on Conifers." L. Beissner. Berlin: Verlag von Paul Parey.

"List of Aroids Cultivated in the Botanic Garden at Brussels." Prepared by L. Lubbers.

"How to Use Nitrate." Practical hints for the profitable application of nitrate of soda as a fertiliser derived from recognised authorities, to which is prefixed "Some Points in Artificial Manuring," by Bernard Dyer. London: Street and Co., Cornhill, E.C.

Names of plants.—T. Brewer.—*Higginsia regalis*.—W. Leach.—*Cattleya Trianae*, *Odontoglossum Alexandrae*.—G. Gooch.—1, *Phyllotenum Lindenii*; 2, *Maranta Makoyana*; 3, *Leucodendron argenteum*; 4, *Aralia papyrifera*; 5, *Cossignea borbonica*; 6, *Paullinia thalictrifolia*.—G. J. F.—1, *Calanthe Williamsi*; 2, *Vanda Amesiana*, good var.; 3, *Odontoglossum hebraicum*; 4, *O. mulus*.—Allan.—1, *Leucostegia chærophylla*; 2, *Todea Fraseri*; 3, *Lomaria lanceolata*; 4, *Microlepia pinnata*; 5, *Asplenium formosum*; 6, *Diplazium zeylanicum*.—J. B.—1, *Cochlostemma Jacobianum*; 2, *Centradenia grandifolia*; 3, *Azalea Deutsche Perle*.—W. B. C.—1, *Scutellaria costaricana*; 2, *S. aurata*.—G. Murrill.—1, *Iris reticulata*; 2, *Papaver alpinum*; 3, *Scilla bifolia*; 4, *Saxifraga oppositifolia*.—Lyntinster.—*Oncidium pulvinatum*.—P. B. O'Kelly.—*Narcissus telamonius plenus*.—Mrs. Blackwell.—*Primula denticulata*.

WOODS AND FORESTS.

THE AUSTRIAN PINE.

(PINUS AUSTRIACA.)

As might be expected from the chalky nature of the soil, the Austrian Pine grows with unwonted freedom in most parts of Kent, but particularly where the chalk ridges run at no great depth from the surface. At High Elms there are some noble specimens that have attained to their present dimensions in an unusually short space of time—at least, if the growing specimens can be judged by those that have lately been felled. The annual growths were rather surprising, and the quality of the timber seemed good and with a great quantity of resin, but this was only judging from the butt end of the stems. Strange it is that wherever the Austrian Pine is grown in quantity the intermediate forms between it and the typical Corsican Pine (*P. Laricio*) will be present. Such is markedly the case in the fine specimens at High Elms. That the trees run into each other I long ago pointed out, but particularly regarding the trees at Penrhyn Castle, in Wales, where every intermediate form between the typical *Laricio* and Austrian can be distinctly traced. It is no easy matter to detect the difference in singly planted trees, but where numbers exist then the question is readily enough solved. Botanically the differences between these two Pines are distinct enough, that is, in the recognised typical or normal species, but in the case of many specimens their affinity to both the Corsican and Austrian renders it no easy matter for an opinion to be hazarded. As regards the behaviour of the Austrian in the chalky formation of parts of Kent, it is hardly to be wondered at when we take into account the calcareous nature of the rocks in its native habitat. Few trees, unless the Beech, succeed well on chalk unless a good depth of soil intervenes between, so that it is well to know that so valuable a shelter-giving species of Pine can not only hold its own, but actually thrive and grow vigorously where but a few inches of soil overlie the chalk rock. Clumps of the Austrian Pine here and there on the windward side of a park or estate are of great value, and I have planted it with perfect success on some of the Welsh hills at about 800 feet altitude and where the cold south-west winds hit hard and long. With a background of deciduous trees the Austrian perhaps looks best, but even there its formal stiff outline is readily recognised. Where a tree is valuable for its shelter-giving nature, then we must overlook its ungraceful points, and the Austrian is not only one of such, but a tree that can eke out an existence where few, if any, others could succeed, thus adding still more to its value. There is an unusually verdant healthy look about an Austrian Pine that is growing on chalk or gravel within its precincts, this being noticeable in several of the southern English counties. A. D. WEBSTER.

Winter colour of Conifers.—From many years' observation I have remarked that a large proportion of species belonging to the genera *Thuja*, *Biota*, and *Cupressus*, although perfectly green during the summer months, generally assume more or less of a reddish brown tinge in autumn and winter, and return to their usual green colour during the spring months. Some of the varieties, such as the columnar *Biota orientalis elegantissima* and the globular *Thuja aurea*, are generally quite brown in winter, but during the spring months they assume the ordinary green tint, while in summer they take on a rich golden hue. Towards autumn the golden

tint disappears, and is succeeded by the ordinary green colour of the original species, and finally they return to the brown, or winter tint. The cause of this remarkable anomaly I attribute to the want of sunshine in winter. The Cupresses from the western hemisphere do not exhibit the same marked difference which is generally noticed in the eastern species; still in some instances a very slight brown or dull green tint is often observable. The more distinct brown tints are chiefly seen in varieties which, I suspect, have been produced in nurseries or gardens, and are evidently hybrids between eastern and western species.—J. M.

SEASONABLE WORK.

In late hilly districts the planting of Pine trees and Larch may still be carried out, but great care should be taken not to expose the roots for any length of time to the drying influence of the air, and should a spell of dry weather set in the roots had better be puddled in a mixture of thin clay and water previous to planting. When planting dry rocky ground this puddling of the roots I have found to be very beneficial in promoting the growth of the plants at the start. This is the best time of the year for planting stiff retentive soils and peat bog. Overhaul and make up blanks in game coverts where necessary, prune Laurels and other close-growing evergreen shrubs, and in doing so, cut away any branches that are lying on the ground and forming a dense thicket around the margins of the groups and likely to intercept the ingress of game. Ornamental and other trees which have had branches or leaves torn off by the wind during winter should have the wounds dressed and covered with paint of the same colour as the bark of the tree. Old, neglected wounds of this sort that are infested with fungus growths should have all dead matter removed and the surface covered over with a coat of coal tar. Continue to graft forest and ornamental trees, examine such as were grafted last month, and repair any defects in the clay. Earth up the rows of young dwarf grafts in the nursery, leaving only the scion above ground. Finish the transplanting of young stuff of all kinds in the nursery as early as possible.

About the end of the month, when the weather is dry and favourable, commence to sow the seeds of coniferous trees, including Larch. Before sowing the Larch seed it should be spread out some 10 inches or 12 inches in depth and saturated with water. The seed should then be turned twice or thrice a day for about a week. The Larch seed should be sown on rich friable soil of a sandy texture, formed into beds about 4 feet wide and covered one-fourth of an inch in depth with fine soil. One pound weight of good seed should be allowed for every four or five lineal yards of a bed the size specified. The same class of soil and size of beds are also suitable for the seed of the Scotch Fir. One pound-weight of good seed collected in the natural Pine forest should be allowed for 12 lineal yards of a bed of the above size. The covering should be fully one-fourth of an inch in depth of fine pulverised soil. I am aware that some cultivators sow the seed rather more thickly than I have specified, but I have always found the best and hardiest plants where they were allowed plenty of space in the seed-bed. As birds are very destructive to coniferous tree seeds the beds should be protected by netting or be carefully watched for a few weeks. Sow the seeds of the common and finer sorts of *Rhododendrons* that were collected during winter and early spring. The common Silver Fir (*Picea pectinata*), *P. nobilis* and others of the same tribe may be treated in a similar way to that of the Scotch Fir, with this difference, that the seed should be slightly pressed down on the surface of the seed bed with the back of a spade and covered with about half an inch of fine soil. The common Spruce (*Abies excelsa*) may be treated in a similar manner, but as the seeds are not so large as those of the former trees a covering of about one-fourth of an inch of soil is sufficient. Sow the seeds of *Wellingtonia gigantea* and *Cupressus Lawsoniana* on rich sandy soil of a free open texture. As the seeds are small see that the surface of the bed is made level and smooth. In Ireland I have sometimes found

Cupressus Lawsoniana reproduce itself from seed on the spot. J. B. WEBSTER.

FORESTRY IN IRELAND.

THE Government has now acquired, I understand, some land for reclamation in Ireland at the low rate of 10s. per acre, and on this it is proposed to make an experiment in tree planting. That this is a step in the right direction I think no one will deny. It is admitted that in the matter of forestry Ireland and even great Britain are far behind other European powers, and with regard to Ireland, at any rate, anyone who has traversed the country from north to south must have noted the dreary woodless expanses to be found in many parts. Although many parts of Scotland are bare, rugged, and mountainous, yet a great deal in the way of tree planting has been carried out, and in some cases bare heather ground has been found to give a more profitable return than the best land in the same locality under tillage. Landowners, on finding that they could get their heather ground planted at a cheap rate, and that there was always a ready market and a fair price to be had for the timber, from the time of the first thinning and onward until the trees attained their full size, no doubt were encouraged to plant largely. That Ireland is capable of producing large and first-class timber there cannot be a doubt. Whether the reforestation of Ireland is to be carried out by private enterprise or the Government, one thing should never be lost sight of, namely, to plant the trees that are known to thrive best and give the quickest and most profitable return in the shortest time. From my experience of Ireland, I have no hesitation in recommending the different species of Poplar, Tree Willows, Alder, Birch, Spruce Fir, Scotch Fir, and Silver Fir for the bog lands after they have been thoroughly drained, and in some cases the Larch might be added with advantage. In all cases, however, where the soil is suitable the Larch should take precedence of all other kinds of trees, as the climate is suitable for its growth and healthy development. The Larch in Ireland is not affected by what is known in Scotland and England as the Larch disease, and this of itself is a matter of great importance. On stiff clay soils, hard dry gravel, and loose sandy drift, I have often found the Larch to be badly affected by heart-rot and "pumping," and the planter had better not use it here, as the Oak and several other hardy trees are more suitable and give better results. J. W.

The Goat Willow, if allowed to attain the dimensions of a tree, will rise to a height of from 40 feet to 50 feet, with a trunk of 1½ feet to 2 feet in diameter. The timber is considered of better quality than that of any other Willow. Being white, soft and light, it may be put to uses where lightness is a recommendation, for, when sawn into boards, it is useful for lining carts and barrows into which heavy weights are commonly thrown, as it does not splinter. On account of these qualities this Willow is capitally adapted for rake and scythe handles. As the young wood makes excellent hurdles it is very useful on the farm, being much lighter than that commonly used for this purpose. On this account Willow hurdles are much handier, as they can be more readily moved from one place to another when the sheep require change of pasture, and are less liable in consequence to become damaged when flung down upon the ground, heavier ones often being injured by their own weight. The Goat Willow is also highly ornamental, its shoots having a rich glossy bark, forming an agreeable contrast in spring-time with the buds which are white and prominent, while the profusion of yellow catkins displayed by the male plant causes it to wear a bright and handsome appearance, which is a very agreeable relief to otherwise dreary, swampy, waste land lying idle.

"The Garden" Monthly Parts.—This journal is published in monthly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.
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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHARD AND FRUIT GARDEN.

THE BLACK HAMBURGH GRAPE.

THIS good old variety combines in itself so many good qualities, that it is not at all surprising how very popular it still remains. McIntosh, early in the present century, preferred it to all others, "as being the most universally cultivated," and although I would not go to the length of preferring it to two other sorts that could be named, there is no mistake about its still being the variety of all others most extensively cultivated. The original Vine was introduced from Hamburg early in the past century, and there are remarkable specimens of it extant at least 150 years old. Probably the best known of these is the famous Hampton Court Vine, which, although not so productive as it was forty years ago, is still capable of producing from 1500 to 2000 bunches, or say about 15 cwt. of fruit. There is really nothing very remarkable about this, but no reference to the Black Hamburg Grape would appear to be complete without mention being made of this historical Vine. Mr. Hunter, the gardener at Lambton Castle, Durham, has achieved something far more remarkable, no other grower, to my knowledge, having produced such remarkably heavy bunches of Black Hamburg. One of these weighed upwards of 20 lbs., and another I saw at the great fruit show held at Manchester in 1875 weighed 13 lbs. As might reasonably be expected, such huge bunches were of clumsy appearance and only fairly well coloured; in fact the heaviest perfectly finished bunch I have yet met with was grown in the famous Longleat vineries, and was nearly 8 lbs. in weight.

Probably no other variety varies so much under different circumstances, the Black Hamburg also presenting the strange anomaly of being alike the easiest and the most difficult to grow. It succeeds fairly well under almost any form of treatment, as it is amenable to hard forcing, can be retarded, so as to have it fresh and good near midwinter, and is, perhaps, the very best that can be grown under glass without the assistance of fire-heat. It is also one of the last to collapse under bad treatment, and may therefore be said to be the amateur's Grape *par excellence*. Yet, with all this in its favour, and in spite of its undoubted popularity, how often is it to be seen at its best? If we take fruit shows as the best test, I may safely venture to assert that not one grower in thirty succeeds in having the Black Hamburg in perfection, the samples varying so much as to make a superficial observer feel inclined to agree with old writers and some few modern pomologists who have expressed the opinion that there are several distinct forms of this old favourite. Mr. McIntosh, in his first edition of "The Practical Gardener," describes four distinct forms, these being Hamburg Black (true), Warner's Black, Hampton Court or Red Hamburg, Hamburg Purple and Hamburg Brown. Black Frankendale, or Frankenthal, is also described as a form of Black Hamburg, and principally grown on the Continent. That there are plenty of Red and Brown Hamburgs to be seen every season, and only a comparatively few black or purple in colour, is only too true; but that all are distinct varieties few will now-a-days be pre-

pared to admit. At the same time, I hold that there is a marked difference in some of the forms in cultivation, though this is not sufficient to stamp them as being distinct. In the Black Hamburg house under my charge there are not less than three forms plainly observable almost from the time the laterals are produced, colour of green wood, size of foliage, style of bunches, and size and "hammering" of berry all varying.

In order to avoid Red Hamburgs, over-cropping must be avoided, and plenty of time should be allowed for the colour to be laid on. The former evil is undoubtedly very common, and nowhere more so than in the Channel Islands. Those who over-crop their Vines always pay dearly in the end. Not only are the Grapes of far less value when badly coloured, but the strain put upon the Vines while the crops are hanging so greatly injures many of them, that they seldom properly recover, and their life, in the market grower's case at any rate, is a short, if merry, one. Private gardeners and amateurs, however, cannot be frequently rooting out exhausted Vines and replanting fresh ones, and they will do well, therefore, to leave no more bunches on their Black Hamburg rods than these are well able to finish off properly. The pleasure derived from superior produce well repays for any apparent self-denial, this being none other than a liberal reduction of the number of bunches, and, what is also of great importance, shanking, premature exhaustion, and other evils may be avoided. No variety of Grape sets its berries more surely than the Black Hamburg, but if extra large berries are desired, then ought the young bunches to be freely thinned out long before the flowering stage is reached, those reserved being given the benefit of all the light possible.

Other conditions being favourable, the stems and footstalks of future berries will be stout, the flowers proportionately strong, and the pollen being well distributed, the set will be perfect. In thinning out select the central and most perfectly formed berries, and by giving good room a large size will be reached. Many succeed well up to the ripening period, only to stop just short of colouring the berries properly. More often than not this failure is due either to an attack of red spider or to undue haste, too much fire-heat being turned on and not enough air given. After colouring has commenced, if not before, a little front air ought to be admitted every night, and a chink of top air also being given, a good circulation will be kept up. This, coupled with abundance of air in the daytime, ensures thorough and perfect ripening, quality, colour, and bloom all being satisfactory.

Generally speaking, the handsomest and most compact bunches are produced from moderately short spurs on healthy old rods, those resulting from strong young canes being far too loose and ugly to please good judges. Old and apparently exhausted Vines ought not, therefore, to be too quickly discarded, as they might pay well for renovation or restoration to good health. Those grand bunches so frequently shown by Mr. W. Coleman in years gone by were, I believe, largely cut from very old Vines, these being kept in excellent health by the frequent addition of fresh soil to the front of the borders. Old Vines will do but little good if their roots, such as they are, have nothing but inert, cold soil to spread in, but if the greater part of this is removed and replaced by plenty of good turf, some half-inch bones, bone-meal, charred garden soil, wood ashes,

and lime rubbish being mixed with it, the effect will be almost magical. Soon after the crops are cut, and while yet the foliage is fresh is the best time to do this important work.

The Black Hamburg is by no means a rank grower, and large borders are not needed for it. Planted out in narrow pits or raised borders in small houses it will stand forcing very early, and produce excellent crops fit for use early in May or by the time Lady Downe's is about done with. For pot culture it is also one of the best, and instances have come under my notice where 8 lbs. of Grapes have been cut from a rod in a 12-inch pot. By retarding the starting of either pot Vines or others permanently planted till as late as possible in April, it is possible to keep the crops till midwinter, and there are places in this country where the Black Hamburg must be so retarded, but, as a rule, it is useless to attempt keeping any ripe in August so long. As before stated, the variety under notice is one of the best for amateurs to plant, but in most seasons it will require a little fire-heat either to ripen the wood or the crops, more of it also being needed to keep the berries sound after they are ripe. Market growers are not so fond of it as they were a few years ago, more easily grown, better-keeping varieties, inferior in point of quality though they may be, paying much better. The Black Hamburg has been turned to good account as a stock for many of these, and for this purpose it answers well. It does not follow that it is being totally discarded as a market Grape, but, on the contrary, it is still extensively forced, so as to have the fruit ripe in April and May, or before Strawberries are abundant. Directly the latter are to be had from the open ground the prices for Grapes drop to almost unremunerative figures.

W. IGGULDEN.

REPLANTING VINERY.

THE following is a brief account of a successful experiment which may be of interest to some readers who are similarly situated. One particular house was filled with Vines that were at least fifty years old, and as bunch and berry, although plentiful in numbers, became smaller each succeeding year, it was determined to replant. The question, however, I had to face was the necessity of getting the young Vines fairly well on the way before the old canes were entirely removed, the supply of Grapes already being hardly equal to the demand. The old Vines were all planted outside, and the border had sunk until the surface was some 15 inches below the front sill. Feeling tolerably certain that what few roots remained to the old canes were down a considerable depth, I determined to try the experiment of making a shallow border on the top of that already existing, plant the young Vines in this, and as soon as they made headway in the house and gave a fair promise of fruit, start at one end of the border and remake it throughout, removing the old Vines, root and branch, and (carefully preserving the roots of the young Vines) incorporate the surface border and replant as the work progressed. The young Vines which had been struck the previous season were cut back to the required height (the bottom buds being rubbed off) and planted in the surface border in the spring of 1889. The old Vines were preserved in their entirety through the following summer, but early in 1890 being able to leave 5 feet of cane to each young Vine, I sawed off a corresponding length of spurs from the old Vines to give plenty of light and room for the proper development of the young wood. We had a fair crop on the bottom breaks of the young Vines in 1890 and our usual crop from what was left of the old rods. An examination of the surface border early in 1890 had shown that the young Vines were rooting away well in all directions, and to encourage them as much as possible they received one or two top dressings and a very slight mulching with a little long litter.

The progress made in 1890 was so satisfactory, that I thought we might safely leave the house to the young canes, and accordingly early in September of that year the border was remade throughout, the make-shift surface border, as I have said, incorporated as the work progressed, and the young Vines replanted in what will, I hope, prove their permanent quarters for some years. They are doing well and will average sixteen bunches each this year. I found nothing in the shape of fibre belonging to the old Vines, only a few tap roots, that after coming a little way horizontally plunged straight down into the soil, and when cut at a depth of 3 feet (the limit for our base of stone and brick rubbish) they were almost as large as at the point close to the stem. E. BURRELL.

Claremont.

WIRING OLD GARDEN WALLS.

MUCH has lately been written on the above subject. Some are much in favour of the practice and many against it. Many readers may, like myself, have old worn-out walls and be desirous of wiring them, but who, having read the disastrous accounts of injury to the branches of fruit trees by several of your correspondents, may be deterred from using wire and go on with the old nail-riddled walls as usual. The garden walls here are all built of rubble limestone, which is most uneven, many of the blocks being from 12 inches to 18 inches thick, and no two stones in the whole of the walls of the same shape and thickness. A nail might be driven into ten places before a hold could be got, and thus labour lost and work badly done. I have repaired over 700 yards in length of these walls, which are from 9 feet to 12 feet high, and wired them with No. 12 galvanised wire with the most satisfactory results. I will now state how I proceeded. When the leaves drop in autumn the trees are carefully loosened from the wall and the branches tied in bundles to stakes, so that the surface of the wall may be free to repair. All the large holes and uneven places are well filled with mortar made of good quicklime and forge dust; this makes a capital tough mortar, and being dark is not conspicuous. Galvanised eyelets are then driven half their length into the wall, and in straight lines about 7 feet apart and 8 inches from line to line. An iron bar with holes 8 inches apart is fixed at about every 300 feet. These bars are well fastened to the wall with strong brads, to which the wire is fastened and strained to the second bar, 300 feet being quite enough to tighten with an ordinary wire strainer. These bars need not be more than 1 inch by half an inch thick. I then make a very thick wash with quicklime, a little lampblack and tar to tone down the colour; this is then well rubbed over the wall, filling every nail hole and crevice. This thoroughly destroys all insect life. The brush we use is the stiff kind used for tarring. The handle is about 4 feet long, so that the workman can use two hands, and thus work the stiff mixture into every crevice. Since I have used this lime and tar mixture on the Cherry walls, the black aphides have given very little trouble. After the limewash is dry I then thread the wire through the eyelets, fasten to the end bar, and strain to the second moderately tight; the eyelets are then driven close into the wall. In tying the trees to the wire we pass the matting once around the wire before tying the branches. This is necessary to keep the shoots in place, and may prevent the branch from coming in contact with the wire. I have Apricot, Peach, Cherry, Fig, and Plum trees trained on galvanised wire with the most satisfactory results, and I think where evil has happened is in consequence of branches being fastened too tightly to the wire, and thus an obstruction has been caused to the sap and injury done.

Fota.

W. O.

SHORT NOTES.—FRUIT.

Bullfinches and fruit buds.—I have seen comparatively few bullfinches this year, nor have other gardens hereabouts been much troubled by them, and I had arrived at the conclusion that a considerable number of them must have perished during the severe

weather in January last. Recently, however, a gentleman who lives within easy distance of Wells informed me that bullfinches had been unusually destructive in that neighbourhood—thirty of them having been captured or destroyed in his small garden alone. From this it would appear that these marauders have migrated from one part of the county to another, as there were plenty of young ones seen on this estate last summer.—M. H.

Alexander Peach.—I am told by a friend who has attempted the very early forcing of this precocious Peach that it is apt to jilt the cultivator by casting its buds prematurely; and as this partly coincides with my own experience, I am anxious to know whether other cultivators have experienced such a tantalising difficulty with this fickle kind. Alexandra Noblesse is another kind notorious for its persistent bud-dropping.—W. CRUMP.

Grapes injured.—Will you kindly state the cause of spot on enclosed berries? Other bunches are also affected. The berries appear at first as if pricked with a pin. The Vines are looking perfectly healthy in every other respect.—HAMBRO.

** Kindly send us some particulars as to your treatment. From the appearance of the berries they look as if suffering from what Mr. Barron, in his "Vines and Vine Culture," calls spot.—Ed.

ROSE GARDEN.

STANDARD ROSES ON LAWNS.

THE standard Rose has often been condemned on account of its short life and its mop-headed look, many thinking it quite out of place. I fear there will be much loss this season among the standard Roses, as many trees with only a few roots will have succumbed to the severe weather. A careful examination of all old trees should be made before it is too late to replant, or else gaps will take place in a month or so. We have suffered severely in this respect, and I fear there are many similarly situated. I find it a good plan to pot up a few medium-sized standard Roses and plunge them in the open, as these can be readily removed at any time and placed in the gaps if losses occur in the late spring and early summer months. I have observed that of late years many very weak Briers are budded that would have been better if left a little longer, and it is often these weak stocks that succumb to severe weather. The soil in which Roses are planted often has much to account for in the way of losses, and I find on our light soil, without abundant supplies of moisture, they suffer dreadfully in hot seasons. As our Roses are mostly on turf, I find it a good plan to leave a circle some 18 inches to 25 inches round each stem, and when planting to leave some few inches in depth (4 inches to 6 inches) for a good mulch of manure. I find cow manure gathered fresh out of the pastures the best, and it is applied every few weeks and well washed down to the roots weekly. On poor light soils I believe this to be the best manure, as it is cool and moister than horse droppings. I find it also answers as a winter dressing when in a decayed condition, and use it largely for dwarf Roses. One great disadvantage in using any manures near Grass edgings is the rapid growth of the Grass, and a cheap, but effectual means to check this is to use iron sheeting or zinc placed round the edge next the turf. This is out of sight, and when placed neatly round does not look unsightly and keeps the manure from the turf. Another advantage is that it prevents the mowing machine injuring the stems of the Roses. Many standard Roses fail with us after a few years, while others stand many years. No doubt this is owing to our wet moist position. I think Roses suffer much worse from excessive moisture and cold than from cold alone, as this season many have died that withstood the dry frosts of ordinary winters. I believe much damage is often caused to standard Roses by allowing them to remain for years without lifting. Deep planting is also much at fault, and newly made ground should be allowed time to subside. When standard Roses are planted in beds the lifting is an easy matter, but when on turf, a little more trouble is given; still, if carried out every other year early in the autumn, according to

the season, it is of great benefit to the plants, more especially on poor soils. By lifting the plants, the suckers can be cleared away, the long roots properly shortened back, thus producing short fibrous roots, which are the chief support of the stocks. By so doing, many years may, I believe, be added to the life and vigour of the Roses. G. WYTHES.

Syon House.

NOTES ON ROSES.

THE note by "G. H." (p. 305) is full of sound reasoning, and I am convinced that the oft-repeated sentence, "it is difficult to give the Rose too rich a soil," and which is found in almost all Rose catalogues, is very harmful. One reads this advice, and forthwith enriches his ground in every possible way, until it is equivalent to planting Roses in simply manure. It is certain the Rose will not do well when treated in this manner. The young roots are unable to start because the soil is too strong for them, and consequently the tips of the tender roots turn black and are killed.

If a little light and unmanured soil is placed around the roots of newly-planted Roses, they commence rooting into this, and will be glad of the richer soil after they have made a fair start. Too often the opposite to this is done, and a quantity of strong manure is placed in direct contact with the roots. Good, fresh, loamy soil in which Roses have not lately been grown will require but very little feeding; indeed, it is much better to add manure the second autumn after planting, and when the plants have somewhat exhausted the natural resources of the ground. Fresh or "green" manure of any kind is bad for the Rose.

Where plants are doing unsatisfactorily and a fresh piece of ground can be had, it is far better to replant than to try a heavy mulching of manure to bring them back to their proper form. Almost any ground that has been cropped with Potatoes suits Roses. I agree with "G. H." as regards standard Roses. The failures in these can generally be traced to an injudicious selection of varieties; these, whether Teas or Hybrid Perpetuals, must be strong and free growers to thrive in this form. Weak growers have not sufficient strength to draw enough sap up the Brier stems to keep them healthy and growing. Regarding the hardness of Roses, I have no hesitation in saying that out of a dozen Teas and the same number of Hybrid Perpetuals taken at hazard, the Teas will prove quite as hardy as the Hybrid Perpetuals, while the Teas are much longer lived and more worthy of the name "perpetual," both as regards freedom of flowering and longevity. In many instances where complaints are made of the late frost among the Roses, it will be found that they were grown in wet soil or in low, damp situations. In furnishing any report it is necessary to state the district, and whether grown in wet; heavy, or light soil; also, if high or low, and whether a large body of fresh water is near; otherwise the reports are misleading and useless.

RIDGEWOOD.

SHORT NOTES.—ROSES.

A monster Marechal Niel.—There is at the present time flowering in the Vicarage Street Nursery, Warminster, a wonderful Marechal Niel Rose. It was planted on April 16, 1888, and in the first year after planting made four shoots each 25 feet long, and bore over 200 Roses before being planted twelve months. Next year the growths were 30 feet long and produced over 2000 Roses. It is at the present time carrying over 3000 buds and blooms.—T. H. HANAWAY, Vicarage Street Nursery, Warminster.

Rose Aimee Vibert.—This is a beautiful old Rose for covering an arch—rustic or otherwise—or to hide an unsightly building, or to train round three stout poles or stakes driven into the ground to form a support. It is of no use to the exhibitor, but for making a pleasant picture it has, I venture to say, no superior; it is hardier, too, than most of the Roses in the class (Noisettes) to which it belongs. Last autumn I was visiting a garden where everything was on a large scale, and in the roserie, which was constructed of iron, this Rose

was employed to furnish the whole of the iron work, and very well had it done its work, for the encircling garlands were without a flaw.—E. H.

Iron as supports for Roses.—A few days ago an amateur friend, because of the coldness of the metal, replaced the iron stakes which supported the standard Roses in his garden with others made of wood and painted, the bottoms having been charred. The fluctuations of temperature of iron are, of course, well known, and in a severe winter, when even a trifling depression of temperature beyond the normal condition of things may have serious consequences, contact with an iron support may form the last straw which turns the balance against the Rose, especially in the case of delicate varieties. The only point in favour of iron supports is their durability, but in our moist climate iron soon rusts away unless galvanised or painted annually. Galvanising iron does not raise its temperature, and in many cases complaints have been made of the injury done by galvanised wire to fruit trees, &c., though whether the low temperature is the cause of the mischief or the bright coating upon the wire has not yet been fully cleared up. Whoever uses iron supports for anything to grow upon should at least keep them well painted, and in tying Roses or other plants to the supports cross the two ends of the string, or whatever tying material is used, so that the plant may not come into contact with the metal. I have frequently noticed when tying Peaches and other trees and plants to galvanised wires that where the matting is passed round the wire first and the tie loosely made so that the bark is not pressed against the wire no damage is done. Hollow bars or tubes are, as stated by "D. T. F.," in every way better than solid bars of metal, and doubtless in the future metal tubes will come largely into use, for it is not likely, unless there should be a wider difference between the cost of iron and wood than there is at present, that the wood will reassert its old supremacy.—E. H.

NOTES ON DINNER-TABLE DECORATIONS.

Now that flowers are becoming more plentiful there will be greater opportunities for making diversities in the arrangements. To follow much upon the same lines for months together, even though the quality of the materials used leaves nothing to be desired, is not in any sense advisable. The ultimate result must be a lack of interest, even when the flowers used are varied from time to time. For my own part I prefer to make trials and experiments in a small way first; by this means one soon arrives at an idea what the effect would be when carried out upon a more extensive scale. Just now there is a capital opportunity of setting out dinner-table decorations without any such accessories as silver epergnes or glass vases or ornamental china. Each is undoubtedly of great assistance in its way, but it by no means follows that they cannot be dispensed with. All that I would desire when these aids are not called into requisition are a dish or two, a few soup plates, and the saucers from breakfast or tea services; some of each are often of use together upon the same occasion. The next thing to secure is some fresh green Moss and silver sand to place in these receptacles. Those who live in the country or have communication therewith would have no difficulty in obtaining good Moss suitable for the purpose, and that, too, very often in variety of colour from a silvery grey to a deep green shade. Failing the Moss, I would use neat tufts of *Selaginella Kraussiana* (denticulata), of which there should always be a stock in hand fit for use. Of this Moss the golden-tipped variety is in the spring-time a pleasing change. When the desired quantity of these selections from the china store has been made and duly prepared with sand and Moss, afterwards being well moistened, and then wiped quite clean and dry upon the under side, then the floral arrangements may be carried out. For this purpose there is now a good variety from which one can choose. Take, for instance, the Crocuses in their diversity of colours; with these alone a capital effect can be made, grouping together the

larger varieties in receptacles of proportionate size. The Primroses supply us with another change, not, however, arranging them in closely tied-up bunches, but more in a natural manner with the assistance of their own foliage. The Polyanthus and other allies of the Primrose will come into use a little later on. Then there are also the Squills, now represented by *S. bifolia* and *S. sibirica*, or the Glory of the Snow (*Chionodoxa Luciliae*); these being blue should not be depended upon entirely, but either would be assisted by some yellow Primroses. Selections can also be made from other early blooming herbaceous and alpine plants, such, for instance, as the Hepaticas, the Saxifrages, and, above all, such dwarf forms of Iris as *I. reticulata*, which, with a few blooms of a dwarf kind of Daffodil, such as *N. minimus* or *N. Bulbocodium*, are lovely. If larger flowers upon taller stems are needed, there are the Hellebores and a wide field of choice from amongst the larger Daffodils. As to foliage accessories, it is not necessary to look to the stove or the greenhouse to supply either Ferns or anything else. In each case use as much as possible the foliage from the plants which supply the flowers; other assistance can be had from such as the Golden Valerian, the silver variegated Arabis, or the green-leaved *Pyrethrum Tchihatchewi* from amongst small growing plants, anything larger being scarcely required. There are also the smaller kinds of Ivies, some of the tips of which might be useful; beyond this we shall soon be supplied with a good choice of sprays and twigs of the various deciduous shrubs. With such material as that alluded to and other things also it is possible to make a very attractive display, with the satisfaction of knowing that it can be accomplished without having to depend upon exotics which are grown in a high temperature. I have made no suggestion as to the method of arranging these designs upon the table; this should greatly depend upon the amount of other articles for which room has to be provided. The chief point is to avoid any appearance of overcrowding. The centre piece must, of course, be the principal design, the rest greatly depending upon the size of the table. I prefer for an oblong table to have an oval dish for the centre; it has a better effect than a round one. When the table is of good length, then two smaller ones of the same shape can very well be used. If button-holes or sprays are deemed necessary adjuncts to such an arrangement, they can be easily provided from amongst hardy flowers also, and for my own part I would decidedly use them. These should be laid upon or in the napkins, dispensing with small glasses even for these, to carry out the simplicity of the whole in its entirety. As to the dessert dishes for such an arrangement of a dwarf character, I would choose all equally dwarf; failing anything better, I would use dessert plates instead of dishes rather than spoil the effect. The same ideas can be worked out in the drawing-room and boudoir arrangements of flowers. In these instances Violets could be suitably employed with other things, of which there may not possibly be enough to turn to account upon a dinner table. For the drawing-room I always consider it an advantage to have at command some fairly large shallow vases or china bowls; for many things these are far preferable to taller ones. Many a useful flower cannot be used simply because it has a short stem when such vases are not available. Another point, too, is that of good keeping qualities; this I have found to be decidedly in favour of flowers inserted into a good amount of water in shallow vases. H.

A note from Wales.—A stroll on even a wintry day in April reveals to the eye that, though tardy, spring is gradually coming, for with the assistance of a few winter flowers and leafage, many gay bits of colour and brightness are seen in various aspects and positions. In a snug corner on a sunny wall *Pyrus japonica* with long flowering shoots hanging loosely is most attractive and bright. Camellias in full bloom on a dwarf wall are also gay with an odd late-flowering shoot of *Jasminum nudiflorum* mingling with them—truly winter and spring bloom in combination. Plants of *Berberis Darwini* with their fast opening showy blooms in

their appropriate setting of glossy green are also a cheering sight, while myriads of red *Rhododendron* buds showing colour and slowly expanding, and a few *Laurustinus* bedecked in their chaste bunches of bloom—such as are only seen in the pure country air—with massive clumps of *Andromeda floribunda* in the distance, resembling beds of Lily of the Valley, and an odd bush of *Ribes sanguineum* are also beautiful. These and other early-flowering shrubs with the general expansion of all deciduous trees into leaf make up a picture varied and beautiful. Breadths of Daffodils in variety in the now fresh greenery of the lawns are, of course, most showy, and the wooded banks flanking these are gay with Primroses, Polyanthus, Wood Anemones intermixed with the humble Violet, and the pale green-leaved white-flowered *Oxalis*. To follow which we look forward to acres of Bluebells. In passing we are unable to resist the temptation of pausing—even if at only but a mill-dam, widened chiefly with a view to enlarging its reflective capacities—to admire the magnificent reflections shadowed therein. In its near proximity and along its margins are plants greatly varied in form and colour, from the lovely Heather up through Pampas Grasses, Tritomas, Polygonums, evergreen and deciduous shrubs and trees in great variety till the majestic Oaks, Beeches, Birches, Scotch Firs, &c., are reached, while at some distance is a mighty hillside planted with Firs and Larches to as high an elevation as such will thrive. Above these the noble comparatively barren rocks—interspersed with Heather and plants natural to such places and elevation—tower up to great heights in their lofty magnificence. The beauties of these as reflected in this gigantic mirror in every minute detail, leaf, twig, branch, trunk, and rocks, are not easily described.—J. R.

NOTES OF THE WEEK.

A twin-flowered Arum.—I enclose a specimen of double Arum. The same plant has sported once before this year; then it threw up a white leaf with the flower.—F. BULL, *Southport Botanic Gardens*.

* * We have this season received several examples of the *Richardia* having developed twin blooms.—Ed.

Hyacinthus azureus, or Muscari azureum is a very welcome spring flower, very attractive with its dense heads of pale blue flowers and broad glaucous leaves. It increases very slowly by offsets, but may be readily raised from seed, the bulbs, if well treated, flowering the third year. A coloured plate of this was given in THE GARDEN, August 10, 1889 (p. 126).

Two good Dendrobiums.—Mr. W. Earp, The Gardens, Windlestone Hall, sends us two beautiful photographs, one showing a very fine specimen of *Dendrobium fimbriatum oculatum*, and the other a well-flowered example of *Dendrobium nobile*. Where these two Orchids are grown in quantity there need be no lack of useful flowers for cutting at the dull season of the year.

Thlaspi stylosum is a plant known in gardens under all sorts of names, *Iberis stylosa*, *Hutchinsia*, &c., being some of the names under which it is grown. It is a pretty dwarf alpine, from 2 inches to 3 inches in height, branched, and forming dense tufts of spatulate leathery leaves. It bears pretty lilac, sweet-scented flowers. It is a charming little plant for sheltered nooks on the rockery, and is easily raised from seed. Native of Southern Europe.

Freesias from Guernsey.—Mr. Cruickshank, Rohais Nursery, Guernsey, sends us some very fine spikes of this beautiful Cape bulbous plant. *Freesias* do not equal in brilliancy some forms of *Sparaxis*, *Ixias*, &c., but they possess a peculiar graceful form, while their fragrance is delightful. In addition, too, they last in bloom for a long time, and the endurance of the flowers when cut is remarkable. By proper treatment a succession of blooms may be had over a long period.

Lobelia fulgens.—I send you a photograph of a large circular bed 9 yards in diameter planted with *Lobelia fulgens* Queen Victoria, with broad band of *Dactylis elegantissima* fol. var. It was a blaze of colour during last summer. I always lost many plants of this *Lobelia* through the winter when I kept them in cold frames, planted out, and in boxes. I have now adopted another plan, placing them on a raised bed of ashes in a sheltered spot, filling well in with the same

and using no other protection. I examined the plants in the month of March, and found masses of crimson foliage peeping through.—G. BOLAS, *Hopton Hall Gardens, Wirksworth.*

* * A mass of this *Lobelia* in bloom, such as is shown in the photograph, must have been very effective.—ED.

Plants under trees.—I should like to thank your correspondents for the information given in reference to plants under trees, and also to add that I find *Cyclamen hederifolium* quite at home under a Cedar of Lebanon. I have a mass of this plant about 4 feet square. Some of the corms are nearly 6 inches in diameter. The plants have not been moved for nearly twenty years; they flower freely, and the leaves are beautiful just now.—O. ORPET, *Cirencester.*

Royal Horticultural Society.—We are asked to state that the date of the Temple show has been definitely fixed for Thursday and Friday, May 28 and 29. The show will be opened at one o'clock on Thursday, May 23, by Her Royal Highness the Princess Christian. The band of Her Majesty's Scots Guards will be in attendance each day. Fellows will be admitted free on either day on showing their tickets. On Thursday the price of admission to the public will be three shillings, and on Friday one shilling.

Chrysanthemum Beauty of Castlehill.—I send you a bloom of *Chrysanthemum Beauty of Castlehill*. The same variety opened its first flowers in October (early), and I have had blooms of it every month since. The same variety was awarded a first-class certificate last December. It is a little uncertain as to its time of blooming, but plants struck early will be the first to flower. It is a strong robust grower and a cross between *Gloriosum* and Mrs. F. Jameson.—R. OWEN.

* * A fine flower, but we cannot see any advantage in prolonging the *Chrysanthemum* season up to this date when we have all the spring flowers in their full beauty.—ED.

Dendrobium speciosum.—I enclose a spike of *Dendrobium speciosum* just to show you what a grand species this is. I grow it cool and place it outdoors after it has finished its growth. The plant has been in bloom for four weeks.—D. FAIRWEATHER, *Westgate-on-Sea.*

* * A handsome spike, accompanied by a photograph, which we hope to reproduce. There were on the spike 104 flowers. This, one of the first Australian *Dendrobies* introduced, has been in cultivation nearly seventy years. It is, as a rule, a shy bloomer, and the best plan is to stand it out in the sun and keep it quite dry after it has completed its growth. Its stout bulbs enable it to bear this treatment.—ED.

Colonial Apples in London.—The *Lyttelton Times*, published at Christchurch, New Zealand, on Feb. 23, says: "About 400 cases of this season's Apples have already left Papanui for England. This is the commencement of a large exportation, one gentleman alone in the district having purchased fruit which will fill at least 5000 cases." A portion of these Apples arrived in London by the steamship *Tongariro* in very good condition; and although English Apples are still on offer in the market at from 2s. to 10s. per bushel, so splendid, it is stated, was the quality of this New Zealand fruit when exposed for sale by auction in Covent Garden Market, that they realised the extraordinary price of 15s. to 25s. per bushel-case, thus demonstrating the extreme importance of, and ultimate profit attached to, the growing of really first-class fruit.

Hydrangeas.—Few plants are better suited for early forcing than the common *Hydrangea* (*H. hortensis*), and the white variety Thomas Hogg is equally serviceable and cannot be too highly recommended. I had both in bloom early in February, and although the colour was not quite so good as in plants flowering when we get more daylight, they were very useful, especially as they were among the few subjects which did not suffer from the effects of London fog. For forcing, the plants should be propagated early in the summer. The soft young tops will strike freely in a close pit where there is a good bottom-heat. As soon as rooted they should be removed and gradually exposed. When sufficiently established they may be potted into $\frac{1}{2}$ -inch pots, using good rich loamy

soil. The plants should be grown in the open where they are fully exposed to the sun. Towards the autumn they should be kept rather dry to encourage them to ripen off early. If treated too liberally the plants will run up tall and will not set their bloom so well. Another way of treating this useful plant is to propagate from the tops of old plants after the bloom is set in the autumn, but I have not found this method so satisfactory as early propagating; besides which a much larger stock may be obtained by the former method, as the same plants will give several batches of cuttings. In fact quite a large stock may be worked up from a few plants in one season. For early forcing the plants should have as much light as it is possible to give them and plenty of moisture. As soon as the flower-heads begin to develop liquid manure may be used freely, and will considerably increase the size of the individual flowers as well as the quantity.—F. H.

Draba Mawi, now in full bloom in the alpine house at Kew, is certainly one of the most charming of this interesting genus. The flowers are larger than is usual in a *Draba*, pure white, and the small rosette of bright green leaves forms a close compact tuft. It is a native of Spain, and was introduced about 1873. We find it a most useful rock plant, and it has proved perfectly hardy during the last winter. The old *D. aizoides* is a most accommodating plant, and one that never fails to attract attention when grown in masses. Old walls or sloping stony places are its favourite haunts, and at the present time its lovely golden-yellow flowers are very effective. It is a native of our own island, and is best established by sowing seeds where it is wanted to grow. *D. aizoon*, from the mountains of Western Europe, is a very dwarf, free-flowering species. It is just now covered with bright yellow flowers. *D. alpina*, from Northern Europe, with its bright golden flowers and rosettes of flat lanceolate leaves, is well worth noting.

Primula Clusiana at Kew.—A large clump of this on the rockery at Kew in full bloom is one of the brightest and most attractive objects to be found there at the present time. In pots, *P. Clusiana*, which is one of the best of the genus, proves an indifferent plant, but in the open where it has free scope and plenty of good rich soil it flowers in the greatest profusion. It ripens seed freely, by which means it may be readily increased. *P. rosea*, one of the gems of the Himalayan Mountains, is a plant specially adapted for damp places, and if left alone will seed itself and very soon form a large colony. It would be a perfect gem for the margins of ponds, &c., and as it seems indifferent as to soil it would make very effective masses in early spring. There is no *Primrose* yet introduced with the rich colour of *P. rosea*, and as the flowers of seedlings are often brighter than those of the type, they are worth looking after. *P. Heeri*, *P. intermedia*, and *P. Wettsteini* are three new hybrids, wonderfully free growing, and flowering with more than usual abundance.

Daffodils by woodland walks.—The old double yellow Daffodil, now flowering so abundantly beside our woodland walks and in the more open parts of the covert where till recently the ground was white with Snowdrops, serves to remind us how beautiful many otherwise bare and flowerless spots might be made by planting the bulbs of this and kindred kinds and leaving them alone. Such flower gardening entails no expense beyond the first outlay for the purchase of the bulbs. Where the common Daffodil grows there also will the Tenby and other kinds flourish as well as the Poet's Narcissus. These are mentioned because they are common, and consequently cheaper to purchase largely and plant extensively. It is better for those who can to grow them thus than to fill the garden borders with them, and occupy space where plants that need care and culture should be grown. Even such choice Daffodils as *Horsfieldi* and Sir Watkin I have seen flowering finely in the Grass of an orchard, but if we make the most of the commoner kinds first, we have plenty to do.

Carnation Duke of Fife.—This fine scarlet *Carnation* seems a little inclined to sport. I

have had some good blooms during the past winter, but a few have been flaked with white. Most of the scarlet varieties are inclined to run out a little, but by carefully selecting the plants with the best coloured flowers for propagating from, this may be remedied to some extent. Although it is generally unhealthy plants that are inclined to sport, it is desirable to avoid propagating from those which have shown any tendency to lose their colour. *Florain* is another fine scarlet variety. The flowers are not quite so large as those of the first named, but the colour is very telling, and they open well in winter. As yet I have not seen any flaked flowers on this variety. It is a good grower, and promises to become a popular variety.—F. H.

Alstroemerias.—I quite agree with the remarks of "E." (p. 310) as to the advisability of deep planting of *Alstroemerias* as a safeguard against frost, and would even plant deeper than he suggests. Knowing the injury resulting from shallow planting and as a precaution against any possible injury from frost, I prepared a station for the reception of the roots by excavating a space 2 feet in depth, and over the bottom placed a layer of broken bricks to the depth of 6 inches, filling up with peat to within 9 inches of the surface. At this depth the roots were planted, filling up the space with the same material, in which was incorporated a good proportion of coarse sand and charcoal. It is now some four years since the *Alstroemerias* were planted, and they have thriven amazingly since. The original border is completely filled with roots, and the shoots come up in even the gravel path beyond. The present spring is no exception to the previous ones as regards the growths appearing, as these are coming up as vigorous as ever. I may mention that the border is against a west wall. An eastern aspect they do not care about.—A. YOUNG, *Abberley Hall.*

Rhododendron Aucklandi.—With the exception of *R. Nuttallii*, there is no *Rhododendron* that rivals this species in size of bloom, and as it is much superior to that species in foliage and style of growth, it may safely be said to stand at the head of the genus. Of the white-flowered kinds it is much the handsomest, numerous as they are. Sir Joseph Hooker, who discovered it about 1850 on the inner ranges of the Sikkim Himalayas at an elevation of 7000 feet to 9000 feet, named it in honour of Lord Auckland, a former Governor-general of India. It is represented in the large temperate house at Kew by two plants, both of which are now flowering, one of them being 10 feet high. The flowers are borne at the ends of the shoots in clusters of three to five, each flower measuring 5 inches to 6 inches in diameter. Unlike most *Rhododendrons*, the corolla can scarcely be said to have any tube, the mouth spreading very widely. It is of the purest white, tinged in places with pale rose. The leaves vary from 6 inches to 10 inches in length, being narrowly oblong, quite smooth, and of a rich green. Sir Joseph Hooker states that in its native state it varies considerably in habit and in the size of the flowers, those with the smaller blooms, however, bearing them in greater abundance. For greenhouses or conservatories large enough to allow it to reach a height of 6 feet or more this species is most valuable.

Andromeda japonica at Chester.—Amongst the most noticeable and effective free-flowering shrubs just now is *Andromeda japonica*. We send you a spray herewith. It has stood with us out of doors all the long winter through without the slightest injury, its flower-filled branches healthy and green, and the "quarter" carrying the plants is in this flowerless spring a picture of beauty, and set with a bordering of hardy Heaths the decorative effect is all that could be desired.—DICKSONS, *Chester.*

Paint for hot-water pipes.—With what should I coat new hot-water pipes in a conservatory, from which I am unable to remove the plants, which will look well and be as efficacious as paint in preserving the pipes? If I paint black in the ordinary way, the fumes arising are sure to injure, if not destroy the plants.—HUSSAR.

* * Lamp-black mixed with boiled oil and turpentine is usually applied to hot-water pipes, and is perfectly harmless to plants.—ED.

FLOWER GARDEN.

TERRACE GARDENS.

In the formation of gardens on rising ground terraces are sometimes necessary, and where there is plenty of length and breadth, especially the latter, a great deal may be done in the laying out and planting, to hide much of the stiffness and formality inseparable from such artificial surroundings.

In the accompanying engraving this appears to have been the aim, for at one side of the terrace, raised beds of simple form break the monotony of the flatness without destroying the noble breadth, as might easily and would generally be done by a set of beds of more formal pattern running through the centre or on each side, and which could not well be planted in any but a formal way accentuating the general formality. Stone edges are used for raising the beds shown, and where natural undressed stone is to be had, no better dead edging can be found,

and a little suitable soil given to start them, they will soon grow densely enough to keep the soil from dribbling through, and for some of the delicate varieties the well-drained position would be the best that could be chosen, especially in a climate naturally humid. *S. Wallacei* (Camposi), *S. Burseriana*, *S. B. major*, *caesia*, *hypnoides*, *pallida*, &c., would do well, and then there are the Sandworts (*Arenaria*), the Aubrietias, the smaller *Campanulas*, the Moneyworts, *Herniaria* and kindred subjects, and for very mild climates, best of all, the beautiful *Mesembryanthemums*, which, where they succeed, present on a sunny day a never-to-be-forgotten sight. Then, too, some of the *Sempervivums*, especially the pretty and curious little *arachnoides*, are particularly useful, but enough has been said to show the possibilities in dealing with such a situation as the one shown, though the subject would be almost inexhaustible even in dealing with hardy plants alone. The lover of such plants will have no difficulty in forming a mental picture of delightful walks along one or many such terraces with such flower beds to rest the eye on, and the meeting of old friends

pared, sends us the following notes on the terrace garden here illustrated :—

The beds for flowers are on a gravel walk. This terrace is over 300 feet long, and the raised beds are confined by stones from a quarry near. Over some of the stones Ivy is grown and kept cut, while on others various Stonecrops are planted. On the opposite side are baskets. These are petroleum casks cut in two, and a band of flat iron forms the handle. These are all well covered with Ivy, which has a pretty effect on the Grass lawn. I had in these baskets this year red-flowered *Begonias*, which grew to 3 feet high. These have been greatly admired. The beds on the gravel walk terrace were also planted with *Begonias*.

Anemone Pulsatilla.—Despite the fact that the flowering crowns of this plant have been exceptionally prominent for nearly two months past, it has proved itself capable of resisting the severe winter with impunity, and its purple-mauve coloured blossoms, enveloped in a silky down, are now pushing forth quite freely. It is an alpine of exceptional vigour and hardiness, preferring a deep, moist, sandy soil, where its roots may descend



Terrace garden at Waterview, Passage West, Co. Cork, Ireland; the flower beds edged with stone.

as if properly formed it meets the desired end of retaining the soil and forms a happy hunting-ground for many plants, which succeed better in such a position than they do on the flat or with a freer root-run. Amongst these, the Sedums (Stonecrops), mossy Saxifrages, and *Sempervivums* hold pride of place, and with these alone an excellent effect, agreeable alike in winter or in summer, can be produced. In edging the beds shown in the illustration the Stonecrops are largely used. The most suitable of these are *Sedum acre* and its varieties, *S. a. aureum* (perhaps the best, being very distinct and bright in spring), *S. a. elegans*, silvery white, rather delicate, and *S. a. majus*, a fine robust kind. Besides these, there are other well-known kinds, as *S. Lydium*, *S. spurium* (*stoloniferum*), and *S. rupestre*. Ivy is also freely used, and some of the neater kinds are very suitable for the purpose. Though, perhaps, requiring a little more care in planting for draping upright stone edges than the Sedums, yet many of the mossy and other neat-growing Saxifrages may, by the exercise of a little judgment, be made to play an important part. If in forming the edges fair spaces be left for them

in them that are neither garish nor evanescent. Flower beds planted as naturally as their surroundings will allow, and not slavish copies of what has been seen elsewhere, either in the material used or in the manner of using it, would be a source of pleasure to all who have the good fortune to see them.

There is one lesson to be learnt from the illustration, which is, that in all cases where terracing is desirable or desired, care should be taken to have plenty of breadth to allow of some informal planting. In the view presented with this, breadth is a strong point. If this cannot be given it would be infinitely better and wiser to expend the money and labour which it would cost for making the terrace in forming good walks winding sufficiently to make the ascent or descent quite easy. By the side of such walks suitable spots would present themselves at irregular intervals for growing any plants in a natural way without forcing the walk or its surroundings too much on the landscape.

Mrs. Lyons, whom we have to thank for the photograph from which the engraving was pre-

freely. In such a soil it frequently sends down its roots to quite 18 inches deep. Plants raised from seeds are preferable to collected ones, as the latter, invariably torn away from their positions, are little else than mere stumps, which only survive a very short time. In some of the hardy plant nurseries around London it is now flowering freely.

Crocuses.—Is it really the case that the yellow *Crocus* is naturally much more enduring and hardier than are the white, purple, or striped varieties? Ordinarily we perceive no special distinction in the bulbs or growth for the first year or two, but my experience is, that left in the ground, as Crocuses seem to like, all the year round, the yellow varieties thrive and increase, whilst the coloured ones gradually become extinct. As my experience is that of a stiff clay soil, perhaps the fault is found in the soil. Still, as the yellows, of which I

have now a quantity, and which have been in the same soil for many years, bloom finely and profusely, it would seem as if where one variety thrives another should do so also. *Crocus speciosus* does very well indeed in this stiff soil, but every white or purple striped variety planted originally with the yellows has disappeared. I should like to learn the experience of others in the matter, and how far it may coincide with my own or be of a diverse nature. Perhaps the result is different on light or gravelly soils. Happily, Crocuses are so cheap and bloom so finely from new bulbs, that any defects in relation to old ones may soon be set right.—A. D.

OLD-FASHIONED FLOWERS.

FASHIONS change with regard to flowers as well as other things. Many of us hate anything that is fashionable just because it is fashionable, and resent the possibility of the favourite of the hour being worthy of any consideration. Fashionable places will always have a great attraction for numbers of people, but there are also very many, it must be remembered, who are looking out every summer for cosy seaside places to which, as yet, the rush of fashionable folk has not come. There was a time when Tulips were the fashion; now without any doubt it is the Daffodil which is the favourite of the hour. Well, Tulips are no less beautiful to-day, when the very best may be bought at a reasonable price, than they were when people raved about them and gave willingly one guinea a bulb or even more for the newest and latest thing out. Daffodils are having their turn now, and they are certainly worthy of it. They are beautiful, and perhaps increasing in beauty under the careful attention which they are receiving from the hands of gardeners and nurserymen. One feels that their day will pass away, and they will again take their place among ordinary flowers, and ladies will no longer go into ecstasies over the latest novelty. Then poor gardeners with small incomes will inherit all the benefits of the recent fashion, and they will be able to purchase for a small sum flowers which previously were out of their reach. Not that the nodding Daffodil, coming as it does so early, lasting so long, and having so much beauty to commend it, has not always been a great favourite, but it has not always been the fashion as it is now. This Eastertide spring was so late, that it seemed probable at one time that the wild single Daffodil, or Lent Lily, would scarcely be in time for the decoration of our churches. But, fortunately, some sunny days brought them out, and their pale golden cups, so exquisitely adapted for decoration, were once more ready to adorn the house of God. Double Daffodils are massive, and have a decided advantage in that respect, but for grace and beauty the single Lent Lily far surpasses them.

Dear old-fashioned flowers! consigned so often to the dust-heap, or thrown away to die in some unvisited corner of the grounds. Well, your turn comes round again. The growth of a better taste and a deeper love for flowers as flowers are rapidly bringing again to the front old things which our forefathers loved and enjoyed. In "Lothair," Disraeli gave a description of a garden of old-fashioned flowers just when bedding out was at its height, and perhaps did something, by putting before his readers a picture in words of such a delightful garden, to draw attention to the great mistake made by those who thought of nothing but their many thousands of bedding plants.

In the pleasure grounds of Bentham were the remains of an ancient garden of the ancient house that had long ago been pulled down. . . The Duke had given this garden to Lady Corsande, in order that she might practise her theory that flower

gardens should be sweet and luxuriant, and not hard and scentless imitations of works of art. Here in their season flourished abundantly all those productions of Nature which are now banished from our once delighted senses; huge bushes of Honeysuckle, and bowers of Sweet Pea and Sweet Brier, and Jessamine clustering over the walls, and Gillyflowers scenting with their sweet breath the ancient bricks from which they seemed to spring. There were banks of Violets, which the southern breeze always stirred, and Mignonette filled every vacant nook. As they entered now, it seemed a blaze of Roses and Carnations, though one recognises in a moment the presence of the Lily, the Heliotrope, and the Stock.

The description is a delightful one, and only anticipated what may be found now in many a large or small garden; but while the novelist describes so well the happy results of cultivating old-fashioned flowers, we cannot help smiling at the anachronism which makes a bank of Violets mingle its perfume with Roses, Carnations, and Heliotropes. Amongst the old-fashioned flowers which are very dear to us still, and which will ever be the delight of the cottager, must be placed the Wallflower. Its right situation seems to be in accordance with its name when it clings boldly to some old grey wall, lighting up with its golden flowers the sombre colouring of some ruined abbey or castle. It finds its nourishment in the mortar and grit, and holds its own against storms and wintry gusts. In such places it is strikingly picturesque, taking its turn with red Valerian or with the olive-marked fronds of *Polypodium vulgare*. It seems in a manner to be taking this plant out of its right place to put it in an ordinary border, but it makes such a beautiful spring flower and smells so sweetly when gathered that one cannot resist the pleasure of growing it in that way. Alas, this year the plants in beds have had too severe a winter to contend with, and they promise but little, if any, of that beauty which is usually one of the glories of the outdoor garden in spring. When the severe frost of January cleared away, my plants appeared for the time to be destroyed. They gradually recovered, however, only to be again worried by the blizzard in March, and now they are indeed sorry examples of what Wallflowers ought to be in April.

Double Primroses must surely have an honoured place amongst old-fashioned flowers. They are evidently somewhat more tender than single ones, especially the double red, which I have never succeeded in keeping any length of time. It is not so much cold, for this last winter does not seem to have seriously injured the double white, yellow, or lilac; it is the dry, parching summer, when, perhaps, they are quite forgotten amongst the hundreds of other plants which then naturally engage our attention, and the Primrose day is over. Whether it is the seriously prolonged period of drought, or whether it is the excessive cold of the past winter I know not, but for some reason the wild Primroses which usually line our hedges and cover the ground in some of our woods at this season are not to be found this year, to the dismay of our children, wending their way to school along the country lanes, and to the great loss of the cottagers, who love to have a Primrose nosegay to decorate their cottage homes. Myrtles and Fuchsias, though I am afraid they can only be considered half hardy, are certainly amongst the most beautiful of the plants which in favoured places have for ages decorated some of our oldest mansions and cottages. At Minehead, on the north coast of Somerset, both these plants are specially abundant on houses in the village, and in some places further south

Fuchsias become large standard trees, and are always loaded in summer with their beautiful flowers. But what would a garden be in summer without its Honeysuckle? I mean the genuine old-fashioned large-flowered sweet-scented Woodbine, which twines about an old paling and clothes it with fragrant beauty. I do not despise the long streaming branches of the Japanese Honeysuckle with their beautiful reticulated leaves, or other species of *Lonicera*, but the best of all is the old-fashioned climber, which rambles at its own sweet will in a sunny corner and scents the air with its fragrance before you come near the plant itself. It is a great addition to any nosegay in summer, simply because of its delicious scent, and it gives no trouble, except, perhaps, to restrain somewhat its rambling growth.

Pinks, Carnations, and Picotees are always great favourites. They are surely amongst the very oldest denizens of our gardens. The old white Pink is one of the best plants on our rockeries, though it may be hard to keep it in proper order. The leaves are always a pleasant contrast to the foliage of Saxifrages and other rock plants, and then when its deliciously sweet flowers come out, nothing is more delightful for gathering either as a button-hole or for a larger nosegay. Its day of flowering is soon passed, but while it lasts the old white Pink can hold its own amongst flowers of more recent introduction. Next to it comes the clove-scented Carnation, a more finished flower, as it were, but not to me so attractive. Moreover, it is more exacting, and will not adapt itself to any place and any weather like the white Pink. But the old red Clove is a beautiful flower, and scentless Carnations, though certainly more beautiful, can never take its place. Roses have undoubtedly been improved by modern cultivation and hybridising; still there is a quaint beauty about the old York and Lancaster, and the Provence is a grand specimen of the white Rose of olden days.

A GLOUCESTERSHIRE PARSON.

Violet Victoria.—Among double Violets this one holds a prominent place, both as regards hardiness, freedom of flowering, and fragrance. It is closely associated with the Marie Louise and Comte de Brazza types in its dwarf tufted cushions of growth, and is nearly if not quite identical with one I had grown as King of Violets years before Victoria was announced. This is certainly an excellent variety, and all who have a cold frame should make a point annually of having a plentiful supply of its flowers. The plants are crowded with flower-buds at the present time, but the assistance of a frame would have expanded these some weeks since, at which time they would have been doubly valuable.—E.

Violets.—If these are required from early autumn throughout the winter, the runners should be in early this month. I choose part of a south border that has been fairly well manured and roughly dug in autumn. This gets a slight treading early in April, a run over with the rake, and the runners, most of which are showing tiny rootlets, are dibbled in firmly 1 foot each way. This may seem at planting time a considerable space to allow when one looks at the tiny runners, but it will not be found too much as the season advances, and I should like to particularise the south border, as this is more conducive to the building up of a sturdy healthy plant with plenty of embryo flower-buds at lifting time than any other aspect. The plants receive a mulching of some spent Mushroom manure and a good soaking if the weather prove hot and dry at planting time. Beyond keeping them free from weeds and giving a dose of liquid manure if spider prove troublesome, they get no further attention until a month before they are transferred to winter quarters, when we cut round them with a spade on two sides and finish the operation a fortnight later to

ensure lifting with a good ball. Marie Louise is undoubtedly the best all-round Violet; there are several foreign varieties very similar to it in colour of bloom, but I have never found them so robust in constitution nor so free flowering.—E. B.

HERBACEOUS PHLOXES.

THERE are few gardens, be they large or small, in which could not be found a fitting home for a few Phloxes. And such being the case, it is the more remarkable that they are not more frequently seen in good condition. Even in large gardens, where occasionally one may find a goodly selection of these plants, their very appearance at first sight betokens neglect or indifferent cultivation. This is the outcome of the let-alone policy, a system too frequently carried to extremes, and invariably so with Phloxes. Were I, or anyone else, to advocate a system of annual propagation for this group, it would undoubtedly be opposed on the ground that it would entail too much labour; yet these very men who would oppose the annual propagation of Phloxes will propagate zonal Pelargoniums, Calceolarias, Alternantheras, Dahlias, and such things annually to any extent, some of which are but very short-lived at their best. Where Phloxes are grown at all there are few things in the garden at their season of flowering that better repay good culture, and where the best results are desired biennial propagation will be quite sufficient, and then let it be by cuttings of the young shoots such as may be secured at the end of March or in the first half of April. The various ways of increasing these plants are by seeds, by division of the old stools, and by cuttings. For gardens of only limited dimensions I do not recommend seeds, simply because you have a speculative return from first to last, and you may be giving a lot of time and attention to a very inferior lot of plants, as many, indeed the majority, are very undecided and washy, even when saved from a good strain. Rather concentrate your efforts upon varieties of known merit, which from cuttings may be grown and flowered in even less time than the seedlings. Division of the old stools is to a certain extent satisfactory and dependent in a measure on the age of the stools themselves, but if they were more than four years old, I would take cuttings and discard them. Some advise thinning out the shoots from old plants, but those who adopt such advice will be aware that the result of this is that the base of the plant simply becomes a crowded thicket of superfluous shoots, at once useless and unsightly. Those whose require fine heads of well-developed flowers want young vigorous plants that have had freedom from their earliest days as cuttings, and not starved or cramped in small pots year after year; such plants as these usually take a long time to recover themselves even when planted out.

For rooting the cuttings, the private gardener will have the best chances at this season, as a manure frame recently made up and a bit of sandy soil in one corner of the frame to dibble the cuttings into will be far better than any other way I can suggest, and two or three dozen cuttings of the newly-formed shoots when 4 inches or 5 inches long will root readily if kept fairly moist. When well rooted, pot them into 5-inch pots, still keeping them in the frame, and when the roots reach the sides of the pots, remove them to a cold frame to harden ready for planting out, which latter should not be neglected, and if all goes well, may be done about the middle of May. In the general cultivation of these Phloxes, it should be remembered that they are gross feeders. Those, therefore, who require fine heads should well trench the soil and manure heavily. Should a dry, hot summer ensue, give the bed a good mulching of manure and an occasional soaking of water, for these plants will almost endure saturation point in hot weather. This is a very important detail, though too frequently overlooked, and in no instance have I seen its importance so fully realised as by Mr. Robert Parker when at the Exotic Nurseries, Tooting. But it may be urged that in mixed beds or borders this wholesale treatment can hardly be given them, and while this is undoubtedly true to

a great extent, it is equally true that far better results may be attained in the mixed border by adopting the means I have suggested, while, as a new departure, not a few gardeners could do worse than devote a small circular bed, say 6 feet across, to this way of growing Phloxes, and compare the results. I feel sure those who gave the liberal system a trial would hardly care to adopt the let-alone system again. There is only one other way of growing these plants to which I need refer, and that is growing them in pots for conservatory decoration in autumn. The cuttings may be taken and rooted at any time during April in a frame. Pot them into 5-inch pots, and when sufficiently hardened transfer to 8-inch pots, and grow on with much the same liberal treatment as may be given to growing a Chrysanthemum for specimen blooms. No stopping will be needed throughout, and in the end a rich and telling display of their flowers will be had. In this way I have produced fine heads in 8-inch pots in six months from inserting the cuttings, and I think if the fact of its usefulness were more widely known, it would be extensively adopted.

E. J.

WINTERING DELICATE ALPINES.

I HAVE read with great interest Mr. Leonard's communication to you about wintering delicate alpine plants at Guildford, and any idea that he broaches about their management is worthy of the greatest respect. If anyone wants to see *Saxifraga longifolia*, *Ranondia pyrenaica*, *Primula Clusiana*, and many other things, as perhaps he has never seen them before in this country, he had better repair to the Hitherbury Gardens as fast as he can. So I have not the faintest idea of calling in question anything he says on this head more than the following: If he has pointed out an excellent way, I believe there is still one which is better than his, but, of course, this is a matter of opinion. It seems to me that many may object to Mr. Leonard's plan on the score of expense. It is not everybody who can afford such suitable glasshouses as he puts up in his grounds, nor have they sufficient space and sufficient out-of-the-way corners, as he has, where these erections can be made, nor enough of spare time in the autumn for taking up their alpine plants and putting them under cover; and besides all this (and the following is a point of some little importance) I am sure the alpine plants themselves would say, "Do not touch our roots at all if it can be helped; that is the one thing we earnestly beg of you." I lend myself, therefore, always to leaving delicate plants alone if they can be left, and I think there is clear gain in not digging them up, if they can pull through the difficulties of winter in any other way whatever. We owe to Mr. Wood, of Kirkstall, near Leeds, an extremely bright idea, which I find to be more helpful to alpine plants, and many others besides, than any words can describe. I refer to his very simple, but most useful method of holding a sheet of glass firmly over the head of an alpine plant which is left in the open ground. This gives it what it principally requires. We are all agreed that the everlasting drip over their heads is what these plants dislike more than anything else. If they are subjected to it they sicken, and die. But let the downpour of rain be thrown off from them, and our climate in many cases is not only tolerated, but even liked. I first saw this method of fixing a piece of glass very firmly over the head of a plant in the garden of Dr. Appleton at Beverley, in Yorkshire, and it certainly did not take more than half a minute to make me feel sure that by its aid some of the greatest puzzles in my garden could now be solved, and some of its most trying difficulties cleared away. Many gardeners must know how troublesome it used to be when they tried to

keep a bit of glass in position over a plant. The string which tied it broke, or the wind blew it away, or something else happened, and their aim was defeated. But now a sheet of glass, either large or small, can be kept over a plant's head with the greatest assurance, and as, of course, all the sides are quite open, an alpine plant has—at least, it is so in my experience—just what it craves for more than anything else, viz., protection from wet, without any attendant harm—it lives and is happy. I know that objections are raised to this plan, and it has not made much way in England during the last ten or twelve years. For some reason or another it is not much fancied by many, and they calmly put it aside without any trial at all. Such a very experienced cultivator as M. Correvois has clearly no great liking for it (see p. 186), and he raises points with regard to it which I think are more fanciful than real. But still, his circumstances are so very different from our own, he may well be quite right from his own point of view, though it should not govern ours. I well remember seeing the branches of Fir which were laid over his rockery in midwinter. They doubtless were all right in Geneva, but they would mean death and destruction in the Isle of Wight. I mentioned Mr. Wood's plan a long time ago to one of the most eminent of all our amateur gardeners—I mean Mr. Wolley Dod—and he also thought little of it. His disapproval was based first of all on the idea that these glass plates would throw the water from the head of one plant over another, and, of course, it would be so if we are to work without care in our gardens; but I can answer for it, after the experience in this matter of eight or ten years at least, that the very minimum of carefulness gets rid of this trouble altogether, and it becomes non-existent. Mr. Dod's second reason for disapproval was a much more serious one, and all he said was true, if his premises be allowed. He was sure these glass-holders would not suit his rockery, and because of his rockery he discarded the glass holders altogether. In that he was clearly right, if the rockery must of necessity remain as it is. And here is the real crux of the whole matter. I had such an implicit trust in the usefulness of a piece of glass being held over an alpine plant with the sides open, that I had the courage of my opinion, and I pulled my whole rockery to pieces from the top to the bottom, re-arranged it and reconstructed it, so that alpine might be grown in the open air in this way without let or hindrance. It has been the work of some three or four years, and is by no means finished yet, and though there is a great deal more to say about it than I can possibly say now, I may at once declare that Mr. Wood's idea—simple as it may seem, and even foolish as some may take it to be—has governed the whole thing throughout, and I, for my part, believe it to be quite the best idea that any of us has had of the sort. Let me mention only a few plants out of hundreds that have come successfully through the ordeal of this terrible winter. *Morisia hypogaea* is one (and I am under the greatest obligation to M. Correvois for introducing me to that exceptionally beautiful little Sardinian plant), *Omphalodes Lucilæ* is another, and the following occur to my mind offhand: *Saxifraga Boydii*, *S. mutata*, *S. cesia*, *S. valdensis*, *Pulmonaria dahurica*, which is a very touchy little thing indeed; *Anemone vernalis* (now in blossom), *Potentilla nitida atropurpurea*, *Lewisia rediviva* in three places, *Jankea Heldreichii*, &c., but let the following be more especially given in evidence. I counted the alpine *Primulas* on this rockery a short time ago, and I found

they numbered more than 200. Out of these—I am speaking roughly—I should say 100 of the stronger and more easily grown sorts were left quite unprotected, while Mr. Wood's glasses were used over another hundred, and I think that of this latter hundred not more than some four or five have perished, and perhaps they were weakly plants in the first instance; but I cannot for a moment believe the rest of them would have pulled through as they have done but for the assistance they have received from these glasses. I refer to such *Primulas* as *pubescens*, *Peyritschii*, *Parryi*, *minima*, *ciliata*, *purpurea*, *glutinosa*, *Allioni*, *Flörkeana*, *Heeri*, *intermedia*, *salisburgensis*, *Clusiana*, *viscosa*, &c.; and beyond everything else to *scotica*, which I never till now thought I could grow in the Isle of Wight at all. Surely this says that there is no absolute reason why plants should be taken up and kept in glasshouses during the winter, however much it may be good for them; and if I may wander for a moment from my rockery to the garden generally I may add that some twenty-five of the choicest *Oncocyclus* *Iris*es, including such names as *paradoxa*, *Gatesi*, *Bloudovi*, *iberica*, &c., have been grown in the open border in precisely the same way and these are now all quite right, and I hope will soon blossom with me. When the frost was at its worst I flung a covering over their heads for a few nights, but they owe their welfare not so much to that, I am sure, as to the device which protected them from rain and still let all the winds of heaven blow about them as much as they liked. Exactly the same thing holds good about scores of other things, *e.g.*, *Bongardia Rauwolfi*, which is an exceptionally pretty little thing, and, to use the words of one of the catalogues, "so choice, that no garden should ever be without it." But it is easy to give a recommendation like that, while the real point has been how best to act upon it. *Bongardia Rauwolfi* objects strongly to having its tuber quite buried up in the ground; and, on the other hand, if it had been lying on the surface quite unprotected, the frosts of last winter would have made mincemeat of it. So that it is a really typical instance of the usefulness of these glasses. I left it very much exposed on the surface of the ground, and I fastened a glass over its head with sides open, the result being that it is beautifully in blossom at this present time, and a perfect picture to look at. I may add that these glasses are as serviceable for baking a plant in summer as they are for warding off the wet from it during the winter months. In accordance with Max Leichtlin's directions, I dried off *Ostrowskya magnifica* for nine or ten weeks last summer, and it is now coming up strongly in four or five places. My friend Mr. Wolley Dod is unquestionably right in supposing that these glass holders can only be used on the level with effect; the point, therefore, which has to be decided about them is this—are they sufficiently efficacious so as to govern the whole shape and framework of our rockeries or not? I think they are if the well-being of the plants is the main thing to be considered, while those who from any cause do not look on the matter in this way will discard Mr. Wood's idea altogether so far as alpine are concerned. But when the question is so broadly raised in your columns as to the best way of wintering our favourites in this country, I certainly put in a claim for the plan I have indicated, and I think it should be considered. Mr. Leonard's advice about the use of chalk for *Gentiana verna* and other things seems to me to be very valuable, and I shall put it to the test as soon as I can. I never heard of it before as being of

use for *Gentians*, and in the Isle of Wight we can with great ease get plenty of chalk.

H. EWBANK.

BORDER CARNATIONS.

I FIND what may be termed degrees of hardiness in border Carnations to be much more depending upon soil and situation than on variety. Layers which have the main wood or branches well buried in the soil suffer least at any time, and unless early rooted so as to enable them to be lifted and transplanted so early as October, and thus acquire some root-hold of the soil, it is wisest to allow them to remain where layered until March. Old plants having numerous branches, unless the old wood be well sheltered by a thick top-dressing of old pot soil, suffer severely, especially from hoar-frosts and snow. It is always wiser to layer freely, and thus have an abundant supply of young plants for stock than to rely upon old ones. Still some old plants, if standing well through the winter and liberally top-dressed, make a fine show in the summer, because bearing so many flowers. Where the soil is of a very close, clayey texture, retaining all moisture and inducing decay or rot about the stems, it is certainly wise to allow the layers to remain either as first laid, or to place them in a frame until the worst of the winter is over. It is not to be assumed that plants lack hardiness; indeed they will withstand dry frosts well. The danger is found in the repeated rainfalls so common during the winter, and snow water especially, from so hardening the surface of clay soil, that the moisture lies on the surface rather than percolates rapidly through, as is the case when the soil is light and porous. We must not, in dealing with the hardiest of border Carnations, be afraid to take ordinary precautions essential under certain circumstances because someone may think such precautions are indications that the plants are not hardy. When snow water and fogs with dense hoar-frosts denude Violets and Strawberry plants of their leafage, it may well fare badly even with the hardiest of Carnations. But there is an enemy to the Carnation, which is either a fungus or a form of rot, which seems to be even more destructive to the plants than is hard weather. Growers almost everywhere seem to suffer from it, and it will affect plants in a state of rest in cool frames and houses as well as outdoors. I have not yet found the variety that is absolutely free from this decay, which settles in the heart or centre of the stem or leaves, destroys the leading growth, and very soon kills the plant effectually. To counteract the ill effects of an enemy of this sort is of more importance than to check the effects of frost. Doubtless with some little warmth in a house, so as to keep the plants active all the winter, the rot could be minimised, but that cannot be done with summer-blooming varieties. Still less so in a frame, and outdoors the protection of hand-lights or cloches, because enclosing damp air, only seems to intensify the evil. This rot is far less harmful, however, on dry soils and in elevated airy districts than where the soil is stiff and naturally retentive and the air is humid and foggy. We may raise sorts apparently of the very hardiest kind, but still amenable to rot. The Hollyhock is as hardy a plant almost as we have, but it is terribly susceptible to fungoid attacks. The Sweet William, a very hardy member of the *Dianthus* family, suffers severely also, the disease literally sweeping away every leaf and stem, leaving not a vestige. This is a terrible plague in some districts, and has been especially injurious of late years. No wonder, then, that hardy border Carnations are not free from fungoid ills.

A. D.

The Pentstemon.—In the red soil of the midland counties no plant succeeds better than the *Pentstemon*, and there are very few that equal it in its good qualities as a border plant. Its position, whether in shade or in full sunshine, seems to make no difference either in the beauty or the abundance of the flowers it produces. Its blooming season lasts from the beginning or middle of July till the time when all flowers have to suc-

cumb on the approach of winter. It is graceful in form, and in colour it exhibits every shade of the most brilliant red, violet, and even pure white. Some of the scarlet, crimson, and purple varieties have pure white throats, which enhance their beauty and are seen at a great distance off. In winter the tops, which should not be entirely removed, but only shortened, usually remain green, but this year they have all been killed, and only the crowns of the plants have survived. Most of my plants have had the protection of a layer of cinder screenings, through which the stems that remain are allowed to protrude, and which, as I have said, are not usually injured by the winter frosts and snow. Like other herbaceous plants, they are increased by division of the roots, an operation that is better deferred till the beginning of April, sooner or later according to the season, and by taking off some of the lateral shoots when they are about 4 inches or 5 inches long and treating them as cuttings. In the year 1889, having half a dozen of them rather longer than the rest, I placed them in a sheltered border and covered them with a bell-glass, which remained over them all through the winter. All but one had emitted roots and were transferred into small pots, and they retained their fresh green appearance throughout that long period. Slips that have been taken late in the season and have remained all the winter in their cutting pots are better left undisturbed till the end of March, or even later should the winter happen to be unusually prolonged.—B. S.

Annuals for cutting from.—The sowing of these may be proceeded with as soon as the ground is in good condition. *Godetias*, double *Clarkia*, single and double *Cornflowers*, annual *Chrysanthemums*, *Everlastings*, with a few of the ornamental Grasses and plenty of *Mignonette*, are among the most useful for the purpose. The plate of *Phlox Drummondii* in THE GARDEN of March 28 reminds me to call attention to the value of this for cutting. It will furnish long shoots of flower of almost every shade of colour if the plants are allowed to ramble a bit and are not confined too closely to the ground with pegs. It seems rather strange that this *Phlox* should stand so well in a cut state when the many members of the hardy perennial section of the family are practically useless for the purpose. A good sowing of Sweet Peas must not be forgotten, as these are general favourites, and, like *Phlox Drummondii*, furnish such a charming variety of colour.—E. B.

Dielytra spectabilis.—It is not at all a bad arrangement to associate with the Golden Valerian in borders clumps of the Lyre Flower. Just at the time when the former is aglow with yellow leafage the *Dielytra* is throwing up tufts of foliage, which are by comparison almost red, and for a time at least retain that particular hue. We do not sufficiently treat this beautiful plant as hardy, and yet it is far harder than is usually held to be the case, because so commonly grown in pots. From the time the foliage first appears until the plant gets fully into bloom it is very handsome, but when in full flower it is exceedingly beautiful as well as graceful. Ordinarily the plants are not seen at their best in pots under glass, especially when forced. Outdoors the growth is strong, the flowers bright in colour, and abundantly produced, the bloom continuing for a very long season.—A. D.

Golden Valerian.—A big patch or bed of this rich yellow-foliaged plant is just now a very telling object even at a considerable distance. I do not know of any fine-foliaged plant which gives such striking colours as the Valerian does in the spring. One marvels that at a season when every bit of colour, no matter whether from flower or foliage, is so welcome in gardens, a goodly number of clumps of this plant is not to be found generally. The plants are easily increased by division. Ordinarily it is well to break up the clumps every three years, as too large pieces are undesirable, whilst they also sometimes become thin and irregular. The Valerian, however, is so very hardy that nothing seems to kill it. During the summer it is of a somewhat inconspicuous nature, but we cannot have the spring glory in the summer, neither is it

needed. In spite of its poor qualities at other times the Golden Valerian remains the chief golden foliaged plant for borders in the spring.—A. D.

Dog's-tooth Violets.—These are just bursting through the soil, and a few days' warm sunshine will see them in all their glory. Singularly attractive are these beautiful and easily-grown bulbous plants when growing on sloping banks, delighting, like the Primrose, in a somewhat sunny, though sheltered spot. It is a mistake perhaps to plant such as these, or, indeed, any small bulbous plant on Grass, which, when their position is not marked by their leaves, are too often

jeet as *Thymus lanuginosus*—a good rock plant in itself, and made doubly so if utilised in this way. Apart from the ordinary blue and white there is *S. bifolia maxima* with flowers quite double the size.

STOVE AND GREENHOUSE.

SCHIZANTHUSES.

In a greenhouse or conservatory from April onwards, a few specimens of *Schizanthuses* are



Schizanthus retusus.

trod upon, and the turf rendered hard in consequence. Many sloping banks or quiet nooks may be made beautiful indeed in spring if thus thoughtfully arranged with suitable subjects.—J. E.

Scilla bifolia.—Very interesting and beautiful are these charming Squills at this early season of the year for masses on the rockery or similar places. Not growing more than 3 inches or 4 inches high, it is obvious that their pleasing starry blossoms of blue or white would soon become bespattered by pelting, driving rains unless arrangements were made for preventing this at planting time, by thinly carpeting the ground in which they are growing by some other dwarf sub-

about as pleasing objects as anyone could wish to possess; the only difficulty (and it is one easily overcome) is in being able to procure seeds true to name and selected with care from superior varieties. The seeds should, therefore, in all cases be got from a trustworthy source. From the beginning to the end of August is the best time during which to sow, or, what would be still better, to aim at a succession by making one sowing at the beginning and another at the end of that month. The seeds may be sown

either in pots or pans, keeping each variety distinctly named, so that the requisite number of each may be potted when they are fit to be handled. Drain the pots or pans slightly, and cover the drainage with some rough material; then fill up to within half an inch of the surface with any ordinary soil nearest at hand, and run a surface sprinkling through a fine sieve; press all moderately firm, and on this scatter the seeds thinly, and cover slightly with the sifted mould. If the soil be moist when used and the seed-pans be placed in a frame which is kept syringed and shaded, no watering will be necessary before the seeds germinate—a process that soon takes place under favourable conditions. Gradually inure the young seedlings to the light, and keep them close up to the glass to induce a sturdy habit of growth. These, like other rapidly growing plants, require most attention when young; for instance, if they are kept unnecessarily shaded for a few hours, stood too far from the light, or are neglected in the seed-pans till they become lanky or are debilitated for want of light and air, it is next to impossible to resuscitate them. When the seedlings are fit to be handled, prick them off into pans filled with soil composed of equal parts of loam and leaf-mould with a sprinkling of river sand, and keep them on the shelf of a cold greenhouse till they are strong enough to be potted. A compost in which *Chrysanthemums* or *Fuchsias* will grow will answer admirably, only it might be used a little poorer for the winter potting in order to induce a hardier and firmer texture of growth. Pots 6 inches in diameter need not be exceeded for winter use and the plants should have a cool airy position with as little water as possible during the winter months. Previous to entering into other details, the form of training should be determined, in order that future operations may be directed towards the fulfilment of the object in view. Taking the habit of the plant into consideration, the bush form is the best mode of training that can be adopted, that of the pyramid or cone being the next most likely form to please those who have a leaning towards formality. Assuming, then, that the plants are established in 6-inch pots, and are placed in favourable winter quarters, those that are intended to be grown into handsome bushes should have their points pinched out when they are from 9 inches to 12 inches high. Little growth will, of course, take place during the winter—the less the better—till after the turn of the year, when they may be potted on into 9-inch pots, using a compost consisting of loam, leaf-mould, and rotten manure in such a condition that it can be rubbed to pieces with the fingers and incorporated with the soil. The young shoots will now have grown a few inches in height, and an upright stake should be placed to each. It is not necessary at starting to train each shoot in a perpendicular direction, for whilst the shoot is fastened to the stake at its base, its point should be inclined either in an oblique or downward direction, so that each shoot may in turn produce a number of other shoots to furnish a handsome specimen. This can be done as soon as shoots enough have been formed upon which to operate. For specimens of any size the final shift need not exceed a pot 12 inches in diameter, and if the soil be rich and open and ordinary attention be given, every stake will be covered by the end of April, and any training attempted later would detract from the natural form of the plant, except just tying in a stray or straggling shoot. Other forms of training are managed on a similar principle, the only difference being in the shape alone. Willows inserted at the sides of the pot, pulled together, in the shape of a

balloon, and fastened about the middle to a wire hoop in order to keep them in shape, make a good foundation provided the after-training is not overdone. The one thing to be kept in view throughout in the cultivation of these plants is to pay strict attention to minute matters, to keep them always while growing close to the glass, with abundance of air, but sheltered from draughts or cutting winds. As regards varieties, selected forms of *retusus* and *retusus albus* are not easily surpassed; they make excellent plants for hanging baskets. W.

Seedling plants for the greenhouse.—All kinds of these should receive attention in good time. Gloxinias have been alluded to, but successional batches to flower in small pots will be found useful. *Aphelandra aurantiaca* Roezli where raised from seed early in the year should be looked after; if not yet pricked off no time should be lost, or if of good size they will be better put into 2½-inch pots straight off and as dwarf a growth as possible retained. *Torenia Fournieri* and *T. flava* should be pricked off into pans whilst in a small state, or if this has been done the plants will probably be fit for potting into 3-inch pots, three plants in a pot. *Celosias* of the plumose type should be potted early to prevent them becoming drawn; if they are further advanced a topping will do them good, so as to secure a bushy base. Cockscombs should, of course, be grown on, but not in excessive heat. All of these and other seedling plants requiring heat do best in a warm pit near the glass. Ten-week Stocks sown early will now be fit for potting off; three plants in a 3-inch pot or five in a ½-inch pot will do, these being given one shift later on. A cold frame will now suit them very well, taking the precaution to keep them on the dry side after one watering has been given to settle the soil. Nothing does Stocks in pots so much harm as over-watering; if they droop for a few weeks, do not attempt to revive them in this way, but give them time and they will come round of their own accord. Seedling *Mignonette* of this season will now be better in a cold frame, but *Rhodanthes* in pots will be all the better for being kept in a cool house; these latter do not enjoy so much moisture. Seedlings of *Campanula pyramidalis* of last season should now be potted on, still keeping them in cold pits or frames.—J. H.

Shading.—Advice has already been given to have all blinds in readiness for use; it is not, however, to follow that they should be made free use of. There is a tendency in this direction, without doubt, but it is a mistake to run the blinds down with every outburst of sunshine. When very bright and clear above with a keen east wind blowing, the blinds are an advantage, to save putting on too much air. I would then put them down earlier and leave them thus a little later. With a semi-cloudy sky but little use should yet be made of the blinds. I would not, in any case, hesitate to run them down at nightfall when extra cold and windy; this will save pushing the fires so hard; they should, however, be drawn up early in the morning. I would prefer to see plants droop a bit rather than shade too much. Shading must, of necessity, predispose the plants to make a more weakly growth if used in excess. This evil at the commencement of the season is not afterwards so easily overcome. In order further to facilitate shading, I much prefer to rearrange the plants at this period of the year in such a manner as to accommodate both those which delight in all the sunshine possible and those which require some amount of shading. This can usually be done without much difficulty either in a lean-to or span-roofed house. Crotons, for instance, in order to colour them well, require all the light possible. *Pandanus Veitchi*, too, will grow more sturdy if not shaded to any extent. *Dieffenbachias* do not require much shading, nor do *Dracenas*. *Allamandas*, *Bougainvilleas*, *Rondeletias*, *Clerodendrons*, and nearly every flowering stove plant make far better growth when fully exposed to the light and kept near the glass. *Ixoras* can be grown well without shade, but the growth is not quite so luxuriant as when a moderate amount is

applied. *Stephanotis floribunda* should receive no shade until the flowers are opening. On the other hand, *Marantas*, *Alocasias*, the fine-foliaged *Anthuriums*, *Caladiums*, and *Palms* all do best with more shading. This rearranging of the plants to meet their several requirements should soon receive attention; the advantage of doing so will be apparent as growth proceeds. By careful management it need not in any way interfere with the general appearance of the house, but would rather add to it, by giving greater variety in arrangement.—G. H.

THE HYACINTH.

THE collections of Hyacinths exhibited in London during the present season have, to say the least of it, been considerably under the average of the past few years. A number of new varieties used to be exhibited, but these have been conspicuous by their absence. There are, of course, certain of the older well-known kinds which are not likely to be surpassed by any new varieties that may be brought forward, but it would not be impossible to equal some of the best of them, and even surpass others in distinct colours. In certain of the bulb gardens of Holland there are many beautiful and distinct Hyacinths which have not yet been seen in England, and there is room for improvement. King of the Blues, a handsome dark blue variety, is perhaps one of the very best Hyacinths of any colour, and there is no reason why we should not have other colours with spikes of flowers quite as large and handsome as those of that variety. Another remarkably good and constant variety is the rosy salmon-coloured semi-double *Koh-i-noor*. If I may a third variety as a standard of excellence it would be the pure white *La Grandesse*. In the dark red or crimson-scarlet class we have *Vuurbaak*, which cannot be depended upon like some of the others I have named. We have not yet seen a yellow-coloured Hyacinth in England with spikes the length and breadth of the varieties I have named. I saw such an one in a garden in Holland, and it will doubtless appear in England in due course. There are distinct and pretty colours, especially amongst the single lilac and mauve varieties, but none of them are remarkable for large spikes closely set with bells. Distinction is the most recent addition in this colour; it is of a dark glossy mauve, with a blackish line in the centre of the segments of each petal, but the spike is seldom up to the medium size. Very recently the pale blue varieties have received good additions. *Electra* is the best light blue, and it is now to be obtained at a reasonable price. *Enchantress* is distinct and pretty, producing a long spike of well-formed bells. These are far superior to the old *Grand Lilas*, which at one time was the most popular pale blue Hyacinth. *Princess Amelia* has superseded the older variety *Grandeur à Merveille*; it is brighter in colour and the spike is always longer. A good recent addition to the dark purple-blue varieties is *Souvenir J. H. Veen*; it is not so constant as *King of the Blues*, but will sometimes produce a very handsome spike. Amongst the purple-black varieties *Masterpiece* produces a neat medium-sized spike, and of the same or nearly the same colour, though not quite so dark as *Sir Henry Barkley*. The best yellow to be obtained for colour is *Queen of the Yellows*.

All the above are now to be obtained at reasonable prices, having been previously exhibited before the committee of the Royal Horticultural Society, and also at the exhibitions of the Royal Botanic Society. The double Hyacinths are not now held in such esteem as they used to be at one time; they are never seen. However, it is an error to altogether neglect them; as they are seen growing in Holland some of the double varieties are very effective. Besides *Koh-i-noor*, which is but semi-double, I grow *Lord Wellington*, pale rosy blush, very double; *Princess Louise*, carmine-red, quite double, compact spike; *La Tour d'Auvergne*, pure white, excellent for forcing; *Charles Dickens*, dark blue; *Laurens Koster*, splendid indigo-blue; *Van Speyk*, pale blue, the largest double bells of any Hyacinth. I grow no double yellow varieties.

Many complaints have reached me of the poor

quality of the Hyacinth bloom, as a whole, this year. My own have certainly been under the average, but for this I do not complain so much of the quality of the bulbs supplied as the severe frost, which certainly injured the bulbs to a certain extent. Our stock was frozen through and through amongst the plunging material, and when the time came to take them into the house each plant had to be cut out in a frozen mass. I had a sample of bulbs sent to me where the spikes had made some attempt at development, and on taking hold of them it was found that the base of the flower-stalks had separated from the crown of the bulbs. This must have been caused by a frost more intense than our bulbs were subjected to, as not one in the collection was affected in that way. What I noticed particularly in them was their slowness in starting into growth, and when they did start it was not in the usual free style. We have held that unless the rudimentary part of the spikes are formed in the bulbs the previous year, and the said bulbs are well grown and matured, good spikes are not to be expected, but we must not lose sight of the fact that good cultivation on this side must be supplemented by good management on the other. We do not expect such intense long-continued frosts as we had last season. If they were usual, we would find it necessary to adopt the Dutch practice of placing a good covering of straw over our bulbs as an addition to the usual plunging material.

J. DOUGLAS.

GREENHOUSE CLIMBERS IN FLOWER.

THE blossoms of the beautiful white-flowered *Clematis indivisa* are almost, if not quite past, but a great many other greenhouse climbers are now rapidly coming into bloom, so that there is no lack of variety and interest to be found among them. Of the more slender growing kinds, such as are suitable for training up the rafters of a greenhouse or in some similar spot, where the one thing to be considered is that they do not obstruct the light to any great extent, may be especially mentioned several New Holland plants, now rarely seen, yet all very beautiful. Among them are the *Hardenbergias* and their allies the *Kennedys*, as well as one or two of the more vigorous *Chorozemas*, *Acacia Riceana*, and *Brachysema lanceolatum*. Of *Hardenbergias*, perhaps the best is *H. Comptoniana*, or *Lindleyana*, as it is also called. This is a free, yet slender growing climber, whose leaves are divided into leaflets three or five in number, while small Pea-shaped blossoms are profusely borne in crowded racemes, their colour (a rich violet-purple) being very distinct from that of most of their associates. It blooms during the spring months, as also does another species, *H. monophylla*, whose flowers, like those of *H. Comptoniana*, are purple, but the leaves are entire and not divided into leaflets. Of *H. monophylla* there is a variety with variegated leaves, but this feature by no means enhances its value as a flowering climber. Among *Kennedys* the most beautiful and by far the most continuous blooming is *K. Marryattæ*, of which a coloured plate was given in *THE GARDEN*, Vol. XXVIII., *K. coccinea* having been figured in the following volume. This species is when once established a free-growing climber, whose long slender shoots are clothed with trifoliate leaves of a silky character, while the clusters of deep, scarlet-coloured flowers are produced from nearly every axil. This will flower for months together, often throughout the winter, but this season it has only just commenced to bloom with any amount of freedom. *K. coccinea* is a less vigorous grower than *K. Marryattæ*, and probably for this reason it is very rarely seen. The flowers of this are of a lighter scarlet than those of *K. Marryattæ*. *K. rubicunda*, which is now rapidly approaching the flowering stage, is a very showy climber, with dark green, trifoliate leaves and clusters of deep red flowers very different from those of either of the preceding. All the above are of easy culture given the treatment usually accorded to the general run of greenhouse plants. *Chorozema cordata* splendens is one of the best of the genus for training to

a rafter or pillar, and very pretty it is when treated in this way. *Acacia Riceana* differs from the other members of the genus in being, if not actually a climber, of such a loose habit of growth, that it is only seen to advantage under conditions such as these. If trained to the roof of a good-sized structure and then allowed to grow at will, the slender branches depend therefrom for some distance and in a very graceful manner, and being at the present time laden with its pale lemon-coloured flowers it is especially attractive. *Brachysema lanceolatum* is another Australian member of the Leguminosae, with silky leaves and bright red blossoms. It is better treated as a screen than a roof plant, for though the shoots are long and slender, they do not depend in such a graceful fashion as those of the preceding.

The smaller Trumpet Honeysuckle (*Lonicera sempervirens minor*) has also been the subject of a coloured plate in *THE GARDEN*, and right worthy is it of this distinction, as it is a most beautiful climber, just now coming into bloom. The flowers, which are freely borne in good sized clusters, are of a peculiar orange-scarlet on the outside and yellowish within. One feature in which this Honeysuckle differs from several other members of the genus is that the flowers are wanting in the fragrance common to many of them, a feature which renders our own native Woodbine such a general favourite. The Chinese *Akebia quinata* is another greenhouse climber that flowers during the early months of the year, and is perfectly distinct from any other. It is a slender-growing plant that produces a great profusion of twining stems, clothed with bright green divided leaves, and curious yet pretty blossoms of a vinous purple colour. Planted out and allowed to dispose itself in its natural manner, this *Akebia* will bloom freely, but if pruned and tied in formally, blossoms may be sought for in vain. It may be grown as a wall plant in many districts of England, but is, as a rule, more satisfactory when in a greenhouse, and under such conditions it will commence flowering in February or March, and often bloom more or less continuously for months. The Himalayan *Stauntonia latifolia* is a bold-growing climber, suitable for a large conservatory; where if planted out and liberally treated, the dark green leathery leaves are very ornamental, but the flowers being of a greenish purple colour are not particularly showy; their delicious fragrance, however, at once attracts attention to them. This climber must not be planted where space is limited, as so much cutting will be needed to keep it within bounds, that a good deal of its beauty is lost. Some of the climbing *Tropeolums*, with their scarlet blossoms, will flower nearly throughout the year, while though not actually climbers, no notice of plants of this character would be complete without mentioning some forms of *Habrothamnus*, as they are of a loose habit of growth, more adapted, however, for pillars than roofs. *H. elegans*, with its purplish red blossoms, is one of the very best, and to this must be added *H. Newelli*, which was figured in *THE GARDEN* for August 4, 1888. This latter, which is a less vigorous grower than the preceding, is, however, equally free-flowering, and the blossoms are quite distinct in colour, being of a carmine-crimson tint. This was raised by Mr. Newell, of Ryston Hall, Downham Market, a few years since, and deserves to be more generally cultivated than it is at present. The orange-coloured *H. aurantiacus*, often known by the generic name of *Cestrum*, completes a very distinct trio of this beautiful class of plants. These different forms of *Habrothamnus* will flower during the greater part of the year, and in the case of *H. elegans*, and also of *H. fasciculatus*, the large clusters of bright-coloured fruits are scarcely less showy than the blossoms. In a short time this list of flowering climbers could be considerably extended, as many others are approaching the blooming stage, and in the summer the various *Passifloras*, *Tacsonias*, *Fuchsias*, and numerous additional subjects all combine to make a goodly show. Climbing plants in the greenhouse are by no means always met with in a satisfactory condition, and this is frequently owing to the fact that they are too much curtailed at the roots, for when covering a con-

siderable space a corresponding amount of root action is of course absolutely necessary. The better plan, generally speaking, is to plant out the climbers in a border especially prepared for them, and this should be well done in order to ensure permanent satisfaction. In preparing a border the first important feature to be considered is that it is thoroughly drained, for if there is any accumulation of stagnant moisture the roots are sure to suffer sooner or later, and if the soil becomes sour it is useless to expect anything to thrive in it. To obviate this as far as possible the compost should be of a lasting nature, that is, such as will not quickly decompose. The peat and loam, if used, should be of a fibrous character, broken bricks and nodules of charcoal being invaluable in keeping the soil open where there is a considerable body of it. Much of the beauty of climbing plants is frequently destroyed by tying or training them in too formal a manner, the most satisfactory results being obtained by allowing them to grow at will after the allotted space has been covered, as in this way many of them form long living festoons, that are not only more favourable to the production of blossoms, but also show them to far greater advantage than where formally tied to their supports. H. P.

AMARYLLIS AT MESSRS. VEITCH AND SONS' CHELSEA NURSERIES.

THE collection of this gorgeous spring-flowering bulbous plant at the above nurseries is now fast approaching perfection. Some approximate idea may be formed of the extent of this display when it is stated that there are now in flower and bud some 3000 spikes. The majority of these are grouped together upon the centre bed of the house (span-roofed) devoted to their culture, thus producing a grand effect. It is impossible, however, to give a description of the infinite variety in colour and form; to fully appreciate this an inspection must be made. In looking over this large collection a few days ago I was struck with the sturdy character of the growth, the spikes being invariably of extra vigour and not in any way disposed to develop to an undue length, thus necessitating any support by sticks; the foliage was also compact, of good colour and extra breadth. This clearly proves that their requirements are fully understood and attended to by Mr. Heal. A most interesting fact was pointed out which shows the vast improvement effected in this establishment by hybridisation amongst this fine race of plants; it is that of two varieties being in flower from which the present large collection of hybrids has been chiefly raised. These are Leopoldi and Graviana, the former being probably the better known of the two. The contrast between these and the most recent improvements amongst the hybrids is marvellous, the gain both in vigour of growth and form of flower being immense. At the present time the following named varieties are in first-rate condition, viz., Vandyke and Olivia, to both of which awards of merit were made at the last meeting of the Royal Horticultural Society's floral committee; these are described in the report of that exhibition, p. 302. Another most striking new kind now in flower is Ruby; this is considerably darker than Vandyke, being of a deep rich shade of crimson-scarlet with darker centre, the flowers of extra size and substance. Finette, pure French white with red veinings upon upper segments; The Fairy, pure white with crimson veinings, is very showy; Phædra, another light kind with extra large flowers; Senta, after Olivia, but with darker veins; The Princess, lighter than that variety, extra strong; Attraction, pure white with crimson marking, very showy; The Premier, orange-scarlet self with dark shading, extra large; Polina, pale crimson; Hippolyte, lighter than Ruby; Syreus, a bright rose, very distinct, petals $3\frac{1}{2}$ inches in diameter; Ambrosia, rich dark crimson with lighter centre; The Champion, certificated last year, extra size, scarlet-green centre, fine form; Zouave, reddish-crimson with green star; Rodney, each petal striped and blotched pale crimson ground; Model, a dark claret colour with lighter stripes, extra strong spike with seven flowers; Enterprise, two spikes with eight blooms,

bright scarlet with greenish star, an extra fine variety; and Eglamour, light ground with pale crimson veins.

Amaryllis unhealthy.—Can you assign any season for the splitting of the enclosed *Amaryllis* stems? This year the bulbs have failed to flower as usual, or rather the flower-stalks have been very dwarf and malformed, and the flowers many of them are coming the same. The bulbs are in good health with plenty of roots. Is it a fungus or insect that has caused the rupture-like appearance?—YOUNG GARDENER.

** There are no insects nor any fungus on the stems sent. The mischief has been caused by some sudden change of temperature, which acted upon the tender skin of the flower-stems when they were pushing out of the bulbs, or the skin may have been injured in some other way. I have known it caused by decay of the scales coming in contact with the stems before they pushed out of the bulbs. I have always urged the importance of a dry atmosphere, and have avoided watering the bulbs for a month or so after potting them, because of their liability to decay in the centre of the crown. The decay is usually of a superficial nature, but in some cases the bulbs are killed by it, and at other times the stems are injured, as in the specimens sent. Old and large bulbs are more likely to be injured than small ones. The rupture is really caused by the injured skin not swelling with the substance of the stem. It is not a constitutional disease, and if the leaves are healthy and remain so, there will be no danger of a recurrence of it next year.—J. DOUGLAS.

Lachenalia tricolor.—This is one of the most beautiful of the Cape Cowslips, and should be in all collections, forming as it does a capital succession to such kinds as *L. luteola* and *L. Nelsoni*, which are generally on the wane when *L. tricolor* gets fairly into bloom. An excellent characteristic of all these *Lachenalias* is the fact that the first developed flowers remain perfect till all the buds are expanded on the stem; too frequently the lowest blooms of many things fade long before the uppermost are opened, and the general effect suffers thereby. It is not unusual, however, for *Lachenalias* to remain in capital condition for a month or five weeks, some even longer if kept quite cool. The species under notice has somewhat longer and bolder tubes than *Nelsoni* and *luteola*, and more expanded at the mouth. The flowers are bright green, salmon-scarlet, and yellow, margined or tipped red. The general appearance is rendered the more conspicuously the colouring of the uppermost portion of the flower-spike which is a brilliant orange-red, the same colour pervading the petioles. Apart from these, the chief attractions, the dark green leaves and stems, are freely though irregularly spotted with purple. These charming flowers, grown in a mixture of equal parts loam and peat to which some sand and a sixth part of manure may be added with advantage and kept rather dry until growth has fairly started, are perfectly happy in a temperature of 35°.—E. J.

Herbaceous plants in pots.—Those plants of this section which flower from the end of August onwards to the end of October will be found very useful for pot culture where they are amenable to that treatment. When there is a large amount of plants in pots required during that period of the year to keep gay either conservatories or greenhouses, anything which affords variety, lasts well, and is of easy cultivation must recommend itself if grown well. These plants being hardy do not require any room provided under glass until they are approaching the blooming stage. Then it is better to remove into a well-ventilated house, and supply a good amount of water to the roots. This is a good time of the year for making a selection of plants for pot cultivation, growth being just about to commence. The late-flowering section of herbaceous *Phloxes* (*P. decussata*) can be thus turned to a good account. Good sized clumps of the best varieties, but more particularly the dwarf kinds, should be lifted and placed in pots large enough to allow of a fair amount of fresh soil

around and below the roots. A light rich soil is not desirable, but rather choose one of nearly all loam, and that with a tendency towards clay or, in other words, a stiff loam. After potting, the pots should be plunged to the rim in a rather shaded position, being carefully looked after with water as growth commences, especially when warmer weather sets in. Guard against slugs and snails which often do harm to the young shoots. The Michaelmas Daisies (*Aster Amellus*, *bessarabicus*, *A. formosissimus*, *A. Novæ-Angliæ* vars. and *A. versicolor* being good selections) are also useful for this kind of work, grown under the mode of treatment just advised with the exception of providing them with rather lighter soil. The perennial *Gaillardias*, *Rudbeckia Newmanni*, and *Helenium pumilum* are other instances of useful and easily grown plants. We are not favoured so much at the present time with any of these kinds of plants in pots at our shows as in years gone by. I well remember what splendid examples used to be shown by Mr. Robert Parker, from his nursery at Tooting, at the meetings of the Royal Horticultural Society at South Kensington. I see no reason whatever why pot culture of herbaceous plants should not receive more attention, particularly for the season of the year recommended above. I have not alluded in detail to bulbous plants, but there are many of these both hardy and semi-hardy that are adapted to pot culture.—G.

Hardy Azaleas forced.—The Chinese *Azalea mollis*, or *sinensis*, so readily lends itself to forcing that it is now generally employed for that purpose, to the exclusion of the many beautiful varieties usually known under the collective title of Ghent Azaleas, from many of the earlier ones having been raised there. The blossoms of these last possess a much wider range of colour than is to be found in the case of *A. mollis*, as they vary from white to vivid scarlet, through all the intermediate tints of yellow, orange, salmon, and orange-scarlet, as well as various shades of pink. All these Azaleas bloom in great profusion, and at this season of the year a few bushes will make a gorgeous display in the greenhouse, while, what is more, the blossoms, though not powerfully, are most agreeably scented. These garden varieties of Azalea have originated by the intercrossing of the American *A. calendulacea*, *nudiflora*, and *viscosa*, as well as *A. pontica* from the Levant. The flowers of the older varieties especially are less massive than those of *A. mollis*; indeed the American species are known by the name of the Swamp Honeysuckle, to which in shape their flowers bear a certain amount of resemblance. As with *A. mollis*, those of the Ghent group are among the easiest of all shrubs to force successfully into bloom, as from their dense mass of fibrous roots they can be lifted and potted with scarcely any check. Like all other shrubs intended for early forcing, these Azaleas should be potted as soon as possible after the fall of the leaf, as there is then time for the roots to become partially established before the additional strain is put upon them. *A. mollis* is sent to this country in great numbers every winter for forcing, but we do not get the Ghent Azaleas in this way.—H. P.

Clivias or Imantophyllums.—When one looks back for say twenty years upon what this race of plants then consisted of and then inspects a good collection of the present day, wonder and admiration must be the inevitable result. The improvements which have resulted from raising seedlings of *I. miniatum* are astonishing, and reflect the greatest credit upon all who have persevered in the improvement of this fine class of plants. As compared with *Amaryllis*, they are more easily kept in a good state of health, not requiring so much warmth, and being in every way more reliable from year to year as a constant source of supply. Their handsome foliage alone will recommend them; even when not in flower they may very appropriately be left in a conservatory, failing room elsewhere. Although they can be grown in a cool greenhouse they do not then make such rapid progress. The temperature of an ordinary stove is rather too much for them with an excess of atmospheric moisture beyond their particular

requirements, except in the growing season. An intermediate house will suit them best, promoting a vigorous growth. I note that they are classed both amongst stove and greenhouse plants by some in the trade. This of itself is a sufficient indication of their suitability for either one or the other. Had I the opportunity, I would myself go in for raising seedlings after having purchased some of the best kinds now in cultivation. I believe there is yet room for improvement in variety of colour at the least. The thought has struck me if ever any use has been made of *Imantophyllum Aitonii* or *I. cyrtanthiflorum* for crossing with varieties of the *I. miniatum* type. Possibly, more variation might in this way be obtained, which is the chief thing now to be desired, as vigour of constitution is all that can be reasonably expected.—H. G.

HYMENOCALLIS MACROSTEPHANA.

THIS plant much resembles the *Pancratium*, to which it is closely allied, and produces a long spike of beautifully scented blooms, from six to eight in an umbel. The flowers when cut last in water for two or three weeks. The plant is a rapid grower, having leaves some 2 feet to 3 feet long, and blooms from March till October; indeed, I am scarcely ever without flowers during that period. I have a large number of plants and devote a house to them, so that by keeping a few plants dry and in a cooler temperature bloom at different dates is obtained. I think this one of the best, if not the best, of the species. It is very easily grown, and does well with a mixed lot of plants, provided it is not crowded and in a dark position. Like *Amaryllis aulica*, it requires abundance of moisture and feeding, and should never be thoroughly dried off when at rest, but get less moisture with a lower temperature. I find it blooms more freely if treated in this way. I do not repot often, but rely on feeding and abundance of atmospheric moisture when in growth, using the syringe freely and keeping near the light, shading during the hottest part of the day in the summer months. I use 10-inch or 12-inch pots for the large plants, there being three bulbs in a pot, and 6-inch or 7-inch pots for the smaller or single bulbs. The treatment the *Eucharis* likes just suits this bulb, and when the roots are in a healthy condition it is a good plan to mix some dry cow manure with the compost, and if the soil is very clayey some lumps of peat will be useful. The plants also like plenty of room, as if crowded they fail to push their blooms well out of the foliage. I consider the *Hymenocallis* much more serviceable than the *Pancratium*, and not so subject to the attacks of red spider, while the flowers are much more durable when cut. Our plants give little trouble if kept syringed when in active growth, repotting occasionally and giving plenty of nourishment when the pots are full of roots.

Syon House.

GEO. WYTHES.

SHORT NOTES.—STOVE AND GREENHOUSE.

Carnation Pride of Penhurst.—This Carnation is quite useless for winter flowering. In autumn or early spring good blooms are generally forthcoming, but from November to the end of February not only are they very few and far between, but the examples are poor and miserable. During the months stated it will be best to grow it in a nearly cold house—just excluding frost, and if, with the advent of March, a little more warmth can be given, it will speedily repay the cost by its freedom of flowering.—J. E.

Azalea obtusa.—This is a very old occupant of our greenhouses, but still one of the prettiest of the early flowering Azaleas, for with gentle forcing it may be had in bloom before Christmas. The flowers are small, not much larger than those of *A. amœna*, and their colour, a distinct shade of bright red, supplies an uncommon tint even among the numerous varieties of Azaleas now in cultivation. Of it there is also a form with pure white blossoms, but it is in all other respects a counterpart of the type. They are certainly two wonderfully pretty Azaleas that may be successfully grown by anyone possessing a greenhouse. These smaller flowered Azaleas are often passed over in favour of those with large blooms, yet as little bushes I much prefer the smaller forms such as *A. amœna* and

its varieties, *A. calyciflora*, and Mr. Carmichael's numerous hybrids raised between *A. amœna* and the larger-flowered Indian varieties.—T.

Saxifraga Stracheyi.—Among hardy plants that are available for the embellishment of a cool greenhouse during the early days of spring must be included this Saxifrage, which is a great favourite of mine, and one that blooms naturally in the open ground, or rather in a sheltered spot, while outdoor flowers are still very scarce. This species belongs to the Megasea or broad-leaved group, and it will frequently bloom while the leaves are but partially expanded. The flowers are pale pink, often deeper towards the centre, and remain for some time in beauty. From its early flowering habit this Saxifrage should not be planted in an exposed position, as the blooms are very liable to be injured by late spring frosts and cutting winds, while in a sheltered spot it will prove in every way satisfactory. For flowering under glass it may be grown entirely in pots or lifted in the autumn.—H. H.

GARDEN FLORA.

PLATE 800.

IRIS SUSIANA.*

THE great Turkey Flower de Luce has been grown in English gardens for at least a period of 300 years, having reached our shores, as most products of the East did, in the 16th and early 17th centuries, viz., by way of Constantinople, or Byzantium, as it then was sometimes called. Like the Crown Imperial, this great-flowered Iris is illustrated and described in nearly all the garden and botanical books of the epoch referred to, and now and then we find it in the Dutch flower pictures of a similar or a slightly later date. That our own Gerard and Parkinson allude to so remarkable a flower goes without the saying, and the description of the latter author is so quaint, characteristic, and instructive, that one may well be pardoned for repeating it here.

At page 179 of the "Paradisus" our author says:—

The great Turkie Flower de Luce hath divers heads of long and broad fresh green leaves, yet not so broad as many other of those that follow, one folded within another at the bottome, as all other of these Flower de Luces are; from the middle of some one of those heads (for every head of leaves beareth not a flower) riseth up a round stiffe stalke two foote high, at the toppe whereof standeth one flower (for I never observed it to beare two), the largest almost, but rarest of all the rest, consisting of nine leaves (perianth segments) like the others that follow, but of the colour almost of a snake's skinn, it is so diversely spotted, for the three lower falling leaves are very large, of a deep or darke purple colour, almost blacke, full of grayish spots, strakes, and lines through the whole leaves, with a blacke thrume or freeze in the middle of each of them; the three arched leaves that cover them are of the same darke purple colour, yet a little paler at the sides; the three upper leaves are very large also, and of the same colour with the lower leaves, but a little more lively and fresh, being speckled and straked with whiter spots and lines; which leaves being laid in water will colour the water into a violet colour, but if a little allome be put therein and then wrung or pressed and the juice of these leaves dried in the shadow will give a colour almost as deep as indico, and may serve for shadowes in limning excellent well. The flower hath no scent that can be perceived, but is only commendable for the beauty and rarity thereof; it seldome beareth seeds in these cold countries, but

* Drawn for THE GARDEN by H. G. Moon from flowers sent by Mr. F. W. Burbidge from the Trinity College Gardens, Dublin. Lithographed and printed by Guillaume Severeys.



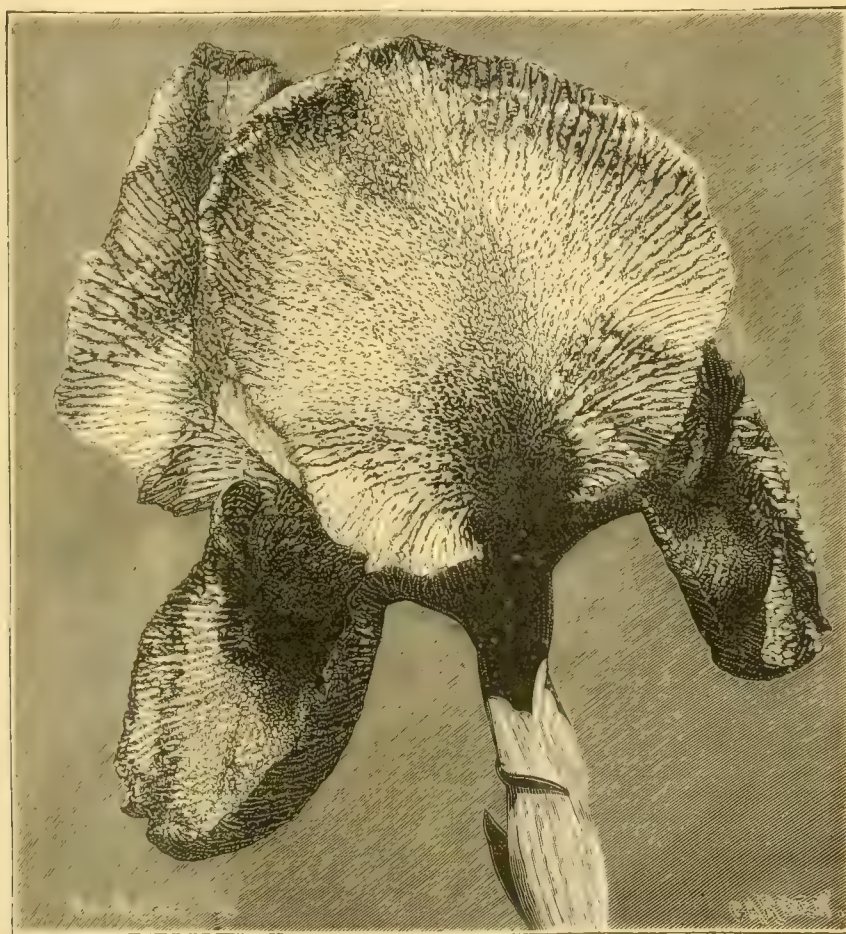
IRIS SUSIANA.

when it doth it is contained in great heads, being brownish and round, but not so flat as in other sorts; the roots are more brown on the outside and grow tuberous thicke, as all other that are kept in gardens.

It is further added of this and *I. tuberosa*:—

These have been sent out of Turkie divers times among other things, and it should seeme that they have had their originall from about Susis, a cheif citie of Persia. They flower in May most, usually before any of the other kinds. They have been sent unto us and unto divers others in other parts from Constantinople under the name of *Alaia susiana*, and thereupon it hath been called, both of them and us, either *Iris chalcedica* or *susiana*, and for distinction maior or minor. In English the Turkie Flower de Luce, or the Ginnie Hen Flower de Luce, the greater or the lesser.

ago as an ordinary border plant was in the Archbishop of Canterbury's garden, near Broadstairs, where it grew freely and flowered well year after year. More recently its importation and culture have been more in vogue, and at St. Anne's, Clontarf, near Dublin, as many as fifty or sixty flowers and buds have been produced by plants on a sunny border sheltered (not shaded) by Magnolias and other wall shrubs. At the College Garden, Dublin, it formerly grew and flowered, and there is now a very strong and healthy plantation of it on a warm and sunny south-eastern border near a greenhouse from which sunlight and sun heat alike are reflected.



The Mourning Iris (*Iris susiana*).

There can be no possible doubt about Parkinson's plant being the same as ours of to-day, because he gives a woodcut figure of its flowers and leaves and rhizome at p. 183.

Although so long an inhabitant of English gardens, *Iris susiana* has never been a common or abundant plant. Here and there in the southern and western counties it has existed, but speaking generally it is even to-day one of the rarest of all the older species, notwithstanding the cheap rate at which its cultivated rhizomes have been of late years supplied by the Dutch and Italian growers. One of the very few places where this *Iris* could have been found ten or fifteen years

A stiff well-drained loamy soil suits it well, and this if surfaced with decomposed granite and sifted lime rubbish will keep at bay the slugs and snails that are sure to devour the succulent growths if allowed their way. Like all the other species of this deciduous section, *I. susiana* enjoys a decided resting season from about the end of June, when its leaves turn yellow and fall away, until October, when growth again commences. On wet soils a spare light may be erected over its roots with advantage to keep off the rain during its period of rest; on warm limestone, chalk, or gravelly soils in full sunshine, however, this is less essential.

In nearly all the books we are told the covering is essential during the winter, but my experience is that it then requires all the moisture it usually obtains from rain, and that it is as hardy, so far as frost is concerned, as *Iris germanica*. The main essential is to keep it quite dry from the time growth ceases until it begins again late in autumn, a necessary condition for all the group to which *I. susiana* belongs.

As to the actual size and general appearance of this great Persian *Iris*, we have only to glance at Mr. Moon's characteristic drawing to obtain a better idea than any description—albeit Parkinson's—can give, but the flowers are far more variable than many suppose. From an imported batch received some few years ago I had quite a variety, both larger and smaller, some with nearly white grounds, others darker and heavily shaded and spotted, as in the plate. Some were more rusty or rufous-tinted, while others were chequered like a Fritillary or a guinea hen's feathers.

A very noble form or phase of this plant has recently been introduced to our gardens under the name of *Iris Gatesi*, and as its growth and flower are alike said to be superior in dimensions to those of *I. susiana*, some of us are in jubilant expectancy for it to flower under our northern skies. In passing it may be of some interest to note that the ancient city of Susa or Shash (Khuzistan), whence this chequered *Iris* obtained its specific name, was a favourite spring or early summer residence of the old Persian kings, who resorted thither, in part because the locality during the earlier portion of the year was such a pleasant and flowery one. So it may, perhaps, be well to remember that we western gardeners are by no means the first or most ardent lovers of this and many other choice bulbous flowers.

Now-a-days, however, thanks to Professor M. Foster and Herr Max Leichtlin, we have, apart from *I. susiana*, many other species and forms of this section, the *Oncocyclus* group, as it has been called. *Iris Gatesi*, before alluded to, has even larger flowers than that shown in our illustration, "of a silvery cream colour, netted, veined, and spotted with claret-purple." *I. iberica* and its various forms are also now pretty well-known varieties, smaller, perhaps, than *I. susiana*, but what they lose in size is abundantly compensated for by the exquisite refinement and delicacy of their flowers. *I. Korolkowi*, *I. Leichtlini*, *I. Saari*, and *I. paradoxa* are other rare rhizomatous species, while the fulvous *I. lupina* has flowers the colour of a fox's fur, and I have heard of other kinds that have reached our shores from Russian collectors, some of whom are now in the very centre of the bulbous treasures of the eastern landes or deserts.

All who really admire these weird species of *Iris* should, after obtaining due permission, not fail to make a pilgrimage to that wonderful chalky hill garden at Shelford, near Cambridge. There, high up among the young

wheat and the singing of larks, may be seen in April, May, and June such a feast of Iris splendour as can nowhere else be seen on one spot, perhaps, in Western Europe. F. W. B.

THE WEEK'S WORK.

FRUIT HOUSES.

POT VINES.—Progress has been fairly well sustained, but at the expense of much fire-heat. Bursts of rather strong sunshine while yet the pipes are very hot are especially trying to pot Vines carrying a heavy crop of fruit, and unless kept well supplied with water, flagging ensues and a great check is given. The soil in the pots ought not to approach dryness, though saturation must certainly be avoided. If plunged, try the balls, that is if there is any doubt about their state, with barbed-pointed stakes, the soil brought up from a good depth plainly denoting whether water is needed or not. Always give enough to well moisten the soil, and in dry clear weather twice a day is not too often to water those well rooted and bearing crops. Liquid manure of some kind, notably diluted farmyard drainings, or else guano at the rate of half an ounce to the gallon of warm soft water, may well be given every time moisture is required at the roots. Root action ought now to be brisk, a number of extra strong roots being emitted from the stems just below the surface. Encourage the spread of these by means of liberal top-dressings of turfy loam, manure, and charred rubbish, and if they can be led over the sides of the pots into plunging material underneath, so much the better for the Vines and their crops. Should the Vines flag badly from causes other than dryness at the roots, or say from the other extreme, the soil being sour and saturated, the prospects of a good crop being ripened off are very remote indeed. All that can be done in this case is to lower the temperature of the house somewhat and increase the bottom heat, watering very carefully, and using nothing but quite hot, clear soft water. It is not often those well established in fruiting pots behave so unsatisfactorily, but those given a shift either just before or soon after they are started are liable to thus come to grief, unless very carefully watered at the outset. On the first signs of red spider carefully wash the leaves with soft or soapy water, dipping the sponge in sulphur occasionally. Sponging with soapy water impregnated with tobacco juice or a solution of Quassia chips is also the safest remedy for thrips. Where the crops are going on satisfactorily maintain a brisk top and bottom heat, with plenty of atmospheric moisture, reducing the latter somewhat, and admitting air freely when colouring commences.

PREPARING YOUNG VINES.—Newly struck Vines, whether intended for pot culture or planting out, ought not to be long kept in small pots. Before they become at all root-bound, the requisite number, or the best of them, should be shifted into 6-inch pots, be kept staked uprightly, and in a brisk stove temperature. Nor ought they to be long rooting in these comparatively small pots, but should be either shifted into fruiting pots or else be planted out. "Cut-backs" or quite small canes raised last season, and cut hard back and started early this year, are preferable to any raised from eyes this spring, as they start away quickly and strongly, and are rarely overtaken by younger Vines. Directly these have fairly well filled 6-inch pots with roots, the time has arrived for giving the final shift. Vines will succeed well in 12-inch pots, but pay for being given sizes 3 inches or more in diameter. Whatever size is used should be clean, well, but not very heavily drained, a layer of half-inch bones covering the crocks, and sound enough to admit of firm potting. A compost consisting of three parts of roughly broken fibrous loam to one of partially decayed horse-droppings, with bone-meal and burnt garden rubbish freely added, suits Vines well. Give the plants a watering a few hours prior to repotting, and also well warm the compost used. A slight hotbed would give them a good start in their fresh quarters, but plunging in a moist hotbed is not advisable, this causing a soft sappy

growth of leaves and wood. The best positions for young pot Vines are the fronts of forcing houses, the pots being either set on a firm bed or a staging, and the Vines trained up the roof not far from the glass. When thus located, there is no excuse for any mistakes that may be made in watering, and the soil ought soon to become crowded with root-fibres, while the top growth is certain to be equally satisfactory. Supposing the Vines are disposed 3 feet apart, they will not greatly shade anything underneath. Stop when about 9 feet long, and pinch back lateral growth to the first joint. Do not turn out against sunny walls till the canes are quite hard and well browned.

SHY-BEARING GRAPES.—Some of the stronger growing sorts, including Gros Guillaume, Syrian, and Golden Champion, are not always so fruitful as could be wished, and occasionally instances are to be met with where not a bunch has shown on an extra strong Vine. This difficulty might frequently be obviated by the complete removal of the first breaks. It must be done in no hesitating half-hearted manner, and directly it is seen the strongest or more advanced shoots are failures. On young rods especially double buds are very common, and it is the usual practice to reserve the stronger of the two, and to early remove the other. In the case of shy bearers, this order of affairs might with advantage, or whenever necessary, be reversed, the weaker breaks more often being furnished with bunches. Nor need this drastic measure be confined to the extra strong growers, as I have practised severely disbudding Alicante, Muscat of Alexandria, and Lady Downe's when these from an unavoidable cause lost all their bunches. Healthy Vines are furnished with far more wood-buds than are often suspected, and if the earliest formed shoots are completely removed more will soon be forthcoming, many of them most probably showing bunches. The plan is well worthy of a trial where the crop is likely to be a failure, and if expectations are not realised no harm will be done.

CUCUMBERS.—More light and sunshine have greatly strengthened these, and fruit ought soon to be plentiful. If, however, it is desirable that the plants remain in a profitable state for several months, then must heavy cropping be avoided at the outset. Not more than one-third of the Cucumbers that show on Telegraph and other similarly productive varieties should be allowed to grow, or otherwise neither top nor root growth will long be satisfactory. Allow the leading growths to ramble freely wherever there is good room for them, and stop the side shoots beyond the first or second joints. Cut out all exhausted haulm before it interferes with the spread of young growths intended to take its place, and above all keep the foliage free of insects. Fumigating with tobacco paper or Lethorion cones will keep down thrips and green-fly, and tobacco powder is the best remedy for the more troublesome and hard-to-destroy black-fly. Mixing sulphur with the syringing water, some being lodged on the upper as well as on the lower surface of the leaves, is the only remedy for red spider, syringing with clear water having little or no effect on that pest once it is well established. A very porous compost or rough turfy loam only best suits Cucumbers, and it is not safe to mix animal manure of any kind with it, or the chances are the roots will be attacked by tiny worms; use clear liquid manure only and that frequently, but anything that clogs the surface, including soot, ought to be avoided. Crop plants in pots to their fullest extent and then throw them away. It will soon be necessary to use blinds or afford a shade in some way during the hottest part of the day, this being most imperative when the Cucumbers are grown on what is termed the "express system," that is to say, when no air is given at any time. In addition to this shading the plants must be frequently syringed overhead, and the walls, floors, and beds kept constantly moist. If these precautions are neglected, scalding may soon take place and red spider complete the ruin of the plants. On the other hand, if the cultural details are well carried out the Cucumbers will grow surprisingly fast and

be very tender and good in quality. Those who prefer to move more slowly and with less likelihood of a break-down may be well content to maintain a night temperature of from 65° to 70°, increasing it in the daytime to 75° and 80°. Ventilate somewhat early, but avoid letting in cold currents of air and close early enough to run up the heat to about 90°, the plants, walls, beds and floors being freely syringed at the same time. PRACTICAL.

PLANT HOUSES.

GENERAL MANAGEMENT.—Every advantage should be taken of bright sunshine to close early, using the syringe freely on such occasions. If the temperature runs up to 90° no harm will be done; the majority of the plants delight in it. Guard against excessive heat in the pipes early in the day when there is any prospect of clear weather. When this is carefully attended to, the plants will not show such symptoms of distress, less air being required to keep the temperature within limits. Ventilators in the brickwork below can be partially opened to admit air, which will become warmed by coming into contact with the hot-water pipes. Top air should be cautiously applied during cold winds; if the blinds are not needed as a shading, it is a good plan to run them a trifle of the way down, so as to screen the ventilation. The temperatures may be steadily increased both by night and day, adding a few degrees to that advised a few weeks ago. The evaporating troughs should not be allowed to dry up; additional means also should be employed besides syringing to maintain a genial growing atmosphere by damping the floors and walls frequently, according to the amount of heat in the pipes and the state of the weather. Watering of newly-potted plants must still be proceeded with in a careful manner. More particularly does this refer to plants which are plunged in fermenting material. Keep a watchful eye upon all insect pests, and on no account allow them to get the upper hand. Mealy bug, as also scale, thrips, and green-fly, will now increase rapidly.

PROPAGATION.—In the case of many things this should now receive attention. In most cases the majority of the bedding plants will be out of the propagating pit, room being thus afforded for this particular purpose. Crotons will now strike freely with a brisk bottom-heat, taking every precaution against the cuttings drooping in the slightest degree. When taking Croton cuttings, my plan is to immerse them in the water-tank for an hour or so before insertion. They should be struck singly in 2½-inch or 3-inch pots. If the future plant is wanted for decoration with a single stem, select well coloured tops, only removing the lowest pair of leaves. If a plant for a future bush specimen is the object, then take the cutting with five or six shoots. If this is a foot or 18 inches in length, it will strike just as well with care. Dracænas, of which eyes were inserted in January, will now be fit for potting singly; this, too, should be done in 2½-inch pots for a start, still keeping them in a brisk heat. For this potting use a light soil, but no manurial stimulant, except it be a little pure soot, just sufficient for its presence to be detected. The Acalyphas are superb decorative plants for the summer and autumn months; these, too, should now be struck, treating them as recommended for Crotons, relying more upon small cuttings than on those of larger size. When once fairly well rooted they will grow apace, a dwarfier plant being ultimately secured. The propagation of Pandanus Veitchi is easy enough by suckers, but if an extra number are wanted and the plant not afterwards saved, the best way is to thrust a hot iron into the central growth; all the vigour will then be concentrated upon the suckers. In order to secure good dwarf plants of this Pandanus with beautifully variegated foliage, arching over in a graceful manner whilst still very young, the best way is to take the suckers when quite small with what might be termed merely a grassy growth. Such suckers are frequently pushed forth from the base of the plants; these, too, always colour better than the larger ones, being in all respects preferable to the larger suckers, although it takes a longer time to work them up to a useful size. Those taken off

with stiff, erect foliage never make such good-looking plants. *P. graminifolius* is one of the most useful of the green-leaved varieties in a small state; this strikes freely enough from cuttings. Others, such as *P. utilis*, are best raised from seed. *Cyperus alternifolius variegatus* can be readily propagated by inserting the tufts of leaves in a sandy soil after having shortened them about half way back. In doing this the best variegated tufts should be chosen. The green-leaved form is readily reproduced from seed, in which way it makes the best of plants. Division as a mode of increase is only advisable for the first named kind. *Euphorbia jacquiniæflora* should now be propagated from cuttings; these do not at all times strike well if they are in any way tender. I find the best plan is to thoroughly expose the old plant to all the light possible, so as to secure a sturdy, short-jointed cutting with that bronzy hue upon it which is peculiar to this plant when so grown. The cuttings should be inserted in a light sandy soil, given a gentle bottom-heat if possible, and covered with a bell-glass in preference to the usual propagating pit, less humidity in the atmosphere being essential, but exclusion from the air equally desirable. Cuttings of *Poinsettias* for large plants should now soon be got in, the old plants being exposed similar to the *Euphorbia*. These cuttings are best struck in 2½-inch pots singly, guarding against any excess of moisture. It is well to bear in mind the desirability of growing at least two varieties of this fine autumn plant. *P. pulcherrima* is well known as a fine decorative subject, but *P. pulcherrima roseo-carminata* is at least a fortnight or three weeks earlier when both are grown under exactly the same conditions. Its colour is well denoted by its name, being quite distinct from that of the old kind. The white variety is worthy of a place also, but it is seldom seen in so good a condition as either of the others. The old stools of *Poinsettias* should not be cut down yet, nor until all the cuttings are taken. *Eranthemum Andersonianum* is a very useful plant for late summer flowering, rivalling many an Orchid in its delicate markings. Cuttings put in now will make good plants; these should be grown on without pinching, so as to secure a strong growth. The *Impatiens*, as represented by *I. Hawkeri* and *I. Sultani* in its varieties, should also be struck every spring from cuttings; if these are put in now some nice useful-sized plants for summer-flowering will be obtained. The stove Balsams are well worthy of careful treatment, for when in good condition they are most attractive. Where *Ixoras* are required for cutting from some cuttings should be struck every spring, so as to keep up a stock of young growing plants.

JAMES HUDSON.

ORCHIDS.

THERE is more work required in all the departments now, both as regards watering the plants and keeping them clean. The cool house does not now require much artificial heat. A good cultivator told me that he never used the heating apparatus for the cool house after the middle of April, except to turn on the heat late at night if it was likely to be frosty and off again early next morning. This, of course, will depend upon the weather. We sometimes have snowstorms and very cold weather in April. Again, whenever the heating apparatus is not in use, there is much danger from damp at night. The blooms are quite covered with a fine dew, which under certain conditions of the atmosphere causes the flowers to become marked with black spots. My plan is to keep the pipes in the cool house in a condition that they feel just warm to the hand up to the middle of May or later if the nights continue cold, and even in summer it is necessary to be careful not to sprinkle too much water about at night when the house is unheated, as the condensed water is sure to do mischief to the pure white flowers of the *Odontoglossums*. The only plants needing repotting at present are a number of robust specimens of *Maxillaria venusta grandiflora*. No other Orchid in our collection grows so freely as this nor increases so rapidly. It is one of the best Orchids for producing a wealth of white flowers in the late autumn and winter

months. Last season we had blooms of it for quite four months; the flowers are also delightfully perfumed. I find the plants succeed best in a good depth of fibrous loam and a little fibrous peat with a good sprinkling of clean drainage mixed with it. The pots should be not quite half full of drainage. The plants must be repotted every year, unless they get a good large shift, when they may stand two years in the same pots. The pseudo-bulbs become so over-crowded, that few flowers are produced unless the plants are frequently divided. The new *Odontoglossum Noezlii* will, I believe, turn out to be a better species than the small plant exhibited before the Orchid committee would lead us to believe. It seems to be of vigorous growth, and the dried spikes I have seen are thickly clothed with a score or more of rich, scarlet-coloured flowers. They are of small size and much resemble those of *Epidendrum vitellinum*, so far as one may judge from the dried specimens. It is a species well worth trying. This is a good time of the year to repot any species of *Odontoglossums* that may yet need it, and the best time to do so is as they pass out of bloom and just as the new growth is starting from the base of the old pseudo-bulbs. The *Masdevallias* should now be freely throwing up their flowers, and their rich and varied colours are most attractive in the cool house. A useful *Odontoglossum* for its distinct colour at this season is *O. Edwardi*; the reddish violet-coloured flowers, freely produced on stout spikes about a yard long or more, are also violet scented. It grows very freely with me, and flowers every year treated the same as *O. crispum*. A plant well worthy of all the care we can bestow upon it is *Oncidium macranthum*, which will succeed best in quite the coolest part of the cool house, the plants being close up to the glass roof. Slugs are extremely partial to the young roots which are formed above the peat and *Sphagnum* compost, and they also delight to run over the surface of the compost amongst the fresh green *Sphagnum* and down the outsides rather than the insides of the pots. To keep the roots safe from slugs, we fill a saucer full of water and invert a flower-pot in it, standing the plant on the inverted pot.

I had an interesting experiment with some plants of another cool house *Oncidium*, and one worthy to compare with *O. macranthum*, viz., *O. Marshallianum*. This species succeeds best in teak baskets, and I found that it gradually degenerated in the temperature of the Cattleya house, the bulbs becoming smaller year by year. I moved the plants into the cool house and they became more vigorous, forming larger bulbs the first year after they were moved, and still larger ones the second. The showy *Epidendrum vitellinum majus* succeeds well near the glass in the coolest house, and now as the flower-spikes are pushing up through the sheaths, the plants must be freely supplied with water at the roots. At p. 289 I observed that the *Phalænopsis* (Moth Orchids) were passing out of bloom, and that the spikes should be cut boldly off those plants showing signs of exhaustion. The plants will soon start into new growth of roots and leaves. They do not like to be disturbed much at the roots, nor do they thrive when the *Sphagnum* Moss becomes reduced to vegetable mould, as it will do in the course of twelve months. Now as they are starting to grow, I advise removing as much as possible of this material with a pointed stick and replacing it with clean fresh *Sphagnum* chopped up, mixing in with it some clean drainage and a few pieces of charcoal; the live roots outside the baskets or clinging closely to the teak should not be disturbed. A time comes when the baskets decay, and the plants may need shifting into larger ones. In that case the best way is to pull the baskets to pieces by taking out the wires holding them together at each of the four corners and to carefully remove each piece of the basket separately, taking the utmost care of the roots. The plants may be carefully replanted in new or quite clean baskets, using clean *Sphagnum* only for them to grow in. The plants may be suspended from the roof glass, as before advised, on the shady side of the warmest house, or each basket may be stood on an inverted flower-pot and be placed on the stage of the house.

In this case slugs and woodlice, if not guarded against, may do much mischief by eating the points of the roots or the edges of the leaves. The temperature of this house may now be from 67° to 70° as a minimum, and all the other departments may be increased from 2° to 5°.

J. DOUGLAS.

THE KITCHEN GARDEN.

GLOBE ARTICHOKE.—These are naturally late in starting into growth this season. Where fresh plantations are contemplated the suckers will soon be large enough for detaching from the parent plant. It does not do, however, to be in too great a hurry, as it is much the wisest course to wait until the suckers are from 9 inches to 12 inches in length. To succeed well the Globe Artichoke requires liberal treatment. The ground should have been deeply dug and heavily manured, and on poor soils the best results are obtained by digging out a trench 18 inches in width, and a foot in depth and filling up with rich material. Sufficient room must be allowed to secure full development, and being a vigorous grower the plants should be set quite 3 feet apart in the row, and the rows should be quite 4 feet apart. Spring planted suckers should produce heads in the autumn. If suckers have to be purchased, secure the true green or purple Globe varieties, the scales of which have a rounded appearance, and are also fleshy with a delicate flavour.

PARSLEY.—A good breadth of this should now be sown to secure a supply throughout the summer months. Select an open position well exposed to the sun. Where the grub is known to be troublesome, or in old gardens rich in humus, and where failures are often frequent, means must be taken to prevent its attacks. Dressings of lime and soot in conjunction with well burned refuse often work wonders. The ground having been previously forked over, the correctives should be well worked into the soil, the surface afterwards being made firm for the reception of the seed.

PROTECTING ASPARAGUS FROM FROST.—As the young heads appear above ground they are apt to be injured by frost, and to prevent this a little clean litter strewed over the heads in the evening when frost appears imminent will protect them considerably. As the heads appear above ground, the question will arise whether the heads will be required blanched or otherwise. For blanching, fresh and pure leaf soil, with an equal bulk of sand, is as good a material as can be used. A mound would have to be placed over each crown, and as the heads arise above the top they are ready for cutting. This is easily managed by removing the material away from the stem and cutting off near the surface. Earthing over the crowns will be found a much better system where blanched produce is required than digging into the bed to get a sufficient length of growth. It is the practice with some people when cutting Asparagus to leave the smaller growths, thinking by so doing that the crowns or roots will be correspondingly strengthened, but this is a mistake, as by leaving the small growths to grow other and stronger shoots are prevented from appearing. According to my experience, in cutting Asparagus, the best way is to cut all as it appears, large and small, and to cease cutting in the same manner, as by so doing the growths start away regularly and well. A limit, however, may be allowed with any weak crowns which are amongst those of stronger growth. In this case it would be advisable to allow these to grow ahead and not cut any produce from them at all, as by so doing the crowns would be greatly strengthened for cutting from in subsequent seasons.

APPLYING FERTILISERS TO ASPARAGUS BEDS.—The present is a suitable time for applying any artificial fertilisers to the surface of beds. There are various commodities which may be used for the purpose, but soot, salt, and Peruvian guano are hard to beat. Each may be used separately, but I prefer to use them mixed in equal parts. The ground must be merely strewed over about every fortnight with whatever fertiliser is used. On very

heavy soils the salt may not be applied so often. Nitrate of soda is sometimes recommended, but this must be used with great care. Y.

KITCHEN GARDEN.

AUTUMN CAULIFLOWERS.

ALONG with the autumn Cauliflowers I will include the autumn Broccoli, as one succeeds the other. Where Cauliflowers are appreciated the autumn varieties are very important. On some soils where the early Cauliflowers are, comparatively speaking, a failure the autumn varieties generally succeed well. During very dry seasons when late Peas are scarce and unless due provision has not been previously made the want of late Cauliflowers is very much felt. During the dry season of 1887 I had a very large breadth, and except when first planted water was not applied throughout the year, nor was it necessary. The soil, however, had previously been deeply worked and heavily manured, and this lessened the use of the watering-pot. Sometimes during the early August shows immense heads of Autumn Giant Cauliflower are frequently seen, and it has often been asked how such heads are produced early in the season from, comparatively speaking, a late variety. Such heads are produced from plants which have had a long season of growth from seed sown during the early part of the previous September along with the ordinary batch of early summer Cauliflowers, and wintered with them in a cold frame and planted out at the same time. During some seasons they succeed better than others, as I have had quite two-thirds of the plants go blind just previous to planting out. Those, however, which escape this defect grow to a prodigious size under good cultivation. Unless, however, for exhibition these large autumn Cauliflowers are not generally useful. For the above purpose, however, the rows require to be quite 3 feet 6 inches apart, or even 4 feet, the plants being set in drills and heavily watered with sewage as occasion requires. To secure plants for cutting from during the latter part of August and early in September it is very essential that the seeds be sown under glass during the month of February. I have cut good heads when there has been a genial sowing time from plants raised on a south border early in March, but during a season like the present, unless the precaution was taken to sow under glass at the time stated, or even early in March, early heads will not be forthcoming, as up till the first day or so of April it was an impossibility to sow in the open. The seeds having been sown on a very gentle hotbed of leaves and within 12 inches of the glass, the plants grow sturdily and well. Sturdy grown plants being of the greatest importance, the seedlings when about 3 inches in height should be pricked out, and as it is necessary to plant with a ball of soil attached to the roots, a good rooting medium should be provided. During some seasons maggots often play sad havoc with Cauliflowers, these clustering round the base of the plants and eating the outer skin of the roots completely away. This maggot must not be confounded with the insect which forms excrescences on Cabbage roots, and which is commonly termed "club." Dustings with soot and lime, and also previously dipping the roots in a puddle formed of soot, lime, and soil, act as a capital deterrent. Plants raised in March in the open have escaped, while those raised on a gentle hotbed and pricked out have been badly affected. The plants when large enough should be duly planted out in rows 3 feet apart and at the same distance between the plants.

Broccoli require much the same treatment,

but two sowings should be made at the least, as during favourable seasons good heads may be cut up till Christmas if duly protected when necessary. The first sowing should be made along with the Cauliflower and treated in the same way. This batch forms an admirable succession. During a favourable season it is wise to sow towards the middle of March, but this having been out of the question this year, a sowing should now be made. Two plantings may be formed from this sowing. By sowing thinly, it is not at all necessary to prick out the plants previous to the final planting. I sow the seeds very thinly in the open in rows running from north to south. As soon as the plants are large enough, plant out 2 feet apart and 30 inches between the rows. If the weather is dry at the time of planting, dip the roots of each plant in a mixture of soil and water, thickened sufficiently to stick to the roots. Plant firmly, inserting the plants well into the soil, and, except an occasional hoeing, no other attention is necessary beyond protecting in case of frost. This protection, however, is very important, and on the manner in which it is carried out will depend the length of time in which a succession may be kept up. The heads are easily injured by frost, and on its appearance means must be adopted to prevent injury. The heads will remain fresh a considerable time if the plants are dug up with the roots attached and planted in frames, and protected if necessary by mats. The large outer leaves may be previously cut off, which will allow of a much larger quantity being packed in a given space. Any plants which are not turning in would be injured by frost if allowed to remain in the open unprotected, and to obviate this they should be dug up with balls attached to the roots. Various are the contrivances and places adopted for protecting Broccoli, and when it is considered that the plants have to form heads a light position must be afforded. Cool brick pits or the floors of vineries which are being kept cool are amongst the places brought into requisition. I have also packed the plants in narrow borders against a warm wall, and covered them at night to guard against frost. From such a position I have cut heads up to the first week in January. A. Y. A.

CUCUMBERS IN LENT.

WHERE one gardener grows Cucumbers throughout the winter and succeeds in fruiting them well on to the spring and early summer months, there are hundreds who have not the convenience or the means to do this, and are yet most anxious to cut Cucumbers at the earliest date possible in spring from seed sown in December or early in January; therefore, any information which may be forthcoming showing a good method of culture to adopt to obtain the quickest returns will be of service to your readers who are Cucumber growers, both private and commercial, to the latter especially, as the value of Cucumbers in Lent is usually double what it is at any other time. To obtain the best and quickest returns it goes without saying that light, well-heated pits or houses must be at command as well as means of providing bottom heat, either by hot-water pipes or fermenting material (the latter preferred). Granted that these necessary essentials are available and that the seed is sown (one seed in a small pot) the day after Christmas Day, it is possible with careful and intelligent culture to cut fruit in fair quantities the first week in March and onwards. The plan to adopt to accomplish this is to arrange the pots rather thicker in the border than is generally practised, and to stop the young plant at the third or fourth leaf, and to persist in stopping all the succeeding shoots at the second leaf. This early and decided check to the foliage growth results in forcing growth into the fruits, and the first formed fruit and nearly all the succeeding ones

will swell away freely under this treatment. Later on when Cucumbers are more plentiful the plants may be thinned out to the requisite number to fill the house for summer cropping, and under the influence of more light and more room the plants will soon appear as strong as if they had not been heavily cropped when in a young state. It is essential to success in culture at this cool and sunless season that every bloom should be fertilised and the plants brought as near the glass as possible, giving abundance of moist heat by day and night, 68° to 70° at night, and the day temperature with sun heat may run up to 85° or 90° for a short time. Ventilation is not necessary at this early season, and to maintain the night temperature at the required heat, I much prefer covering with mats than forcing too hard. By adopting this mode of culture in preference to the more common practice of allowing the young plant to run up in the first instance without stopping until it is 2 feet or 3 feet long, and then stopping it and allowing the succeeding growths to cover a good area of trellis before cropping, I find I can cut Cucumbers about three weeks earlier, which to many is an important consideration. MONA.

LETTUCES IN FRAMES.

It is several years since garden produce generally was put to such a severe test as it has been during the past winter, and amongst the things which have suffered must be named the Lettuce that had been planted out on warm borders for use from the middle of April to the beginning of June. It is the largest and finest of these plants that have suffered the most, so that a different method of procedure will be necessary if a blank in the supply is to be avoided. In the first place, a sowing or two should be made in boxes in heat, and the seedlings pricked out into other boxes as soon as they become large enough. A good portion of these should be of the Early Paris Market type, as they come into use very soon and occupy but little room; some of the other Cabbage kinds should also be sown and treated in the same way to succeed that variety. A considerable number may be brought on in this way up to a certain stage. After which the best place that can be found for the earliest plants is a shallow hotbed, principally composed of leaves, with sufficient litter to give the heating a start. For the earliest batch of plants a somewhat close fitting frame will be found the best, but for later batches very temporary shelter in a sunny and warm position will assist them greatly. In many gardens there is a good supply of glass lights that have been found worth preserving when old glasshouses have had to be renewed, and these afford the very best shelter that can be given to early Lettuces. To economise the fermenting materials as well as to keep them near the surface of the ground, a trench should be thrown out of sufficient width to take the frame, and into this the litter and leaves may be placed, and if the soil is good it will be found handy for covering the surface of the bed on which to place the young plants. The beds need not be formed until the young plants are sufficiently large for planting, as it is necessary that they have the benefit of what warmth there is for a start, as these somewhat shallow beds hold the heat but a very short time. When the plants have once fairly started into growth, the solar warmth, which is daily increasing, will be found sufficient to keep them growing. Before planting and after the frame has been set on the bed and the staple soil used for covering the same, a good coating of old Mushroom manure or well-decomposed manure may be mixed with the soil before planting the young Lettuces. The smaller growing Cabbage Lettuces do not need planting more than 4 inches apart, that is if they are to be used as soon as fit; but the larger kinds will need planting nearly double that distance asunder. After planting they should receive a good watering, and through the whole period of their growth be kept moderately close and be supplied with tepid water as often as the surface of the bed becomes dry. Every particle of the leaves of Lettuces grown in this way is fit for use. Part of the plants should have their leaves tied up as soon

as they become large enough to encourage the formation of white hearts at the earliest possible date. Great care will be necessary to see that the leaves of the plants are thoroughly dry before they are tied up, or they will be sure to disappoint the grower by their damping. This precaution is more necessary in frames than when dealing with plants in the open air. Raising young plants under glass of such kinds as Paris Green Cos, Hicks' Hardy White, or in fact any of the summer kinds, is also a good plan, and will be necessary in many gardens this spring. If these are carefully treated by placing them near the glass and pricking them off into boxes about 2 inches apart, a number of very useful plants may be raised that will, if duly hardened off and finally planted out on the ridges between the trenches got out for early Celery, come into use before those sown a little later out of doors. C. W.

PREPARING THE GROUND FOR OUTSIDE TOMATOES.

THE more the ground is stirred about for Tomatoes the better. I am not an advocate for mixing much manure in the land just before planting, as it is better applied as a mulch. By-and-by, when the weather is warmer and the plants are laden with fruit, I intend planting out some 4000 or 5000 plants on a piece of open breezy land that has never up to the present grown anything but farm crops. The worst of these newly broken up sites is the trouble the wireworms give, and in such cases it is an excellent plan to plant the Tomatoes a yard apart in rows running north and south, with a row of dwarf French Beans between each two rows of Tomatoes. It is true the Beans may not yield a profit directly, but indirectly they will do so by attracting the wireworms, who are very partial to Beans. One of the chief items of expense in growing open-air Tomatoes on a large scale is the necessity for providing supports, as the plants must be kept off the ground. I have tried various plans with tar twine, wire, stakes, &c., but have not fixed upon anything that satisfies me, especially as regards economy and efficiency. A good deal may be done to rid land of wireworms by forking it over once or twice now to give the birds a chance at them. Tomatoes like a free soil to grow in, but it will not be safe to plant out before the end of May. Plants placed singly in small pots now and grown in a light position will be in good trim for setting out, say, by the 25th of next month. All plants should be potted off singly if possible, but should not be allowed to get much pot-bound, as this very often leads to the loss of the flowers of the bottom truss, but in my own experience I have found it better to have plants established in pots than to prick them off in boxes or frames. In planting, the soil will be trod firmly over the roots, and when planting is finished the hoe will be passed through to leave an inch or so of loose soil on the surface, and as often as possible this hoe will be used during summer, for there is no greater assistance to growth than a well and frequently stirred surface. This, too, will have some influence in keeping off disease, for the atmosphere will not stagnate over a newly stirred surface. E. H.

SHORT NOTES.—KITCHEN.

Autumn Cabbage.—Although autumn Cabbage cannot be classed as a luxury, yet they come in very acceptable, and during a dry time are doubly valuable. The small varieties should be selected for this purpose, as they may be planted rather thickly, 18 inches apart being ample.

Seed failures.—Where seed sowing was practised early there will be no doubt plenty of failures, but whatever the crop, there is yet time to make any reparation needed. The difficulty with Peas and Beans in a backward season like the present is that two or three sowings may come in at about the same time, thus causing a glut. Onions and Parsnips must be looked after, and if these should be at all weakly after appearing above ground, the safest course will be to make another sowing.

Beet Vilmorin's Black Queen.—On some soils the long-rooted Beets will not succeed, and hitherto in all such cases the Turnip-rooted forms have

been found the best. Black Queen is a distinct variety midway between the two types just alluded to, and if one might hazard a guess as to its parentage I should say it is a cross between Dell's Crimson and the Turnip-rooted. It forms somewhat strong top-growth, the colour being a dark crimson, while the roots are thick at the top and only slightly tapering. The colour and quality are decidedly good, and altogether this novelty is well worthy of a trial in most gardens, whether shallow or otherwise.—W. I.

ORCHIDS.

ORCHIDS FOR BUTTON-HOLES.

SINCE Orchids have become so popular, and for this reason are grown in far larger numbers, their flowers have been largely used for button-holes, &c. Fortunately, there are many kinds which during their usual flowering season are well adapted for this purpose. Thanks to the energy of our Orchid collectors, most of these are grown in quantity; thus they may be fairly



Odontoglossum Rossi majus as a button-hole flower.

classed amongst the cheap and popular kinds. On the whole, I think no one will call into question the suitability of Orchids, whether it be in the form of sprays (spikes) or individual flowers. They invariably last well for this kind of work, and this, too, is a decided element in their favour; whilst in appearance they afford far greater variety, without being in the least thought common. They can be chosen from those usually termed cool Orchids, and, fortunately, this class supplies us with a large proportion of the most suitable kinds. The temperate and tropical varieties also supply their quota, but the former must be considered the better in every way. These cool kinds last the best in a cut state, notably the varieties of *Odontoglossum*, *Epidendrum*, *Oncidium*, *Sophranitis*, and *Masdevallia*. The *Dendrobies* are also a most useful class; so likewise are the smaller kinds of *Cattleyas* and *Laelias*. The *Pleionas* or Indian *Crocuses* are splendid in their season; so also are the

Phalenopsis and some of the *Ceologynes* and *Barkerias*. One of the choicest without being in any way showy forms the subject of our illustration. Of this, the type can be used in spikes as cut from the plant, but the individual blooms of the *majus* variety are sufficient in themselves. *Odontoglossum cirrhosum* (beautiful for sprays), *O. Alexandre* (both as single blooms and sprays), *O. pulchellum*, *Oncidium crispum*, *O. flexuosum*, *O. Lanceanum*, *O. Jonesianum*, *O. sarcodes*, and *O. tigrinum* are also useful. *Sophranitis grandiflora* can scarcely be surpassed; a worthy companion to it is *Laelia Dayana*. *Dendrobium nobile* is well known, but *D. luteolum* is worthy of far more notice. *D. Devonianum*, *D. formosum*, *D. Jamesianum*, and *D. Brymerianum* are all suitable kinds. *Epidendrum vitellinum majus* and *E. prismatocarpum* are two of the best of their genus. This list could be much extended, but this is sufficient to give an idea of what are best adapted for the purpose in view. In mounting or otherwise preparing Orchids for use,

one has to guard against the breaking of the stems. These in many instances are very fragile, seldom merely bending, but usually snapping clean asunder. My plan is to bind a small piece of tissue paper (green, if it is likely to be seen) around the stem close to the flower, then to secure it with very fine wire (that supplied upon reels being the best). This will give elasticity and security without any fear of the wire cutting through the stem. As foliage additions there is nothing I consider equal to *Maidenhair Fern* (*A. cuneatum*) when it is grown hard (i.e., fully exposed to the light and air). *A. Pacotti* and *A. Legrandi* are in some instances preferable. *Davallia bullata* (small fronds) and *D. Mariesi* are both splendid kinds for lasting. I have found these of great value when sending the flowers a long distance. For aids in keeping the flowers fresh there is nothing to surpass small glasses, but why these are not so much used as formerly I cannot conceive. It may be that the water sometimes escapes from them, but this need not be the case when properly guarded against. I manage this by securing a small piece of wadding around the stem at the upper end; this effectually prevents any escape. Another very good plan is to take a piece or two of *Sphagnum Moss* and bind it up around the stem with tinfoil paper, and then secure the latter with

J. H.

a little fine wire.

Schomburgkia undulata (*G. Emerson*).—This is the name of the flower sent. It is a native of Venezuela and other places, where it is called the *Mulattilla*, from the resemblance of the wavy sepals and petals to the hair of the mulattos. It flowered for the first time in this country in the collection of Mr. Rucker at Wandsworth nearly fifty years ago. It is a very pretty Orchid, and I remember a plant which I had with seven spikes of bloom all open together. It usually produces but one of these spikes. The wavy sepals and petals are reddish-purple, the lip rosy-purple. It succeeds well with *Cattleyas*.—W. H. G.

Cypripedium Frederico-nobile.—This is a most beautiful new hybrid which I have received from Messrs. Seeger and Tropp, Dulwich. It is the result of a cross between *C. Boxalli* and *C. Morgania*, the flower having that newly-varnished appearance that all the progeny of the *C. villosum* section have. Leaves broad, thick and fleshy in texture, deep green, slightly tessellated; dorsal sepal

3 inches in length and 2 inches in breadth, stained at the base with deep maroon-purple, and profusely spotted and veined with the same colour. The ground colour is greenish-white with a pure snow-white marginal border, lower sepal slightly smaller, greenish-white, with deep green veins slightly spotted with maroon; petals deflexed, each $3\frac{1}{2}$ inches long, with a broad medial stripe of rich crimson, the upper half bright claret, heavily spotted with blackish maroon, lower half yellowish buff, tinged with claret, and spotted with the same colour as the upper part, but in a less degree; pouch rosy-crimson with deeper veins, passing into yellowish green, the inside thickly spotted with crimson; staminode buff with a central point of green. It is a very bright and cheerful flower. Each spike bears two flowers.—W. H. G.

Masdevallia macrura.—A fine flower comes to me from Mr. Williams, of Upper Holloway. This was first found by Roelz, afterwards by Shuttleworth when travelling in New Grenada for Mr. Bull, and to this gentleman the credit of flowering it first in England is due, now about fourteen years ago. It is a very strong-growing species with large, broad leaves, measuring each 1 foot or more in length and some 3 inches in breadth. The flowers also are large—in fact, the largest of any species which I have seen, the tubular portion being brownish-yellow, ribbed on the inner surface, and freckled with black dots, the broad tails of the sepals being rich yellow and $5\frac{1}{2}$ inches in length. It, in fact, is the giant among Masdevallias.—W. H.

Vanda lamellata Boxalli.—G. Salthouse sends flowers of this Orchid from Sheffield. He says the plant has been in bloom with him since January last. This is one of the most beautiful of these small-growing Vandas, and deserves more extended cultivation. This Vanda, although a native of the Philippine Islands, will thrive through the winter when it is in flower in a temperature of 60°, but during the summer more warmth and more moisture must be given. The spike is erect, bearing from fifteen to eighteen flowers, which are white, brown, and rich purple, and produce a charming and somewhat unusual effect. It should be planted in Sphagnum Moss mixed with charcoal, but no great quantity of either should be placed around its roots. Let me also add the Sphagnum Moss should be removed when it gets decayed, for it likes to have everything about its roots sweet and clean. A celebrated grower of my acquaintance used to boil the Sphagnum in which his Vandas, Aerides, and Saccolabiums were planted, but this caused it to decay quickly, and many of his plants died. I always found it the best plan to pot in sweet well-picked Moss in a living state.—W.

SHORT NOTES.—ORCHIDS.

Odontoglossums at Holloway.—These plants are especially gay in the nursery of Messrs. Williams and Son just now, the principal kinds in bloom being *O. crispum* in variety, *O. Andersonianum*, *O. hebraicum*, and *O. Ruckerianum*.—G.

Odontoglossum Rossi majus.—Flowers of this species come to me from Mr. Wheatly, of Newcastle, Staffordshire. They are superb varieties of one of the very prettiest Orchids grown. I have found that this species will withstand unharmed a lower temperature than almost any other Orchid.—W. H. G.

Dendrobium Wardianum (Mr. Wheatly).—These are all fair forms, but present no new features. They are not so fine as many I have seen this season with Messrs. Low and Co., of Clapton, but they will perhaps be better when the plants have become established. The flowers appear somewhat thin.—G.

Dendrobium Griffithianum.—This fine variety in its best and true form is now flowering with Messrs. Seeger and Tropp at Dulwich. It belongs to the *D. densiflorum* section (*Dendrocoeryne*), but is more massive and gigantic in its growth, and produces a correspondingly longer raceme. The plant comes from Burmah, and is rarely to be found true in our collections. This plant and *D. Guiberti* I think amongst the most beautiful of this class. The only fault is that the blooms are somewhat short-lived.—W. H. G.

Orchids and slugs.—Orchid growers will do well to guard against the depredations of slugs and

snails. I have found that they are particularly fond of the young spikes of *Aerides* just now pushing up. I have noted this especially in the case of *A. odoratum* and its varieties. A close search early in the evening will often save many a fine spike, but traps should also be laid with sliced carrots, which is about the only thing in the vegetable line that most of us can now spare.—G.

Cypripedium Boxalli (Mr. Lutwyche).—From this correspondent I have a flower of this plant, which is remarkably bright in the colour of its petals. It is, however, rather wanting in size. I have heard nothing as to the state of health of the plant, but I should imagine the size of the flower will improve as the plant increases in strength.—W.

Odontoglossums from Liverpool.—In this group which I noted last week were two *Odontoglossums* marked 6 and 7. Of these I take 6 to be a very good form of the variable *O. Ruckerianum*, and 7 a variety of *O. aspersum*, with the sepals darker chocolate and less spotted than I have seen most forms of this plant.—W. H. G.

Orchids at Chelsea.—There is at the present time a superior variety of *Cymbidium Lowianum* in flower at Messrs. Veitch & Sons, Chelsea, in which the colouring of the lip is much darker than usual. This makes it much more attractive than in the ordinary form. The plant in question is carrying three fine spikes. The *Odontoglossums* at the same establishment are now making a good show, several excellent varieties of *O. Alexandrinum* and *O. Pescatorei* being in bloom, also a fine form of *O. Harryanum*. In the *Phalaenopsis* house there are some splendid spikes of *Oncidium sarcodes*. The large *Cattleya* house will soon be a grand sight. There are now numerous and fine forms of *C. Trianae*, but *C. Mendeli* will soon be opening, there being a good promise from the extra strong sheaths which are abundant.

THE EFFECTS OF URBAN FOG UPON CULTIVATED PLANTS.

[Preliminary report presented to the scientific committee of the Royal Horticultural Society, March 24, 1891.]

THE question of the effects of urban fog on plant life has come prominently before our town and suburban cultivators, and the damage from this cause, which may formerly have been regarded as exceptional, is now admitted to be chronic and constitutes an ever-increasing source of dismay to all interested in horticulture. A winter never passes now without one or more prolonged spells of fog, contaminated with the products of coal combustion. For weeks at a time, during the winter, the London suburbs are enshrouded in semi-darkness, whilst the air is tainted with foreign and offensive matter. Coincidentally, there occurs a dropping of buds, a destruction of flowers, and, what is more serious, a wholesale annihilation of the foliage of most tender, soft-wooded stove plants. The leaves of certain genera of Orchids and of hard-wooded plants turn yellow when these visitations are prolonged.

Whilst the scientific committee was arranging for the carrying out of a systematic inquiry in the London area, the Manchester Field Naturalists' Society was taking steps in a similar direction.

Since October last, the London inquiry has been in active operation, but it will not be possible or desirable to prepare any detailed report till another year has elapsed. My observations so far deal almost entirely with plants cultivated under glass. It will be convenient, for the purposes of this report, to take the several lines of enquiry, and to deal with them in successive paragraphs.

URBAN FOG AND COUNTRY MIST.—In an inquiry into the action of so complex a product as urban fog, it was of the greatest importance to obtain reliable data as to the effect on vegetation, if any, of pure country mists, uncontaminated by smoke. It was impossible for me personally to make the observations needful to establish the injurious or other action of mist upon plants; but, by the courtesy of correspondents in country districts, quite away from areas of smoke genesis, it would appear, so far as observations are as yet to hand, that little or no injury to stove or conservatory plants arises from this cause. Indeed, pure mists would seem to be beneficial to certain classes of cultivated plants.

In those instances in which any injury obtained, it was, in most cases, referable to some other cause. The establishing of this point is of great importance, since foggy weather is so frequently attendant upon spells of frost, and it has been frequently suggested that the increased stove heat needful to maintain the requisite temperature would have a harmful action. Indeed, I was quite prepared to find this to be the case at the outset of the inquiry. My own observations during cold weather in London without fog, and the evidence to hand from a distance, as to frost with and without mists, point to the fact that, with proper precautions, no appreciable damage is done to plants. In general, the same remarks apply to small towns away from manufacturing areas. With the increase in size of the towns, the conditions more nearly approximate to those of London. The fog leaves the well-known deposit of filth on glass houses and evergreen foliage; and if such districts escape the more serious effects, observable in or near the larger smoke-producing areas, it is due to the relatively small concentration of the impurities in those fogs. It seems to me desirable to obtain accurate analyses of fogs from some country town of say 50,000 inhabitants, in which manufactories are not carried on, for comparison with similar analyses from the metropolis.

EXTENT OF THE LONDON FOG AREA.—I have been at great pains to ascertain how far the London fog-cloud extends around the metropolis. In this I have had the most cordial co-operation of our nurserymen and cultivators, who have supplied me with detailed information as to the times of occurrence of fogs, and as to the nature and extent of the injuries sustained. In many cases I have availed myself of the opportunity to visit their collections, and form an estimate of the damage done, valuable for purposes of comparison. The extent of the fogs is greatest in a westerly and south-westerly direction, and has been traced as far as 35 miles away westward, and 25 miles south-west, under special atmospheric conditions. Exceptionally the London fogs are met with at even 50 miles distance on this side. With the wind in an easterly or north-easterly direction, these outlying districts receive visitations of fog with the accompaniments of sooty deposits and sulphurous smell. No doubt the concentration is not so considerable, nor the duration so long, as nearer London, but it is sufficient to at once affect the buds and flowers of such sensitive Orchids as *Lælia anceps*, *Cattleya Trianae*, *Calanthe*, &c. The effect of the fog on the foliage at these distances is fortunately small, though in certain instances it is sufficient to destroy the seedlings of *Cucurbitas*, *Tomatoes*, &c., which are extremely sensitive. As one follows the effects of fog down the Thames valley, from the most outlying stations affected, to London, the observed effects increase in severity, till they are indistinguishable from those noted at stations actually within the metropolis. At Kew, for instance, the destruction has been most disheartening, it having come to flowers, flower-buds, and foliage alike. Effects of similar nature, but less in total magnitude, are reported from spots five miles further west. Southwards, the North Downs afford a valuable barrier, which in many cases would seem to filter off the more deleterious constituents of the fog. Indeed, the configuration of the country and the nature of the subsoil have an important influence in determining the immunity of a given locality from damage. Eastwards I have information as to damage from so great a distance as Maidstone, over 30 miles. All my correspondents emphasise the non-hurtful nature of the sea-fogs prevalent in this quarter. To the north and north-east, the fog-effects do not extend to such extreme distances, and the conditions for winter cultivation are consequently more favourable for cultivation on that side of the metropolis. Mr. E. Mawley, of Berkhamsted, has furnished me with some interesting meteorological details regarding fogs extending to this locality (26 miles N.W.). The tabulation of the information bearing on the subject of this paragraph will form a valuable appendix to my detailed report.

THE FOGS OF THE WINTER 1890-91.—It is need-

less to say that the past winter has been one singularly favourable for the purposes of an investigation of this character. The season opened with a severe fog of short duration during the second week of October, which left its traces on vegetation in the London area. This was the only serious instance of a fog on which observations of hardy plants could be made, as the conditions were not complicated by the presence of frost. I am indebted to C. T. Druery for an interesting account of its effects, unprecedented in his experience, upon his collection of hardy Ferns at Forest Gate. Though there were minor fogs during November, it was during the long periods before and after Christmas, and again in February, that all the worst effects were exhibited by vegetation under glass. These two spells differed considerably in their nature. The Christmas fogs were accompanied by exceptionally severe frosts, were on the whole much darker overhead, and contained a larger amount of noxious matter. In addition to this, the duration of daylight was considerably shorter than in February. On the other hand, though in February the fogs were exceedingly opaque, the general average of light reduction was not so great as at Christmas. The vertical extent of the fogs in February was such that on many occasions the sun was able to partially disperse them for a short period at noon. Both fogs had a marked effect on flowers, but on the whole at Christmas, to instance only one genus of plants, *Cypripedium*, the effects were much more marked. *Cypripedium* is perhaps as little affected by fogs as any genus of Orchids I have met with. Yet, in a large collection, continuously under my observation, it was patent that the damage done was markedly less in February than at Christmas. In the collections of plants under observation, the damage to foliage was also greater during the former; this both as regards the dropping of leaves, which I have reason to believe to be greatly brought about by the reduction of light for a lengthened period, and also in the formation of actual corrosions of portions of the leaf surface. It must be remembered, in estimating the relative damage caused by these two fogs, that the earlier one destroyed a greater part of the foliage of very many soft-wooded plants, so that there was less surface exposed for attack at the second occasion. Nevertheless, so favourable were the circumstances during the latter part of January and the first week in February, that rapid growth had in many cases taken place. If we narrow the comparison to the damage (corrosions) sustained by young and relatively unprotected leaves during the two periods, without doubt that at Christmas was immeasurably greater than in February. These remarks are based on observations on collections continuously under my eye, and situate in the worst districts. Full details are not yet to hand from correspondents at outlying stations, so that it is possible I may have to modify these observations when I come to take a general survey. Thus at Kew the ill effects noted after the February fogs were quite as bad as at Christmas, whilst further east the reverse was the case. Other considerations confirm the view that in February the fog-nucleus was several miles further west than at Christmas. I have in my notes full details of the damage resulting from these fogs from many sources, but with these horticulturalists are in general only too familiar, and they may well be reserved for the report on the whole question.

CONSTITUTION OF FOG.—On a purely chemical question, such as that of the constitution of fog, I am scarcely entitled to speak. However, since at the outset of this inquiry it was deemed advisable to obtain as much information on the matter as possible, with especial reference to those components deleterious to vegetation, I will state briefly what has been done. The meteorological council very readily put at our disposal the pump and apparatus originally constructed for Dr. W. J. Russell's investigation. The whole apparatus was thoroughly revised and set up under the direction of Dr. Russell. Since the middle of December frequent washings of fog have been obtained with it. Those are now undergoing analysis. In addition,

samples of many fogs have been aspirated through a solution of permanganate of potash—the volume of fog necessary to decolourise the pink solution being registered by a meter constructed on the wet system. The permanganate is extremely susceptible to sulphurous acid, probably the chief agent of damage present in the London atmosphere. A comparison of the volumes of air necessary to completely bleach a known amount of permanganate in foggy and in fine weather is striking. Whilst during a severe fog as little as 1 or 2 cubic feet is sufficient, in fine clear weather 30 or 40 cubic feet may be aspirated without causing an appreciable decolouration. Even a rough method such as this would become an instrument of some precision in the hands of a chemist, and would furnish results of the greatest value in comparing the damage to vegetation inflicted by separate fogs. During the winter, collections of snow from equal areas were made at frequent intervals, and the amount of matter precipitated upon it from day to day estimated. At the close of the February fogs the opportunity was taken to make scrapings from 20 square yards of the glass roofs of plant houses at Kew and at Chelsea. The glass at both localities had been washed just before the commencement of the spell of fog. Each yielded an almost identical amount of deposit—i.e., 31 grains per square yard or 6 tons per square mile. Dr. G. H. Bailey, of the Owen's College, Manchester, was good enough to analyse the samples, and furnishes the following as the result of a preliminary examination of that from Chelsea: "It consisted of about 40 per cent. of mineral matter, 36 per cent. of carbon, and 15 per cent. of hydro-carbons. It was interesting to note that there was present also 2 to 3 per cent. of metallic iron in minute particles. The sulphuric acid present amounted to nearly 5 per cent., and the hydrochloric acid to $1\frac{1}{2}$ per cent. The presence of such large quantities of volatile oils explained the oleaginous character of the deposits which formed from London smoke, and it had been noticed that, especially in the districts of Manchester, where dwelling houses were much crowded together (e.g., Hulme), the deposit has a similar character." The deposits on both outdoor and greenhouse foliage have been from time to time collected, as well as the daily accumulation on a single pane of glass during foggy weather. The examination of these deposits is not yet concluded.

The work this winter on this portion of the inquiry can only be regarded as preliminary in its nature. I will state here briefly what lines might be followed in future. Continuous observations from day to day, and sometimes from hour to hour, during dull weather, recording the fluctuating amounts of the hurtful components present in the atmosphere are much required. These should be obtained simultaneously at a number of selected stations—for the purposes of this investigation situate, preferably, near establishments where plants are under cultivation. A knowledge of the varying amounts of these components would be of the greatest value in making a comparison between the nature of the damage incurred by vegetation in different localities and at different times. It is obvious that had we possessed this winter stations for fog analysis at, for example, Kew, Chiswick, and South Kensington, we should be in a better position to explain the differing effects of the Christmas and February fogs, respectively, at the last named and their very similar action at the first named.

Dr. G. H. Bailey, of the Owen's College, has been devoting himself to a chemical investigation of this character in Manchester. He has now perfected apparatus by means of which systematic records of the kind indicated can be obtained. The apparatus in question is being fitted up at numerous stations in Manchester, and fully justifies his anticipations as a simple method which does not require manual labour, as is the case with the Meteorological Council's pump. My proposal is that the balance of our grant be used in establishing a number of stations in London and its suburbs, on precisely the same lines as those being employed in

Manchester—the two inquiries, so far as the chemical investigation of fog is concerned, running *pari passu*. Dr. Bailey, with whom I have been in constant intercourse, is willing to co-operate in this undertaking, the experiments and analyses in question being made under his direction and control. This joint scheme has, I think, the additional recommendation of being likely to produce total results of greater value, and at a less expenditure of energy than if the investigations at Manchester and London be conducted independently. Dr. Bailey and his colleagues have just issued a preliminary report on the atmosphere of Manchester. I would call special attention to this, as indicating the method and scope of the undertaking. The report in question is now appearing, *in extenso*, in *The Northern Gardener*.

PHYSIOLOGICAL AND MICROSCOPIC WORK.—The opportunity has been taken to have careful drawings prepared, exhibiting typical cases of damage attributable to fog. I have now a considerable collection of examples from the Royal Gardens, Kew, and elsewhere. Large supplies of injured plant organs have been forthcoming and have been submitted to chemical analysis. These include the leaves of soft and hard-wooded plants and of Orchids. Also the leaves of *Cattleyas* and *Dendrobiums*, and the flowers of *Cattleya Trianae*. The results of these analyses will be valuable for publication when similar analyses of the uninjured parts have been obtained. The histological characters of injured tissues, as exhibited by the microscope, have been carefully studied, and drawings and notes made. Many of the facts thus obtained are still obscure, and require experimental elucidation. In the case especially of Orchid flowers, the distribution of the stomates would seem to have a definite bearing on the distribution of the fog-injuries. In both *Phalænopsis Schilleriana* and *Cattleya Trianae*, for example, the sepals are much sooner and more easily injured than the upper petals and labellum. Microscopic examination shows that whilst stomates are frequent on the sepals of both plants, the petals have relatively few, comparing equal areas of surface. The labellum of *Cattleya* in many cases was found to be destitute of stomates. This part is usually the last to show actual injury. The action of the stomates here is probably to afford increased access of sulphurous acid to the part, which then directly attacks the soft unprotected cells within. The effects of a slow current of fog and of sulphurous acid, of various dilutions, upon living protoplasm have been very carefully followed under the microscope. The procedure in both cases was identical. A slow current was drawn by aspiration through a specially devised chamber on the stage of the microscope. The transparent root hairs of *Limnobia* with their actively rotating protoplasm, and portions of the leaf of *Vallisneria*, were chiefly used. The effect of dense fog resembles very nearly that of dilute sulphurous acid. The rotating protoplasm is found gradually to swell up and invade the vacuole, its defined margin becomes less and less distinct. Finally the protoplasm becomes granular and breaks down entirely, the rotation during the process gradually slowing, ultimately ceasing. The whole process with fog occupies several hours. This line of research will be continued during the summer with sulphurous acid and other substances. A considerable series of experiments has been made in the closed chamber, which was constructed for this, as also to serve as a fog-proof chamber for cultural purposes. As a fog-proof chamber it has not been used so far. At an early period I found that certain defects which could not be remedied forthwith disqualified it for this purpose. Since then it has served as a closed experimental case, in which plants were exposed to sulphurous acid gas of varying strength. It was possible also to draw off a current of the special atmosphere, to which the plants in it were exposed, and study its action upon living protoplasm under the microscope. A comparison could thus be effected between the macroscopic and microscopic phenomena simultaneously. The amount of sulphurous acid present was under control, and frequent estimates of its amount were made by aspirating air from the chamber through

permanganate, the volume required to decolourise being recorded. These experiments are not yet concluded, but it can be definitely said that increase of temperature, other things being equal, aggravates the poisonous action of the sulphurous acid, a difference of a few degrees of temperature being apparent. During the summer these experiments will be continued. An attempt will also be made to estimate the influence of varying amounts of sulphurous acid gas and other poisons upon the plant functions of transpiration, assimilation, and respiration.

POSSIBLE REMEDIAL MEASURES.—It is too soon to speak of these with confidence until a more complete knowledge of all the conditions of damage to vegetation from this source have been obtained. Many of the results obtained in the physiological inquiry are still obscure, and it will be necessary to carry out series of experiments before some of these are elucidated. Since October I have had opportunities of inspecting many collections of stove and greenhouse plants, and growers have most freely communicated to me any methods which they employ to combat the fog. The placing of canvas, &c., over the plant houses in foggy weather has in some instances mitigated the damage, the fog being in this way to some extent filtered. The regulation of the temperature has an important bearing. Some cultivators keep the temperature during a fog as low as can be done, having regard to the safety of the collections in the houses. Others raise the temperature in the hope of, to some extent, excluding the fog. There can be no doubt that a high temperature augments the damage, whilst a lower one, to some extent, hinders it. Sulphurous acid acts more violently and immediately in a hot than in a cool atmosphere. Again, in a long, dark fog, heat unnecessarily stimulates the plants, when (from the prevailing darkness) their transpiring capacity is limited. Everything should be done to tax the vegetative organs of a plant to the least possible extent when any of the vital functions are interfered with, as in dull, foggy weather. In this connection it is important to supply water to the roots with a sparing hand. Heat and moisture at the roots stimulate absorption, whilst the leaves are unable to throw off an excess of moisture, as they can in sunny weather. I know that in many establishments these precautions are taken, and, I believe, with relatively beneficial results. The evidence on which this opinion is founded is derived (1) from observation of the behaviour of plants under different conditions of cultivation during foggy weather, (2) from actual experiments in which the special conditions were under control.

The action of a continuous drip of moisture on foliage in a closed experimental chamber containing small quantities of sulphurous acid gas is to mitigate the immediate damage so far as the leaves, thus continuously moistened, are concerned. The degree of humidity in a house where sulphurous acid is present is a matter well worthy of attention, and one which I have under observation. The problem is a complex one, and I hope to be able to communicate my results later. In a dry atmosphere the sulphurous acid, for the most part, acts as such directly on the living protoplasm. In a humid one it is more rapidly oxidised into sulphuric acid, which has an entirely different action, I apprehend, on vegetation, histologically distinct from the first mentioned. It would, however, be improper for me to draw any general conclusions from observations, as yet incomplete. Another measure, which may be ultimately shown to be practicable, is that of absorbing the most poisonous substances in the fog by using some substance as an absorbent, itself innocuous to vegetation. A more practical method is to keep the fog out of the plant house, rather than to try and neutralise its action after it has entered. So long as cultivators grow plants susceptible to the impurities of fog in houses with open glazings in winter-time, of course this is impossible. It is to be hoped some metropolitan grower will pluckily face the situation and construct a range for winter use, which can be made at will absolutely fog-proof, with close glazing, triple doors, and padded ventilators. The horticul-

tural engineer could easily manage this. Filtered air could be supplied, as it is to the House of Commons, by pumping through several inches of cotton wool or by some other method; whilst the illumination could be supplemented by a judicious use of the electric light. Hervé-Mangin showed, so long ago as 1861, that a plant could manufacture organic matter by the aid of artificial light, and the results of Siemens' more recent experiments are familiar. An ingenious person has suggested to me an alternative method for excluding fog without interfering with ventilation by an arrangement of tricklers, such as one sees on ice factories in summer for cooling. In this way a greenhouse might be completely enveloped in a thin mantle of dilute hydrogen peroxide, permanganate of potash, or other absorbent, which could be collected in gutters and pumped up again and again. A considerable objection to this plan would be the liability of the absorbent to freeze in cold weather, fog and frost being very frequently concomitant.

In conclusion, I have to thank my colleagues on the committee for their constant help and sympathy. To my assistant, Mr. F. E. Weiss, B.Sc., I am indebted for his continuous devotion to the research; without his aid, the investigation could not have progressed as it has. For the making of the chemical analyses of injured tissues, &c., as well as for advice on many questions of a chemical nature, I must thank my former pupil, Mr. J. T. Leon, B.Sc., now Lecturer in Chemistry at St. Mary's Hospital. F. W. OLIVER.

TREES AND SHRUBS.

EFFECTS OF THE PAST WINTER.

IF such winters as the one we have just passed through were of frequent occurrence they would make a decided alteration in the kinds of shrubs which are now to be found in most gardens where anything like a representative selection is attempted. As a matter of course, this more particularly applies to evergreen kinds. In all hard winters there is generally a considerable difference in the amount of frost experienced in different places in localities at no great distance apart, and it usually happens that the thermometer falls the lowest in places where the character of the soil and its condition in the matter of moisture are least calculated to impart to the growth the texture and solidity essential to enable vegetable life to withstand a trying visitation of cold. These combined influences account for the widely different effects which the frost has had on the same kinds of plants in different places. A good many of the most generally grown species and varieties of the Japanese and Chinese Evergreens have suffered severely in not a few localities. The common Aucuba, for instance, shows in the last summer's wood and leaves almost everywhere the effects of the severe ordeal, and in places where the soil is at all of a peaty damp nature, the whole of the leaves, old and new, are in some instances killed as effectually as if they had had boiling water thrown on them. The same has occurred with several of the green-leaved varieties. Sweet Bay appeared in moderately high and dry situations in the southern portion of the country to not have suffered very much through the first spell of frost, but the second visitation, though less severe so far as the amount of frost was concerned, has killed the greater part of the leaves, even in the case of large specimens, which usually suffer less than small stock that has not got sufficiently high above the surface to be beyond the point where the cold is the most intense. In less favourable situations, this fine old shrub where small is killed down almost to the ground. The Caucasian Laurel and *L. rotundifolius* have had their leaves killed in some places to an extent that many people who have had a good deal to do with these fine Laurels were hardly prepared for. *Cistus ladaniferus* has had its last year's wood killed in some places, whilst in others it is not much worse. *Escallonia macrantha*, as might have been expected, has received a severe scathing, unless where under the protection of a wall. Most of the *Euonymuses* have had more or less of their last summer's growth

killed or injured. *Garrya elliptica*, where grown bush form, in some places is killed down to the ground. *Laurustinus* has suffered a good deal, and in the low valleys has had most of the leaves and all the younger wood killed. The oval-leaved Privet has in some spots had the whole of its leaves killed, so as to be as naked as a Lilac. *Spartium junceum* and *S. multiflorum* (the Spanish and the white Portugal Brooms) are in some places almost killed down. The *Veronicas* show the effects of the cold plainly; even *V. Traversi*, that usually stands a lower temperature than the larger-leaved sorts, has in some localities been killed.

Amongst plants that are usually grown on walls *Azara microphylla* is terribly cut up. The same may be said of the different varieties of *Ceanothus*; one of the oldest, *C. dentatus*, has been killed outright in some instances, where the plants for a score of years had suffered little or nothing. The different varieties of *Eleagnus* have had their leaves much scorched, but the wood does not appear to be much injured. Evergreen *Magnolias* do not seem to be much worse. Myrtles, though in some places somewhat disfigured, in others show the effects of the winter far less than might have been expected. Two of our most cheerful looking winter-flowering deciduous plants, *Jasminum nudiflorum* and *Forsythia suspensa*, have had little chance of showing their beauty this season; all the early blooms of the *Jasmine* were cut off by the first frost as they were beginning to open, whilst the second spell had a like effect on the later flowers that were about to appear when February's frost came. T. B.

Andromeda floribunda.—Among the few evergreen shrubs that show no traces of the severe winter through which they have passed must be included this *Andromeda*, whose numerous spikes of beautiful Lily of the Valley-like flowers are just on the point of expanding. Irrespective of blossoms, it is a very ornamental shrub, forming, as it does, a neat, much-branched specimen, thickly clothed with deep green ovate leaves. The racemes of flowers, which occupy a prominent position on the plants in the autumn and remain in the bud state during the winter and early spring, continue fresh for some time after expansion, and if gathered just as the blooms are expanding they will continue to open in water, and in this way are very useful. This *Andromeda*, which, by the way, is also known as *Pieris floribunda*, is a native of North America, where, according to Dr. Asa Gray, it sometimes reaches a height of 10 feet, though, as a rule, it is much less. In this country it is, however, seen to the best advantage when a yard high or thereabouts, and it will take some time to pass that limit. In cultural requirements it is much less particular than many of the *Ericaceae*, to which it belongs, as in such directly opposite soils as loam and peat it will often succeed equally well. This *Andromeda* is also an extremely useful subject for forcing into bloom, as it may easily be induced to flower under glass earlier in the year than it will do in the open ground. The Japanese *Andromeda japonica*, whose blossoms are borne in long, partially pendulous racemes, appears in some places to have had many of its flower-buds injured by the frost, but it is somewhat too early to speak definitely on that point.—T.

Bamboos and the frost.—After reading the experience of F. Cowslade (p. 327), one cannot but come to the conclusion that even Bamboos can be planted in too sheltered positions. Plants of the above description, and which are considered by some people not perfectly hardy, are generally planted in the most sheltered position at command, with the result that they make a very vigorous growth during the summer, and so consequently are not in condition to withstand a severe winter like the past. Often they are planted by the margins of lakes and watercourses, where I must say they are very effective. Here, on a very exposed position amongst the Worcestershire hills, we have a good specimen of *B. Metake* which has not been injured in the least. I am certain a more exposed position could not be found, excepting perhaps a

high promontory. The plant is exposed to all the winds that blow, and on two points would have an uninterrupted force of fifty miles. A Sweet Bay even within a few yards of the Bamboo is also quite uninjured, and subject to the same force of wind.—A. YOUNG, *Abberley Hall, Stourport*.

— Much has been written on the above of late, and I have no doubt the Bamboos are destined to become general favourites in our English gardens, more particularly as most kinds have proved perfectly hardy, having passed through the late severe winter quite uninjured. I have just seen the finest group of *B. Metake* I have yet met with growing in the beautiful grounds of Mr. J. E. B. Cox, Moat Mount, Mill Hill. I measured one of the canes, which was fully 10 feet in length. No doubt when planted near the water they look more natural, but the above mentioned are on a high, dry, and fully exposed position, and are certainly very effective and quite uninjured.—EDWIN BECKETT.

— A note by me, signed "A. H.," on "Bamboo after the Frost," containing a full account of the actual present state of the Bamboos here, appeared in *THE GARDEN*, March 14 (p. 234). I hope Mr. Cowslade will not be disheartened by his past winter's experience. I need hardly mention its exceptional severity for so prolonged a period, and of course plants that were put out only last summer were in the most unfit state to go through the present winter. The new canes they made would be unripened, perhaps unbranched and without foliage, and such growths the frost if severe will assuredly injure, cutting them half back or wholly so. In any case, if there are such canes upon the plants in question, I would advise that they be cut out, for if suffered to remain and they branch and put forth leaves upon their lower parts they will be stiff and stunted in appearance, and lack the great charm of Bamboos—the graceful arching tip of the cane. Moreover, their removal would throw the plant's energies into pushing up early the dormant growths that are beneath the ground. Herein lies the secret of success, because an early growth stands a better chance of becoming ripened, but early growths will only come upon established plants. I had a similar experience last year to that of Mr. Cowslade. Two plants of *Bambusa violascens* that had made late growths the previous season had these same shoots destroyed by more than 20° of frost in March of last year. The shoots were cut away and little but the root-stocks remained, yet by midsummer these two plants had made canes 10 feet high; the strongest plant had nine of them, and these are now healthy and unhurt, beyond having a few seared leaves, which shortly will fall and be quickly replaced by others. It should be mentioned, however, that this Bamboo is the first to start into growth, and therefore most valuable on that account. I thought at the time "S. D.'s" note appeared he was fortunate, because our *B. Metake*, of which there are several large groups, have certainly suffered, but from past experience, especially last year, I know they will as quickly and assuredly recover, losing all traces of injured leaves, as the canes are safe. *B. Simoni* may be said to be our worst, excepting two plants of *B. falcata*, which may be killed outright, but then this is not one of the hardiest, and has never been satisfactory here, although it does so well at Wolverstone, but a few miles away. As for *B. mitis* and *B. Henonis*, I am sure when thoroughly established they will pass through the winter uninjured. The best encouragement I can give Mr. F. Cowslade concerning these two kinds is that *B. mitis* made in 1889 three canes 10 feet high, and last year five canes 16 feet in height and rather more than 3 inches in circumference at the base. This increased vigour cannot result from anything else but the establishment of the plants, because last summer was not so favourable as the previous one. *B. Henonis* has not grown so tall and stout, but at the present time it is one of the greenest, freshest, and most effective of them all. It is a most graceful hardy Bamboo, and cannot be too highly praised.—A. H., *Suffolk*.

Forsythia suspensa.—Those who know this shrub can imagine the beauty of a flowering branch 9 feet in length, as noted in *THE GARDEN*, March 28 (p.

303), but as the plant drapes the roof of a conservatory I suppose it is growing inside. As a hardy, open-air bush, wall, or trailing flowering shrub we have nothing to compare with it. Perhaps next to the *Mezereon*, which comes so early and lasts so long, we have no more valuable shrub, and certainly none so effective. At the present time, although the weather keeps cold and things grow slowly, this *Forsythia* is opening fast, and its slender shoots are wreathed with blossom. It is charming upon the wall provided the knife is restricted, but if severely trained the plant loses more than half its beauty. A plant might be grown upon the wall to promote early flowering and thus prolong the season; but in order to see it in full beauty a mass should be planted and left to itself.—A. H.

TREES, SUITABLE AND UNSUITABLE.

THERE are few things connected with gardening or with the arrangement of the grounds attached to a dwelling, whether they are extensive or the opposite, in which greater mistakes are made than in the planting. This applies not only to the selection of the kinds, but equally to their distribution and the positions they are placed in. Where planting is to be done, the first consideration in the selection of the trees is that the kinds are such as are adapted for the soil and situation. Far better to plant an inferior kind that will thrive and maintain a healthy appearance than use those that are better, but not suited to the local conditions. One of the greatest mistakes that has been committed within the last half century is shown in the run that there has been on Conifers, to the exclusion of deciduous trees. Where the planting was done in the early part of the time named the effect is now seen in the monotonous appearance that the work presents, for though there is a wide difference in the character of such kinds as *Deodara*, *Wellingtonia*, *Abies Nordmanniana*, *Lawson Cypress*, and others of a like description, still they all partake more or less of the pyramidal form which is highly objectionable wherever it preponderates; and as time goes on and the trees increase in size the objectionable effect increases.

Respecting the large percentage of the kinds of Coniferæ introduced within the last 40 or 50 years that have turned out unsuitable to the climate and soil of this country, except in a few favoured places, the result is only that which a little consideration might have shown to those who are fairly conversant with tree life as it exists in the widely different countries and climates from whence the kinds in question have come. The simple fact of planting unproved trees in prominent positions, where if they fail their presence will be missed, shows the mistake that is committed where the inclination for novelty is carried so far as to adopt uncertain sorts. And even when the trees selected are strictly confined to kinds that have been proved to be fully adapted to most parts of the country, often great mistakes are committed as to the places and positions they are put in. This is usually most evident in the grounds attached to villa residences, where the whole extent is possibly not more than from two to half a dozen acres, and where, as a rule, trees of large growth, such as the ordinary timber species, are either wholly unsuitable, or if used at all, should have the positions in which they are placed well considered. In the absence of this they outgrow and smother everything near them. In the belt of planting that ordinarily surrounds the greater portion of the grounds in places such as instanced a close impervious screen is the thing to aim at, and means to effect this are generally taken, but as often as not the object is defeated by the planting in such borders of Elms, coarse-growing Poplars, like the Italian and the Ontario kinds, with Limes, Planes, and Chestnuts, which in a few years overhang and kill everything near them, leaving the space beneath exposed and unsightly. If in place of planting trees of the sorts named such things as Mountain Ash, White Mespilus, Laburnums, *Acacia Decaisneana*, Almonds, Thorns, Siberian Crab, double-blossomed Cherries, with others of the *Pyrus* and *Prunus* families, of which there are so many beautiful forms, were used in conjunction with evergreen kinds of the right character, not only would due

privacy be secured, but the bloom which the small trees in question would afford would much enhance the appearance of the grounds.

The ill effects resulting from the planting of large-growing deciduous trees are only somewhat reduced when strong-growing Coniferæ with spreading branches, such as the common and the newer Spruces, are introduced to the shrubbery borders, where their presence is wholly incompatible with the object in view. It is sometimes urged that the reason for planting large, quick-growing trees in unsuitable places is, that a break of some kind is wanted, and by their use can be had in the least time. But the gain in this direction is dearly paid for later on. Another mistake in planting that may be seen to a greater or less extent in most places of limited or moderate size, and not wholly absent from grounds of an extensive character, is in putting trees too near roads and walks. The want of forethought in this respect is often such that one might suppose the planters forgot that the trees they planted would ever increase in size after the time they were put in. The outcome of thoughtlessness of this kind is that the branches in a few years encroach upon the walks and roads to an extent that either requires the removal of the trees or cutting in of the branches, which to everyone who likes to see trees in their natural condition is more objectionable than total removal.

In the matter of over-planting little need be said further than that it is one of the most common of all mistakes, alike noticeable at the suburban home, with its half acre of lawn, as in places of a much more pretentious description. Even in some of the old manorial places, with extensive grounds attached, the temptation to plant the newer kinds of Coniferæ in unsuitable positions has been such as to sadly interfere with the repose and effect only attainable with wide open stretches of Grass unoccupied by anything to obstruct the view. One of the evils attached to over-planting is that as time goes on, whilst the trees keep growing the ill effects keep increasing, and when once trees are planted, the disinclination to remove them is often unsurmountable. I have in my mind's eye old places that were originally well laid out, and which forty or fifty years ago had everything in the most prominent parts of the grounds in the shape of specimen trees or groups that were either desirable or admissible, but which have since been so disfigured by planting—mostly Coniferæ—that the best views are obstructed and the whole effect spoiled, and though this is now fully realised by the owners, they cannot make up their minds to sacrifice the ill-placed trees. T. B.

PUBLIC GARDENS.

Another London recreation ground.—The Earl of Meath, chairman of the Metropolitan Public Gardens Association, states that the Duchess of Albany has consented to open the Seward Street recreation ground, East Finsbury, on Wednesday, the 6th of next month, and that the association will undertake the preparations within the ground for her reception.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, held at 83, Lancaster Gate, W., the Earl of Meath in the chair, it was announced that an offer of seats for the Custom House quay had been accepted, and another for the triangle in Old Street, E.C.; that the Seward Street garden, E.C., and St. James's Churchyard, Ratcliff, would shortly be thrown open to the public, £50 being voted for the erection of gymnastic apparatus in the former; that the South Kensington and Paddington Subway Bill, for making a railway across Kensington Gardens, opposed by the association, had been withdrawn; and that, owing to its representations, the time of the opening of St. Leonard's Churchyard, Shoreditch, had been extended. It was agreed to offer seats for St. Botolph's Burial-ground, Billingsgate, and the triangle in Shaftesbury Avenue; to urge the local authorities to lay out without further delay the Bishop's Meadow, Fulham, S.W., the Pottery Lane fields, Notting Hill, W., and the Great Church Lane recreation ground, Hammersmith, W., and to com-

municate with the Baroness Burdett-Coutts respecting Columbia Market, N.; with the Ecclesiastical Commissioners respecting a proposed recreation ground in Fulham Palace Road, S.W.; with the trustees of Hoxton Square, N., respecting that enclosure; and with the London County Council respecting Wandsworth Common, S.W., and the Millbank Prison site, S.W.

BOOKS.

A YEAR IN A LANCASHIRE GARDEN.*

THIS is a neat little volume of 124 pages, divided into twelve chapters, with critical notes at the end relating to such points as the Viola of the Romans, the fly-catching propensities of *Azalea viscosa*, on the Solanum tribe (in which Ruskin's opinion is contrasted with that of Michelot), on the Sunflower (*Heliotropium*) of the classics, and on flowers and the poets. It is a simple, scholarly little book, not too finely written, and containing many shrewd remarks as to the successes and failures enjoyed and borne by the author in a garden he evidently loved, even although it was situated within 5 miles of a large town in Lancashire with smoke on one side and salt breezes on the other, and now and then a heavy blast of chemical odours, more deadly than either smoke or salt. The garden, and lawn, and wood (with its rookery) consisted of only 4 acres and lay around the long, red gabled house, the latter being covered here and there with creepers trained around it, but, as the author quietly observes, "4 acres are enough for many gardening purposes and for very great enjoyment," and I would add that, apart altogether from the flowers and fruits and vegetables, the garden seems to have afforded to its sympathetic owner in abundance, it was also the indirect cause of the book before us, which will give pleasure, let us hope, to many readers, both amateur and professional gardeners, although Mr. Bright modestly says in his preface that it is not intended to be of technical value. Of the Snowdrop, the Crocus, the Daffodil, the Christmas Rose and other Hellebores, the Chrysanthemum, the Rose, and many other flowers we are told in a pleasant way, not only of their generally acknowledged beauty and many associations, but also of their behaviour under the particular circumstances by which they were surrounded.

Of the choice fruit products of a fertile garden we are also told, of Apricots and Cherries, Peaches, and Pears, of the golden Delaware Apples, of Currants and Gooseberries, and of the Hamburghs, Grizzly Frontignans, and the Sweetwater Grapes of the vinery. Mr. Bright waxes enthusiastic over the beauty of his fruit trees in flower, of the snowy clusters of his Jargonelles, and of the rosy loveliness of Apple blossoms, of which he tells us the Pomeroy is most beautiful with its glowing crimson or deep red buds and masses of rose and rosy white flowers. The Hautbois Strawberry is very rightly praised for its flavour, and Mr. Bright at page 98 puts the question as to whether anyone now living can smell the scent of dying Strawberries, which, as Bacon long ago said, gave forth "a most excellent cordiale smell." I think I can vouch for some of us still possessing this power on a warm sunny morning in October or early in November, the genial mornings that succeed the early frosty nights of the waning year. Now and then you get a magical soft and warm morning in November and find the frosty mist clearing off mats and beds of vegetables, and a most delightful aroma pervading the whole place, a perfume only to be enjoyed in a garden, and one composed of many things; of fruits still lingering on the trees, or a whiff as you pass the fruit-room door mixed with the breath of Celery and "Strawberry leaves a-dying," and Mignonette, Michaelmas Daisies, and of the Archangel mats even that have just been laid out to dry in the sun. For freshness of flower colouring and gush and sparkle of bird song com-

mend me to the garden in spring, but the autumn garden has the especial charm of mellow fruitage, of golden leafage, and of sounds and perfumes peculiarly its own, and it is of such subtle garden delights as these of which Mr. Bright has told us in his pleasant way. It is to most of us a matter of but little moment whether Viola or Iris was the Violet of the Greeks and Romans, albeit that the author throws light on the controversy, but it is a real joy to us all that both Irises and Violets are so plentiful in even our cottage gardens to-day. There will always be doubt and uncertainty as to the Chrysanthemum and Heliotropium of ancient scribes, but none the less is our enjoyment of the plants now bearing these names in our gardens.

Amongst other flowers many and varied, such as Roses, especially old yellow China, and "Pansies freaked with jet," mentioned, I may especially allude to the white bell-spikes of the Yucca as a flower to be seen at night-time rather than in the sun, and a quotation from the American authoress, Margaret Fuller, is given describing the effects of Yucca filamentosa as seen by moonlight, all the silvery bells erect, more transparent than silver, and its leaves fringed with delicate gossamer. It has often occurred to me that we do not make quite enough of the flowers that bloom in the evening or during the night. One might make quite a long list of them, including such as the Evening Primroses, the Moon Flower (*Ipomœa Bona-nox*), the sweet-scented Tobacco, the night-blowing Cacti, and many other white flowers, such as those of the *Angræcums*, which, although open in the daytime, are only sweet-scented at night, like the night-blooming Stocks.

Many of the most delicious of sights and sounds and odours are caught and fixed for us in Mr. Bright's book, but there is also a good deal left out, and what is left out of a book or picture is sometimes the best part of it, as happens frequently in the one before us. Thus although we are told of the beauty of the circlet of pearls as seen in the bells of the Crown Imperial, we are not told of the strong and, to many, offensive fox-like scent produced by this fine old plant. In speaking of the almost black shadows in the inner petals of a vivid double Persian Ranunculus at p. 94, the remark of a gifted American lady is quoted: "Does not black seem to underlie all bright scarlet?" and Mr. Bright mentions the seeming black velvet-like hue of scarlet Pelargonias, as seen at dusk, in proof of this statement, which is a perfectly true and suggestive one. But it is also a fact that all the petals of the most scarlet zonals are pure white within, that is to say, the vivid scarlet hue is produced by a film of bright purple cells stretched around the white inner portion of the petals, as anyone may readily see for himself with the naked eye if he will carefully tear a petal of any of the Tom Thumb scarlets aslant or on the bias, so as to separate the cuticle from the parenchyma below. After reading Mr. Bright's version of the end of Miss Brontë's story of "The Tenant of Wildfell Hall" (p. 14), I am by no means sure that that authoress ever alluded to the Christmas Rose proper, *i.e.*, *Helleborus niger*. We are told that the heroine Helen turns to pluck that beautiful half-blown Christmas Rose that grew upon the little shrub without, &c., so that there can be but little doubt but that it was a Monthly or China Rose Miss Brontë had in her mind's eye, and not our *Helleborus niger*.

Little slips or misunderstandings of this kind are, however, not worthy of notice compared with the many good points of the work, which may be confidently recommended to all who are fond of plants and flowers and who delight in their culture. It is a book that may well occupy a place on the same shelf along with Miss F. J. Hope's "Gardens and Woodlands," or with the Hon. Mrs. E. V. Boyle's "Days and Hours in a Garden."

It may be as well to add that Mr. Bright originally wrote these notes for the columns of a contemporary in 1874. They were printed in May, 1879 (first edition), and again reprinted in August, 1879, and in the present year 1891. The price of

the book is 3s. 6d. The only radical fault to be found with the book is its lack of an index, which might with advantage be annexed to the next edition. F. W. BURBIDGE.

COTTAGE GARDENS.

"PLEASANT memories," indeed, as Mr. Burbidge says, are recalled by the above phrase (in conjunction with the pretty engraving in THE GARDEN of March 28, p. 285) in the minds of many who see and admire the roadside cottage gardens. How much there is in these little garden plots, and how full of significance and teaching they are! In a few square yards may be found flowers during nine or ten months of the year, always seasonable, and often in great variety. Even now during the spring and early summer months, whilst many large gardens are being or have to be planted, the cottage plots are gay with blossom and redolent with fragrance. From the plots we may often obtain ideas concerning successional crops of flowers. Where the early Snowdrop and golden Crocus first appeared does not remain naked after their season is over; there is hardly an inch of bare ground anywhere. There is no annual digging in connection with them, but the plants are fed with surface dressings, and the depth and fertility of the soil are thus yearly increased. All that is old, pretty, or fragrant among garden plants constitutes the cottage garden flowers. They are so numerous, that even in enumerating some of the principal families Mr. Burbidge has left out others equally as prominent. Bellflowers of many kinds, but particularly Canterbury Bells and the old Peach-leaved Campanula, are often very abundant, and so are the Snapdragons, not weak, ineffective, spotty or striped kinds, but clear, bright, self-coloured varieties. Then there is the Thrift, so popular for an edging, and at all times preferable to prim Box. The Auricula is familiarly known as Bear's-ears, and upon Lord Tollemache's Helmingham estate a pretty mealy-leaved kind in huge tufts may be found in a score or more of cottage gardens; so it is evidently a favourite plant, whilst its general distribution betokens the existence of a friendly spirit of exchange. Here, too, in many gardens clustering against the walls of the house are large bushes of the old Maiden's Blush Rose, hardy Fuchsias, too, often being strong features with the cottagers. It was in a cottage garden, upon the walls of a thatched house, that I once saw the Japanese Kerria in full flower, commingling with and backed up by Ivy. The naked-flowered Jasmine, too, is grown in the same charming way. The cottagers, too, have a liking for winter bouquets in the house, and grow the Honesty as much for this purpose as for its flowers, and Iris fetidissima in order to obtain its great capsules of bright red seeds. These two things, arranged with some of the better wild Grasses, particularly the Quaking Grass, are used to adorn rooms during the dullest and darkest months of the year. Hereabouts, too, it is apparent that flowers are largely grown even by those who have no garden whatever. The windows of all the houses, whether large or small, in a small town that I frequently visit are always gay with seasonable flowers, and it is almost a marvel how they are grown, as some of the residents can have no convenience whatever beyond the window. At the present time Primulas and Hyacinths are very striking and very fine, and many hardy flowers, especially common and coloured Primroses, will shortly appear prominent in the windows. In a main street of considerable length the flowers are a noticeable feature from beginning to end, and it is very apparent that the householders vie one with another as to who shall make the best display.

Suffolk.

A. H.

Weeds.—The dry cold weather is doing wonders in keeping weeds in check, although it is equally keeping crops in check. Remembering the fearful weed crop of last summer, it is surprising so few seedling weeds should be seen. That old enemy Couch Grass grows where nothing else does, and it is indeed a very difficult weed to eradicate in stiff

* "A Year in a Lancashire Garden." By Henry A. Bright. London: Macmillan & Co. 1891.

soils; whilst the excessive rainfall of last summer and the uselessness of hoeing gave this pest an opportunity which it was not slow to utilise, for it became literally rampant. Twitch or Wire Grass was another terrible weed last year, and this it has only been possible to get rid of by burying it deep down where it can be made to recoup some of its mischief of last year by acting as manure. The recently turned soil, or even that moved and cropped some time since, still wears a very sterile aspect and because baked on the surface by harsh March winds has a peculiarly barren appearance. The cold and drought which check the weeds also check the growth of vegetable and other seeds. Peas are remarkably late, and, apparently because all other food is so scarce, have been attacked by birds to an unusual degree. The best use to put the dry weather is to work the hoe freely, even where there are no weeds to be seen. The stirring of the soil is beneficial to the crop, sown or planted, even if that be yet quiescent. But it is very possible that many surface weed seeds have already begun to germinate, and a stirring of the soil with hoes may just now destroy the budding crop, and thus help to keep the soil and the crops free and clean the greater part of the summer.—A. D.

MARKET GARDEN NOTES.

A LOOK over some of the fruit market gardens in West Middlesex leads to the conviction that on the whole the promise of blossom on the trees is a remarkably hopeful one; indeed, some Pear and Apple trees are heavily laden with buds. There is thus every hope of a good fruit season, though, as is always the case, much depends upon the character of the weather during the last weeks of May. I find fruit cultivators divided in opinion as to the advantages or disadvantages of an early or late season of blooming. I have heard some eminent fruit cultivators say that we invariably get our best crops of fruit when the bloom is early, as the fruit becomes somewhat developed, and the leafage dense by the time the May frosts happen, and therefore all the more secure from harm. But then others hold a different opinion, and probably both are right, for it is very much a question of genial weather during May.

Given fine, sunny, warm weather, and there will presently be such a burst of bloom as April has not yielded for some years. Plums generally lead the way. Orleans, Prince of Wales, Victoria, Dymond, Winesour, Greengage, Gisborne's, and other leading Plums will shortly be sheets of bloom, and if only the blossom can fructify to fruit and the crop bear some relation to the profuseness of flower, it will be a Plum season worthy of record. Pears, too, promise well. I have just seen a large number of fine trees of Williams' Bon Chrétien very full of buds, Hesse also, and, as is generally the case with this Pear, the greatest show of blossom at the top of the trees. Marie Louise, in the shape of large trees, is fully set with bloom, but it is often an uncertain cropper. Calebasse, a favourite market Pear, is also very promising indeed, and Cassolette, known in the Middlesex fruit gardens as the Portugal Pear, an early dessert variety, ripe in September, and generally an abundant bearer, shows well for a crop. It appears to be valuable as an early market Pear.

Apples appear to be quite as full of blossom as the Pears and Plums. Keswick Codlin, which is largely grown in West Middlesex, Lord Suffield, Hawthornden, Cox's Orange Pippin, and other leading sorts are inciting the mind of the cultivator to hopefulness. Minchall Crab, a large cooking Apple, is a favourite with some of the fruit growers, because it makes such excellent Apple jam. It is an abundant bearer, a great favourite in the Manchester market and other large centres of population in the manufacturing districts. The slaughter among the green stuff during the winter is something to be remembered. Scotch Kale and sprouting Broccoli, which usually do so well under tall fruit trees, have suffered greatly, the latter especially. Out of nearly an acre of late sprouting Broccoli, not a plant survives. The oldest and stockiest of the Cabbage plants put out in the autumn have

stood the winter best—I mean those with stout stems and which had a very rough appearance when planted out. These had a woe-begone appearance five or six weeks ago, but have pulled round considerably since. Spinach was hit very hard, but that is coming round also. R. D.

New fruit and vegetable market.—The Markets Committee of the City Corporation have decided to accept the tender of Messrs. Perry and Company for the new fruit and vegetable market in the Farringdon Road, at an aggregate sum of £20,180. They will not include the railway area in the scheme, but the new market will face the buildings used for the sale of meat and poultry, and will be a valuable addition to the market accommodation of the metropolis. The building will be a light and spacious structure, well adapted for the purpose for which it is designed. The ramshackle old market in Farringdon Street is to be offered for sale, together with the land it covers.

Ferns in Covent Garden Market.—One of the most notable features of the Covent Garden flower market is the immense quantity of small Ferns to be seen. One would wonder what became of them, seeing that all the year round these small Ferns are on sale. At one time Fern-growing was confined to a very limited number of growers, but now plants of various sizes may be found throughout the market. It is therefore evident that the public favours fresh green foliage in preference to so much floral display, as was formerly the case. There is no better test of public opinion than the open market. Growers soon give up anything that does not find a ready sale; on the other hand, perhaps they are rather slow in taking up new ideas. This is fully demonstrated at the present time in the limited number of sorts of Ferns they cultivate. The great bulk of Ferns now to be seen in the market is confined to, at the outside, a dozen sorts. Yet there are many other varieties which are even more beautiful and perhaps equally serviceable for decoration.

Hardy plants and mice.—A few winters ago I had well-nigh 100 old Clove Carnations cleared off by mice, and hardly a leaf left, while during this winter a charming potful of *Primula minima* was selected and cleared off just before the young green leaves began to push forth, the plants having been attacked at the base of the stems and eaten evidently on the spot. Another much valued plant was *Androsace Chamæjasme*, which disappeared in a couple of nights. *Saxifraga cochlearis* minor, frequently called *S. valdensis*, was also attacked, but I discovered what was going on in time to save this. Some of the alpine Pinks suffer greatly from the same cause; but what astonished me more than all was the rapidity with which these troublesome pests started to clear off the flowers from a lovely patch of *Chionodoxa*, and although I had a prior experience of their fondness for its bulbs, in common with Crocuses and Snowdrops, it was only a week ago that I became aware of their partiality to its flowers, when my attention was attracted by my little girl, and on going to the window saw a full-grown field mouse darting from its hole to the patch of *Chionodoxa*, and quick as lightning snapping a flower and darting again to its hole. In about twenty seconds quite a dozen flowers were thus carried off, and had their presence not been observed the whole lot may have suffered the same fate. A singular fact in connection is that this is the first time the mice have touched them, though they have occupied the same position for three successive seasons.—E. J. H.

Beetles destroying Adiantums.—Will you kindly name for me the insects, some of which I send you? They are playing great havoc with the Adiantums.—H. B. R.

* * The insect attacking your Ferns is the black Vine weevil (*Otiorynchus sulcatus*). This is a most destructive beetle to the foliage of Vines, Ferns, and many other plants. The grubs, too, are very injurious; they attack the succulent roots of various plants. The beetles generally hide themselves most carefully during the day, and are then very difficult to find. They feed at night, and often

drop to the ground at the slightest alarm. If your Ferns are in pots, stand them during the day on a white sheet, and after dark, with the aid of a bright light, shake them over the sheet; if the plants cannot be moved, you might arrange white cloths or paper under them to catch the weevils on.—G. S. S.

A PANSY SOCIETY FOR THE MIDLAND COUNTIES.

FOR some time past the formation of a Pansy Society for the midland counties has been thought of. The success which has attended the efforts of the promoters of the Midland Carnation and Picotee Society, nearly £110 having been raised in the form of subscriptions and donations, has operated on the Pansy cultivators and admirers of the midlands, and they have established a Midland Counties Pansy Society, the first exhibition of which is to take place in Birmingham on June 10. The Rt. Hon. Joseph Chamberlain, M.P., is the president of the society, and Mr. William Dean, Sparkhill, Birmingham, the hon. secretary; there is an influential committee of midland florists, and a schedule of prizes of a comprehensive character has just been issued. It is quite time there should be a revival of the Pansy as an exhibition flower, especially as of late years strains of large size, but great coarseness have been put upon the market, thrusting aside flowers possessing the charm of form, marking, and general good quality so dear to our forefathers.

The main object of the society is to encourage the cultivation of the Pansy in the midland districts, and for the present it is confined to the cluster of eight counties forming the midlands, viz., Warwickshire, Staffordshire, Salop, Worcestershire, Leicestershire, Nottinghamshire, Derbyshire, and Northamptonshire. Some of the classes are open to all, the effect of which will be to bring from Scotland the Scotch growers with their finely marked blooms. The first seven classes are open to all in the eight counties, and among them is one for six dissimilar seedling Pansies, not yet sent out, raised by the exhibitor, a silver medal being given as a prize. It is presumed the seedlings may be all show varieties, or all fancy varieties, or a mixture of both, at the option of the exhibitor. A silver medal given by Mr. James Simkins, author of "The Pansy, how to grow and show it," is offered for three blooms of the best seedling fancy Pansy raised in 1890 and named. There is also a class for twelve varieties of Violas, six blooms of each. So these useful bedding varieties are cared for. Then follows a group of eight classes, open only to gentlemen's gardeners and amateurs residing in the eight counties, and as an addition to the first prizes, Mr. James Simkins offers in classes eight to thirteen inclusive a copy of his book just referred to.

Then follows a group of classes, four in number, for those known in the north as maiden growers, viz., those who have never won a prize for Pansies, and one of these is for six new fancy varieties sent out in 1889, '90, or '91. Succeeding these are four classes open to all comers, and it is confidently expected the leading trade growers of the kingdom will be attracted to Birmingham. Six special extra classes bring the number up to twenty-nine, and this group is for the encouragement of new Pansies and Violas. R. D.

BOOKS RECEIVED.

"The Nursery Book." A Complete Guide to the Multiplication and Pollination of Plants. By L. H. Bailey. The Rural Publishing Company, New York.

"Die Moderne Teppichgartnerei." Von W. Hampel. Verlag von Paul Parey, Berlin.

"Potato Culture for the Million." By H. W. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury. London: Eyre and Spottiswoode.

Scandinavian stoves (H.).—Anthracite coal is the fuel *par excellence* for these splendid stoves, but coke broken very small or good riddled cinders might possibly do. I should think any ironmonger could procure them.—W. H. CULLINGFORD.

Name of plant.—W. Jones.—We do not name florists' flowers.

WOODS AND FORESTS.

THE WHIN AS A HEDGE AND COVERT PLANT.

THE common Whin (*Ulex europæus*), although not quite hardy on high exposed positions, may yet be used in many parts of the country for the above purposes, and it has this advantage, that it can be easily and cheaply propagated, while hares and rabbits very seldom molest it. The most efficient way of raising the Whin is by sowing the seed on well-prepared ground when the ground is dry and in proper order during the month of April. It thrives best on dry stony soil resting upon shingle or drift, as well as on dry rocky places. When used as a covert plant, the soil at the spots where the seed is to be sown should be well broken up and all deep-rooting and surface weeds carefully eradicated, and if it is of a poor exhausted character, a dressing of well decayed manure or wood ashes will prove very beneficial. When the ground has been prepared in this way the seed should be sown broadcast. When the plants appear above ground they should be occasionally weeded and thinned if necessary, otherwise they are apt to form a mere thicket, and thus prevent the ingress of game to the covert. When the Whin is well managed and utilised in this way as a covert plant, it has few equals. Game of all kinds delight in its friendly shade and shelter both in winter and summer, and when loaded with its pretty golden-coloured flowers it never fails to attract the attention of the most casual observer. The Whin is seldom used in the formation of hedges on the flat ground, as its strength for resisting the inroads of cattle cannot be compared to that of the White Thorn or the Beech. It, however, forms a good and efficient shelter fence on the top of a retaining wall, sunk dyke, or embankment, and it is generally in such positions where it is used. In cases where leader drains require to be cut around the margins of plantations or fields, the stuff excavated can be utilised to form an embankment along the side of the drain, on the top of which a bed should be formed for the Whin hedge. In cutting drains and forming embankments of this sort, it is necessary to give the sides a sufficient slope to secure as far as possible their stability. In all cases, however, where stones can be had, the better plan is to use them for building up the face of the embankment, and when at its proper height, which, of course, will vary much according to circumstances, the hedge should then be formed about 20 inches back from the top of the retaining wall. Premising that the bed for the hedge has been well prepared, a line should be stretched along the ground and an opening about 1 inch deep made with a hoe along both sides of the line. The seeds should then be sown in a regular and uniform manner, and slightly covered with fine pulverised soil. When the seed is fresh and good, 1 lb. is sufficient to sow a double line of about 100 lineal yards in length. When the plants appear above ground they should be weeded and the surface of the ground occasionally broken up with a hoe during the growing season to admit air and promote the growth of the plants. The hedge should then be kept in proper shape and form by pruning, and for this I have found the switch to be the best tool.

J. B. WEBSTER.

The best forest trees to plant.—At page 304 in *THE GARDEN*, "A. D. W." entered into this question so thoroughly that there is little more to add. I wish, however, to point out how important the Larch is in the locality that T. Canning writes from. Being so near the colliery districts of East Worcestershire and Staffordshire, Larch commands

a ready sale; indeed, only a few years ago when the mines did not pay so well as they do now, the demand for Larch was greater than the supply. When living in that district I found Larch (being of quick growth and fit for use in a young state) more valuable than other timber of slower growth requiring better ground and a much longer time to come to maturity. Our Larch was grown in reclaimed common lands, and over 100 acres were planted yearly. Another good tree was the Birch, which did well on poor peaty land and always sold well, no matter of what size, as the demand for crate wood for pottery purposes was good, while the tops, or besom wood as it was called locally, were always in demand. Oak in former years was our best paying wood, but in the district named it did not sell so readily; indeed, the bark of late years only realised half the price it did some twenty or thirty years ago, but no doubt, as "A. D. W." states, in maritime districts it would command a better price. Elm was also much reduced in value, and a difficulty was experienced in getting the prices named unless for extra good timber; on the other hand the demand for Ash was on the increase. No matter what size the timber, a ready sale and good prices were always obtainable. The wood of the Ash is much used in Staffordshire for tool handles and many purposes, thus a demand always exists, so that if the soil is suitable, no doubt in the districts named it would yield a profitable return.—G. WYTHES.

HORSE CHESTNUTS DECAYING.

So far in the case of old trees I have found it a difficult matter to prevent decay and am in the same position as "Anxious" (*GARDEN*, p. 280). I have many large trees past their best, and in a few instances they go as your correspondent describes. If the bleeding can be stopped, I have found it prolongs the life of the trees to a great extent. The evil, however, is at the roots; at least I have found it so. This frequently occurs when the Horse Chestnut is of a good age and growing in unsuitable soil. This tree delights in a deep sandy loam, and though it does fairly well for a time in made ground, if the roots go down into a wet bottom, the result is as "Anxious" describes. The tops also decay and the trees get into a sickly condition, that it is difficult to remedy. Of course, in some cases the bleeding is caused by damage to the bark when the tree was young. I have also seen many trees injured in this way by burning leaves close to the trunks in the autumn, and though the damage did not show at the time, it did eventually, many trees being ruined from this cause. If the decay is noticed in time, some cement placed over the affected parts will prevent its spreading, but if the roots are decayed, as is often the case, by going down into the wet or heavy subsoil, I fear the trees are past recovery. The Chestnut will not live to a great age in cold stiff soil. It does not care for too much lime. The trees named by "Anxious" may be in one of these. On examining the roots of our trees I find them much decayed, only a few large roots being alive, and in their case all the outside covering is in a mouldy or decayed condition. When trees of any size are in this state, I fear the case is hopeless and past recovery, as most likely if the bleeding is stopped at one place it will appear at others in a short time. The Chestnut is more subject to bleeding than many other large trees, and therefore it is a difficult matter to prevent it with old trees. Game often injures these trees in a young state and the bark does not heal, so that when a tree has absorbed all the goodness out of the soil a retrograde movement follows. Such is my experience of the Horse Chestnut. The Spanish Chestnut is less liable to bleeding with us, but this may be caused by being in a different soil.

Syon House.

G. WYTHES.

Staking transplanted trees.—Next to careful planting and watering—a matter of the most vital importance, but, unfortunately, one that is too often lost sight of—is the efficient staking or otherwise securing of large transplanted trees. The great strain and consequent damage to the roots of large transplanted trees when allowed to rock about with every gust of wind are not only highly injurious, but in viewing the matter from a point of neatness, few things in

forestry have a more unsightly or neglected appearance than trees almost blown over by the wind.

DAMAGE FROM THINNING WOODS.

WHEN plantations are thinned at an early stage the thinnings can be removed without injuring the trees left and no harm is done; but I fear great damage is frequently caused in taking down falls of mature timber in thick woods, and the question which arises is, How can this damage be best avoided or repaired? Imagine, for example, a tall Larch, perhaps 70 feet or 80 feet high, or a lofty Oak, with great boughs, and a top perhaps a ton weight or more, crashing its whole length to the ground among other trees, often over them, and always doing more or less damage to their limbs and trunks. This is one of the worst features of our system of felling timber. All over the country every year falls are set out in plantations, a certain proportion of trees being taken, and the custom is to go over the whole perhaps once in twenty years or thereabouts. If you go through a wood after a fall has been removed, you cannot fail to observe the quantities of limbs and branches either torn from the standing trees altogether or hanging broken from them, sometimes riven off close to the trunk, and at other times leaving great jagged projections sticking out, which in time decay back into the trunk, perhaps spoiling the tree. Not long since I had a large Oak tree, which I thought sound, cut up into planks for our carpenters, and was disappointed to find that the centre of the trunk was quite decayed and soft and rotten to the extent of about 8 feet, the decay extending nearly equally above and below a point where a branch, about 2½ inches in diameter, had been broken off at some time, allowing the moisture to get in. Such faults are, of course, common, and timber buyers are alive to them, and frequently come armed with a long flexible steel probe, which I have seen them introduce its whole length at a suspicious-looking knot where a branch had come off, and insist upon an allowance of so many feet being made for damage before bargaining. To estimate the loss from such causes, one has but to reckon the age of the plantation and the probable injury done by breakages among the branches in the time. It is not easy to prevent or remedy the damage done to standing trees by falling timber. Workmen can to some extent prevent damage by felling the tree where there is most room, but there is seldom much choice in that respect in thick woods, and as to repairing the damage, the only way is to prune the broken limbs by the knife and saw—work so troublesome and expensive, that it is seldom or never attempted, except in the roughest fashion. The sure way would be to do as they do on the Continent and in America, viz., cut down the timber *en bloc* as the falls are set out and plant up behind—a plan which I daresay will not commend itself to owners of woods or foresters under all circumstances, but one that is far more feasible than might be imagined at first sight—that is in the case of plantations of mature age. In old and decaying woods it is desirable to go on the old principle of thinning out the worst or dead trees, but in the majority of cases plantations of mature age are healthy, and might be reaped like a crop of corn. Much less ground would be gone over by this plan, and a fall of a thousand or two trees and poles would not create a great blank in any one year, and replanting could be prosecuted effectually and constantly. The plan is at all events worth considering on many estates. I do not believe in the common plan of filling up vacancies with young trees where many old trees are still left standing to be felled at some future period. Such plantations never do so well as those planted on cleared ground, and when felling takes place among the older trees the young ones always suffer much damage.

Y.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of *THE GARDEN* from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

KITCHEN GARDEN.

MAIN CROP TOMATOES.

WITH the increasing demand for Tomatoes, the cultivation of this popular esculent is being taken up on all sides with more or less success, and considering the vast quantities which are sent to the great markets, the demand does not slacken in the least. Grown in the open air Tomatoes are a precarious crop. People who are fond of Tomatoes generally prefer those from the open air when well grown and perfectly ripened. If growers had depended upon outdoor crops for maintaining the supply, Tomatoes would not have attained anything like their present popularity. To keep up a supply to meet the public demand, Tomatoes should be cultivated under glass, in efficiently heated structures, too, if they are to be kept free from disease, which has proved so disastrous to many growers both large and small. I cannot but help thinking that the grower must be held responsible when disease attacks plants grown in efficiently heated structures. I may be wrong, and probably there are many growers ready to refute my statement. The disease appears to attack those plants the most readily which are growing in a close and stagnant atmosphere, and where the heating arrangements are not properly managed. When I grow Tomatoes in an unheated structure, I find that the plants are always more liable to suffer when the ventilators are kept too close. To bear out this statement, a grower for market with whom I was well acquainted had two large unheated structures devoted to Tomatoes, and whilst the ventilation was managed so as to keep up a buoyant atmosphere during the daytime no disease was seen, but as soon as one of the houses was kept nearly close during the daytime with the intention of hastening on the ripening, the disease quickly appeared, whilst in the more freely ventilated structure no disease was seen. Let anyone who has an unheated structure devoted to Tomatoes and in which the plants are affected with disease, and which is also kept pretty close during the daytime, so as to keep up a high temperature from solar influence alone, enter the same about 3 a.m. or 4 a.m. during the summer months, he will quickly perceive the want of a little artificial heat. The inside temperature will be cold, and as soon as the sun reaches the roof the heat will rise rapidly, and moisture, on account of the natural coldness of the plants, will condense rapidly on the plants—results highly favourable to the spread of disease. Although artificial heat may not be necessary on fine and sunny days, yet during the night-time the pipes should be kept fairly warm, and this coupled with a little ventilation continually on will keep disease in check. Often even where the structures are efficiently provided with ample piping and boiler power and when a warm period sets in, the fire is allowed to go out for two or three weeks at a time. This is a very unwise policy. I have also seen plants attacked with disease even when grown in what gardeners term "stoves," but this is where the structure is kept too hot and close; consequently the plants draw up weak and have not sufficient stamina to withstand attack.

To succeed well with Tomatoes, the structure

intended for their cultivation should be exposed to the sun, and where the plants may receive the benefit of a free admission of fresh air without the fear of creating a draught. Personally, and where there is convenience, I prefer to devote a structure wholly to their culture; but this is not absolutely necessary, as even in my own case a part of the space is devoted to Vines, but these latter are not planted or even trained at all thickly, and the Tomatoes have abundance of light. Last year I cut over half a ton, thus proving that the plants liked their position. I may as well state, however, that Tomatoes will not succeed under the shade of Vines or even any other fruit tree growing under glass. It is absolutely necessary that the growths must not be in the least crowded. The plants must be kept growing on sturdily from the time of sowing the seed until ready for planting. A temperature of 60° during the night, with a rise during the day from sun-heat and also careful ventilation, will produce plants of a firm and woody growth capable of withstanding attacks of the disease, and also, with intelligent after-treatment, producing heavy crops.

METHODS OF PLANTING.—Where possible, planting out in beds is the best plan. Good crops are often produced from plants growing in boxes, but these are the better for being not less than 20 inches to 2 feet in depth and 18 inches or more in width. Pots, unless of a large size, I am not in favour of, on account of the labour entailed in feeding and watering. The borders for planting may be of any size, but as regards a single row of plants, a border from 18 inches to 2 feet in depth and about 30 inches or thereabouts in width is ample. Those growers, however, who have large span-roofed structures at command plant in rows about 2 ft. apart and the rows 4 ft., the plants being trained to upright sticks. Not only glasshouses, but low pits and such like may be devoted to Tomato growing. Last season I saw a wonderful crop on plants growing in a very low brick pit or frame, with just a pipe along the front for providing artificial heat. When growing in such a position as this, the plants would have to be planted in a narrow border along the front and trained over a rather close trellis, so that the fruit could be well elevated to the light. In many gardens there are often pits like the above described at command after the bedding plants are cleared out. Where the root-run is unlimited the rooting material must not be of too rich a character, or else the plants will make too gross a growth at the expense of setting of the fruit. I prefer a restricted root-run, as the plants may be top-dressed and fed as occasion requires.

TRAINING AND AFTER MANAGEMENT.—To succeed well with Tomatoes a rational system of training must be adopted. Often the shoots are allowed to grow in such a tangled mass through the neglect of early pinching, that the plants fail to set their fruit, and then all of a sudden the growths are cut away wholesale. Under such treatment the plants cannot be expected to prove productive. The pinching in of the growths being such a simple affair, one marvels at its being neglected. I prefer to grow the plants as single cordons, pinching out all side growths as soon as perceived, and allowing the leader to grow on unchecked as far as there is space for headway. Under such a system, with judicious attention in heating and ventilating, the plants should produce fruit from within 18 inches to 2 feet of the bottom and as far up as the plants go. Two, three, or even more stems may be allowed to form and grow

up from the bottom, but each shoot must be treated as a cordon as it grows upwards. These latter are what we may term three or four-branched cordons. For this latter system the plants must not be planted out less than 3 feet or more apart, but when growing as a single cordon exposed to the light in a position near the glass a distance of 18 inches apart is none too close. As regards setting the fruit, there should not be the least difficulty where a warm and buoyant atmosphere is maintained. All that appears necessary to secure a perfect set is to tap each plant daily, say at midday. Do not allow the plants to suffer for water, and in restricted borders feeding must have close attention, and also a top-dressing about twice during the season so as to encourage surface roots. The fruit is sometimes disfigured by cracking when just on the point of ripening, this being encouraged by syringing or damping down the structure in the afternoon and closing up the ventilators. For home consumption the disfigurement is perhaps not so noticeable, but for market the value of the fruit is very much lessened.

A. Y. A.

ASPARAGUS.

A SUITABLE soil is the chief point in Asparagus culture, and if this is not the case, much can be done at a small cost to make it so, as in gardens of any size the sweepings of the potting-shed, old worn-out Vine borders, or refuse in the rubbish yard, if saved for this purpose, will much improve unsuitable soil. Even in small gardens a few loads of sandy soil, street sweepings, or common sand would much improve wet stiff ground. It is useless to apply large quantities of decayed manure if the ground is not adapted to the growth of the plant. A light soil can readily be made suitable for the growth of the plants, and manure applied as required, but to incorporate a large quantity of decayed manure with wet soil only adds to its natural adhesiveness. What is required is drainage and a sandy soil impregnated with saline matter. I know several instances where it was impossible to get any Asparagus fit for table in the natural staple, but by the application of suitable materials produce of good quality was obtained. In wet clayey soils drainage should be attended to. I do not advise deep trenching on heavy ground, but would prefer to raise the beds. I have an objection to raised beds under favourable conditions, as they do much harm and the roots become dried up; but in wet soils this is not the case. After draining, the new materials should be incorporated with the top soil, keeping the subsoil at the bottom of the beds. Now is a good time to do this work, as the season is late this year, and for this purpose I prefer plants sown thinly in drills the previous year or even two-year-old plants. There are various ways of planting the young seedlings. Some persons simply draw a wide drill and spread out the roots, but I prefer to make a slight ridge, spreading out the roots carefully on each side, a man following with some good compost to place over the roots. Many failures take place in new beds owing to want of moisture; therefore watering is important.

The following season in the early spring a dressing of salt and soot will do much good, giving sufficient salt to get to the roots. On wet soils the salt does more harm than good, but on light sandy soils it is less injurious. Seed may also be used instead of plants, but seedlings take much longer before cutting can be begun. We get all our forced supplies from outside beds after the end of January, and with little trouble. The beds are many years old and continue to give abundant supplies of large Asparagus. They are 4 feet wide with 3-foot alleys with brick sides pigeon-holed, and the alleys 4 feet to 6 feet deep. These we fill with fresh tree leaves as soon as the leaves fall and tread firmly. We continue adding to the leaves as they go down, finally covering over with shutters and warm litter. A few of the beds are not covered; these continue the supply till those in the open ground not

forced in any way come in. They only get a few inches of short litter if the weather is bad. These beds have been in bearing over twenty years, and are dressed with salt and good rotten cow manure after cutting, and well saturated several times during the summer months with liquid manure from the cow yard. This last I consider one of the chief points, as *Asparagus* often suffers in hot, dry seasons for want of moisture. Much can be done to form strong crowns by artificial manures when animal manures cannot be obtained. These can be given occasionally and well washed down to the roots. Another equally important matter with permanent beds is to remove the seed-bearing stems before the seed ripens and drops into the soil, as the seed impoverishes the bed when allowed to take root. It is a much better plan to restrict the bed to the original plants, and when they become exhausted to form new beds. We get *Asparagus* for some seven months in the year without great cost; indeed, at this date, with green vegetable crops destroyed, the beds I advise are invaluable for a long supply, as they are brought on slowly and last as long as the beds in the open ground. Leaves are preferable to manure, as they heat slowly and retain the heat a long time. Of course if a bed is wanted quickly more manure may be used. The leaves when removed the following season are thoroughly decayed and valuable for many purposes.—GEO. WYTHES, *Syon House*.

—*Asparagus* will be unusually late this season, and if a few ground vineries or narrow span frames are at command, they could not be put to better advantage than for covering a portion of a bed, or as far as the frames will go. The lights, however, must not be allowed to remain over them too long, for as soon as heads are appearing in the open the lights should be entirely removed. I am only recommending the above for an extreme case in a season like the present, as where forwarding *Asparagus* is to be permanently adopted, it is much the wisest plan to prepare and set apart a bed for the purpose. A bed for this purpose should be formed by excavating the ground to the depth of 2 feet and of a convenient width necessary for a span frame. The outer sides of the bed must be built up with bricks and pigeon-holed, and the inner space for the formation of the bed must be filled up with a suitable rooting medium. In a bed of this description the roots may be planted more thickly, or the seed be sown more thickly, 15 inches apart being ample. After the third year, when the roots have become sufficiently established, the lights may be placed over as required to forward on the produce. Warm manure and leaves may be packed against the outer space if it should be necessary to hasten on a portion. With beds of this description it would not be at all wise to cut them too hard, as this would have a tendency to weaken the roots for the following season. It would be found the best system to have two separate beds, each to be covered in alternate years.—A. Y.

Corn Salad, or Lamb's Lettuce, though not much used, is an excellent winter salad where a heavy demand is made on the gardener for variety during the autumn and winter months. Being of easy culture, it should be more largely grown for this purpose, and in seasons such as we have passed through it is more valuable than ever, on account of its hardness and the absence of other green salads. There are several varieties, but the best I find are the Broad-leaved Italian, producing good-sized leaves, and the large round-leaved variety. I prefer the former. For the winter supply a good breadth should be sown about the middle of September, well thinning the plants. It should be sown on rather firm ground manured for a previous crop, as then the plants are not so tender, and do not damp off in severe weather. A well-drained sloping border is also best for the winter supply, and in very severe weather a little protection should be given with some dry litter or Bracken, or a few lights if they can be spared. The best plants are secured by sowing in drills 1 foot apart, thinning the plants to 6 inches apart in the rows and keeping free of weeds. The beds, if the season is dry, should have a good watering with soot water,

or guano, or liquid manure in the early autumn. For a spring and summer supply sowings may be made monthly, and each time, if possible, on fresh ground in a richer border than advised for autumn, as the growth will be more rapid, and instead of the leaves only, the whole plant may be used for salads in a young state.—W. S.

POTATOES.

IN spite of the harm done by the disease to Potatoes last year, there seem to have been even larger plantings than usual already made. It is not usual to have two bad seasons in succession, and as, on the whole, Potatoes pay pretty well, it is no matter for surprise that they are held in favour by those who grow vegetables largely for market. Another special reason for extensive planting is found in the very early clearing of ground usually covered till a later period with green crops. The wholesale destruction wrought by the late frost has forced growers to plant Potatoes or some other crop, that the soil thus vacated might be utilised as early as possible. Very considerable breadths were got in during March, not only for the reasons given, but also because the soil and the weather have been so dry. Better to get in whilst the soil was dry and friable than leave till April rains may make it heavy and pasty. Potatoes are in very diverse case from ordinary seeds. Even Peas have felt the effects of the cold, and have made wonderfully slow growth; it is, therefore, no matter for surprise that small seeds have refused to move at all, or if so, but very partially. We have had in the general condition of the weather ample evidence of the folly of committing small, and especially somewhat tender, seeds too early to the soil. Those who sow now will probably have a better plant and more robust growth from seeds than those will who sowed last month. Potatoes endure the low temperature of a cold soil very well. Probably the tubers are kept better in check in the soil than exposed to the uncertain influences of atmospheric temperature. At all events, even of the earliest planted there is no fear that tops will be through the soil too early. I have been surprised to find that of tubers left in the soil all the winter, and but a few inches below the surface, how wonderfully well they have been preserved. This fact shows that the intense frost which prevailed did not all the same penetrate so very deeply into the soil, because of the snow covering. Potatoes left in the ground suffer chiefly from the attacks of slugs, grubs, or other insects, and less from frost. Perhaps the comparatively dry state of the soil had something to do with the lack of harm this winter.

In planting tubers throughout this district we generally use the old-fashioned dibber, a method of planting excellent in its kind in dry weather, but to be deprecated if it be very wet. Still, no one should plant Potatoes at all in wet weather if it can be avoided. When the soil is dry and lies light and loose, then a little treading does no harm. In the fields a rough harrowing after the planting stirs the surface of the ground again, and later the horse-hoe is such a fine pulveriser, and is so freely used between the rows, that all evidences of treading are soon obliterated. Where the horse-hoe cannot be employed a liberal use of the hand-hoe soon sets matters right, and the surface is rendered suitable for earthing. The old plan of planting in furrows as the ploughing or digging proceeds is seldom practised, as too slow and monotonous, besides hindering the work of digging or breaking up the soil earlier in the winter. In some cases I have noticed that the double moulder has been attached to the ploughs, and furrows struck out into which the sets have been laid. Prior to doing so, however, the bottoms of the furrows have been broken with a subsoiler. One great defect of plough planting is that the sets come direct on to the hard pan left by the weight of the plough. Unless this pan or core be broken by the subsoiler it is invariably bad for the tubers, especially that should heavy rains come, water cannot get away from the roots, and nothing generates disease later so rapidly as a water-logged soil. Dibbling usually leaves some loose soil beneath the sets, as they are not then so deeply planted as

if laid below the soil ridge thrown over by the plough. The ridge and furrow method of planting is very advantageous when artificial manures, such as kainit or other superphosphates, are sown in with the tubers, and I have already found that to be the best method of applying them, as the young roots find their aid immediately. About this locality, owing to the abundance of London manure found in the soil, very little of artificial manure is employed; indeed, with the exception of soot, of which plenty is used, I find that very little faith in the value of artificial manures for Potatoes exists. That is perhaps due very much to the fact that these aids or stimulants do not exhibit their merits so well where the soil is already rich enough for Potatoes as in barren lands. As a rule, I find the market fields to be sufficiently rich for Potatoes after some previously manured crop, such as Cabbages or Beans, have been taken off, but it is rarely worked deep enough. Six inches more of deeper cultivation would be worth to the crop even more than a heavy dressing of manure. In poor soils certain artificial manures, especially those of a phosphatic character, are very beneficial. I have found in such cases that the increase of crop has been from one-third to one-half paying for the dressing several times over. The Potato differs from so many other plants in its needs, and does not want manures, which serve only to develop leaf-growth. I have tried such manures with those of a purely phosphatic nature, and have seen as a result tops of remarkable vigour and darkness of leafage, indicating a fine tuber crop below, yet quite beaten by the phosphatic manures, which produced only a very moderate effect upon the tops, but a striking one on the roots. So far as the production of specially fine tubers for show is concerned, I have often been surprised to note the comparatively moderate samples found in rich garden soil, where the tops have been of excessive growth. Still, it is evident that top production and root production are not always commensurate. A more moderate top development on firmer, but still free-working soil often produces finer and cleaner tubers than do highly manured soils, such as are usually found in good kitchen gardens. In stiff soils, and where water is apt to lie about the roots, it is a capital plan to bury a few inches of half long stable manure beneath the rows of sets, as then drainage is ensured and the tubers come out very clean. To do this, the soil should in the winter be thrown into sharp broad ridges, and in the spring the manure may be forked into the furrows before the planting takes place.

A. D.

Early vegetables.—As regards the date early Peas are gathered, whether by the market growers who cultivate in open fields or by the private gardener with his south borders, there are certain circumstances which have to be taken into consideration. The date of sowing and also the character of the soil and situation have a certain bearing on the subject. I fancy that "W.I." is averse to sowing the seed of the earliest Peas in November, and I can quite understand his doing so, having a cold and adhesive soil to deal with. That is no reason why this practice should not be adopted on warmer and well-drained soils. Last year the market growers in my neighbourhood were fully a week earlier in gathering than I was enabled to. This year I feel certain that I shall be well ahead, but in a more favourable season the market growers will be the earliest. Last January twelvemonth there were whole fields with the Peas well above ground consequent upon sowing in November, but this season they are barely above ground early in April. Here the private gardener on cold soils will have the advantage, as by sowing early in pots and on turves the plants are brought well forward. As bearing out the remarks of "Pisum" (p. 325), I have full rows of Peas well up on a south border sown in February, whilst on a more exposed plot not the least sign of growth is visible. As regards the present season, I shall be better able to judge when the time comes for gathering, as I happen to have a breadth from seed sown early in November, also early in February, and also a good breadth from plants raised in pots, both on south borders

and on exposed plots. The practice of sowing Peas in November appears to have lost hold with the majority of gardeners, but on warm and well-drained soils I do not see any reason why this system should not be adopted. If market growers find it greatly to their advantage to do so, why not private gardeners?—A. Y. A.

—“A. D.” is right, in my opinion, in his remarks on earliness of vegetables. I find I cannot get anything so early in the open quarter as on south borders. I gathered last year my first Peas on a south border on June 1, the sorts being Chelsea Gem and Veitch's Extra Early. I did not hear of anyone about here having gathered any from the open. “W. L.’s” remarks in *THE GARDEN*, March 21 (p. 258), on earliness of vegetables, where he says “There is no advantage in walled gardens to produce earliness of crops, the same applying to Strawberries,” and those in *THE GARDEN* of July 19, 1890 (p. 66), where he says “In some gardens there are various warm borders and other sheltered sunny slopes where Strawberries can be had much earlier than in other parts of the garden, and those owning or in charge of these have a decided advantage over others much less favourably situated,” do not seem to me to agree in any way.—J. HILL, *Babraham, Cambs.*

EARLY SPRING SALADING.

MANY of the winter Lettuces having been destroyed by the severe weather we have experienced, there will certainly be a dearth of spring salads, and though in some districts all have not suffered in this respect, I fear in the majority of gardens the loss of Endive and Lettuce has been considerable, and as these constitute the best portions of the salad, early attention should be given to supply the deficiency. Much can be accomplished in private gardens for home consumption by sowing the early kinds of Lettuce in pans or boxes and cutting these in a young state, as if sown rather thickly in pans in a warm frame or house, and as soon as above ground removing them to a cooler frame, good sized Lettuces can be secured in a short time, and at little cost, as a dozen or eighteen pans will give a nice supply if six are sown weekly for this purpose till the Lettuce in the open ground is ready. I find the Balloon Cos Lettuce good for this purpose, but any quick growing kind does well. The Early Paris Market or All the Year Round may be used, but the first named I consider the most suitable for pan culture, and being of rapid growth soon comes in for use. As the season advances a small frame may also be utilised for the last sowings, and thus save time, as this last sowing if not too thick will last several weeks, and should not be too much coddled; by this means damping will be prevented. These Lettuces must be cut as they stand on the beds or in the pans; any attempt to transplant is a loss of time, and though the produce is small, it is young and in fine condition for using as a mixed salad in the early spring if the autumn Lettuces are lost by the severe weather. Endive may also be had in the same way if sown in pans or boxes and placed in a Mushroom house till the seedlings show above ground, when they should be removed to frames near the glass. The best kinds for this purpose are the White Curled and Batavian White; these are soon fit for use in a small state and should be sown weekly for the purpose. A hardier kind, such as the Improved Round-leaved, may be used for the last two sowings. Chicory is also easily grown, so will not require many words as to its usefulness; some roots should be placed in the Mushroom house every fortnight. Corn Salad, though not grown as much as it deserves, is worth extended cultivation, as it is most useful. There are also many simple means to secure Water-cress and get it at all seasons. I have grown it specially for winter salads in pans, sowing monthly and cutting in a small state, as it comes up quickly in a warm house and only needs hardening off. For later spring work in districts where it cannot be procured, it makes a rapid growth in a cold frame, shaded from strong sunshine, and watered over-

head in the evening. Sorrel may also be had at this season in abundance by lifting some roots into boxes and placing in a cold frame. Dandelion will be plentiful if grown for the purpose, and the roots placed in a Mushroom house and blanched for use. Celery is difficult to keep late in severe weather, but I find Standard-bearer one of the best late Celeries grown.

G. WYTHES.

Syon House.

SETTING TOMATOES.

IN a conversation I recently had with a successful Guernsey Tomato grower it transpired that rarely, if ever, is any difficulty experienced in effecting a good set of fruit. In my friend's case nothing whatever is done towards distributing the pollen, and already he has very heavy crops of fruit swelling off on his plants in the earliest houses. It does not follow, however, that private gardeners may safely leave the plants, or rather the flowers, alone, but, on the contrary, the chances are, if this let-alone policy is adopted, the set on plants under glass will be a poor one. The Guernsey growers rely almost exclusively upon good stocks of the old red Tomato, this being one of the freest setters in cultivation. Added to this, they devote houses entirely to Tomatoes, also planting in very solid loamy compost, this promoting a hard productive growth of haulm. A brisk and somewhat dry heat is maintained and air given somewhat freely, these conditions being rightly calculated to have a deterrent effect upon fungoid diseases. Thus treated, the flowers open strongly, are well furnished with pollen grains, and these being dry and light, require nothing but a smart tap or a current of air even to distribute them. Private gardeners, on the other hand, have in most cases to grow what Tomatoes they can in various plant and fruit houses without favouring them in any way at the expense of other, it may be, more important crops; it is therefore impossible to either maintain a dry atmosphere or to admit a current of air for the sole benefit of Tomatoes, and those in charge must perforce do the best they can towards effecting a good set in some other way. To make matters worse, the handsome smooth, round-fruited sorts, largely grown in private gardens, are much more shy-setting than the old red, Orangefield, and other ribbed forms, and more than ordinary pains must therefore be taken with them. Attempting to grow a dozen plants where there is only room for half that number is a mistake very often made, over-crowding being one of the surest hindrances to a good set; nor ought they to have a very rich, loose root-run. Very little besides good turfy loam should be used for Tomatoes, and this being rammed down firmly will cause them to grow strongly, yet sturdily. The advice to keep all superfluous side shoots closely removed from the main stems has been too often given to need further repetition. While the first bunches of flower on strong plants are opening, it is advisable to keep the Tomatoes somewhat dry at the roots, to the extent even of allowing them to flag somewhat in sunshine, this plan having repeatedly been found to favour perfect setting; afterwards feed the plants well. At this time of year it ought not to be necessary to use a camel's-hair brush for distributing the pollen, there being good opportunities for well drying the flowers before mid-day. In order, however, to be certain of a sufficiency of pollen being lodged on the moist stigma of the flowers, smartly tap the bunches with a small Hazel twig, this effectually distributing the dry pollen. Those prominent central flowers with fasciated pistils to be found on most of the large-fruited varieties ought to be early pinched out, or otherwise they will be followed by the coarsest, ugliest fruit imaginable. Remove them early, and the more perfectly-formed flowers and fruit will have a far better chance to set and swell to a good size.

I. M. H.

Winningstadt Cabbage.—Here we have about the hardest winter Cabbage. It comes in during the early winter months and remains a long time fit for use. The quality is also very good. Chou de Burghley must also be classed as a winter

Cabbage. The flavour is very delicate, and I find it is appreciated on the dining-table. Many people have been disappointed over the Chou de Burghley, thinking by the published description to find a small Broccoli in the centre. When this has been found not to be the case they have given up its culture. As a hardy and delicate flavoured Cabbage it is well worthy of cultivation.—A.

Pickling Onions.—Where Onions are required for pickling the seed may now be sown. The soil for these must not be over rich, this favouring the production of too large bulbs. Any soil which is fairly fertile and not very recently manured is quite suitable for pickling Onions. The seed must be sown rather thickly in very shallow drills, the soil having previously been made firm. No after-thinning must be practised.

Savoys.—These are sometimes sown earlier, but I do not think there is any advantage gained by early sowing, as for the flavour to be more fully brought out, Savoys are better after they have been slightly frosted. The Early Ulm, as a quickly hearting early variety, with the Tom Thumb, will be found as useful as any with the Dwarf Green Curled for later cutting.—Y.

ROSE GARDEN.

ROSE NOTES.

I HAVE previously reported upon the satisfactory state of our Roses (Teas), and now that pruning is completed, it is seen that only a few plants have had to be cut in exceptionally hard, the majority having, as at this time last year, bold red buds fast pushing into growth. Making all due allowance for our elevated position, perfect natural drainage, and the absence of large bodies of fresh water, there yet remains, I think, a greater, more potent factor for good, namely, the excellent, sweet, loamy, and as yet unmanured soil in which the plants are growing. It inclines towards lightness, and this is perhaps better, because in the average of years artificial watering of Roses is not often needed, whilst it is most desirable that the heavy autumn and winter rains can quickly soak away, followed as they too frequently are by sharp and severe frosts. From information that has come to me of injury done in another garden where Tea Roses are largely grown, it would appear to be the naturally wet and heavy soil that is at fault, since for several years past—in fact, since first the cultivation of Tea Roses began there in 1886—the plants have never suffered, though wholly unprotected, till this season. The frost came in November, and the plants in the garden in question were in green gross growth, whilst ours, though green, were less gross and more ripened; hence better able to stand an equal or even greater amount of frost. It is always the strongest and best manure that we are advised to use for mulching Roses, and without a doubt it makes the soil cold, wet, and ultimately sour. In a soil that is lighter, consequently warmer, root growth is freer. I have often been struck with the remarkable quantity of fibres found pushing in spring upon the roots of Roses that have been lifted in autumn and laid in light and even poor soil. They will not appear so freely or early upon plants in wet or heavy soil, and there is a great deal of truth in the remark made by “Ridgewood” that these young tender roots are killed after appearing by the over-richness or sourness of the soil.

Those who grow Roses almost or solely for exhibition have a different object in view. They want blooms that are forced to the pitch of perfection by rich feeding and high culture. As a system I say nothing against it, because Rose growing and exhibiting have done more than anything to popularise the flower and encourage the production of new kinds. Their plants are doubtless not long lived under this method of high culture, and we who take the

best kinds by the score or hundred and plant them in bold groups must modify our methods to the altered needs and requirements of the plants. Given favourable natural conditions of site, we need only prepare a soil that is sweet and good. There is nothing better than maiden loam of medium texture provided it can be procured. If a mulch were given for winter protection it should be of a light nature, such as Fern or strawy manure, which will keep out a lot of the frost, whilst a spring top-dressing of fresh soil enriched perhaps with some of the concentrated fertilisers would be preferable to any heavy mulch of strong manure later on. But above all things the spade or fork should be kept out of the way unless the latter tool be used for pricking over a caked or hardened surface. There is no need to dig among Roses when they are grouped as we group ours, for whether spade or fork be used, great injury would surely be committed. When plants are thinly disposed at considerable distances less injury is done by digging, but even then the practice is not a commendable one.

STANDARD ROSES.—Sundry notes have appeared upon these of late, evidence that they still have their admirers, and probably they always will. Conceding the point that in certain positions they look well, I think even lovers of standards will agree that it would be wiser and better if no kind were grafted or budded standard high that had not sufficient natural vigour of constitution and freedom of growth to make a head proportionate in breadth and density to its elevation. It is the working of unsuitable kinds as standards that has led them to be compared to "inverted mops," for truly the heads of some kinds are not larger than a mop. I have just looked through a trade grower's list and find that fifty per cent. of the Hybrid Perpetuals and seventy-five per cent. of the Teas therein contained are offered as standards. To those who know Roses the merest glance at the list reveals the names of kinds which, though very satisfactory as dwarf bushes, are quite useless for standards. For example, of what use is *Her Majesty* as a standard? and yet it is included among them. Even if quantities are desired, it is better to grow more of one sort than to have recourse to unsuitable kinds that only tend to bring disrepute upon the whole lot. *Gloire de Dijon* is the type of a Rose that makes a good standard, and if we accept it as our ideal, we shall have a difficulty in finding twenty-five really good standard kinds, and this number would be quite enough. Occasionally beautiful standards are met with, but they are the exception. The most beautiful lot I ever saw were in a farmhouse garden. They occupied a round bed, but were margined with free growing dwarf kinds, and as a bed of Roses only I do not think I ever saw a better one. All the standards had fine branching heads and they were laden with flowers. In the old roseries the standards had a little value, as they broke the flatness of formal masses of dwarfs and carried the eye upwards to Roses on arches and pillars. Standards will not, I think, ever regain their lost popularity, nor is it desirable, because the Rose is by nature a bush, and no other method of growing it can add to its many excellences. If standards must remain, at least let them be of the best kinds, say those that will make heads certainly not under 2 feet through. Those who have had much experience among standards might with advantage give the names of the kinds they had found most free and satisfactory. It would at least guide planters in selecting, and ultimately influence trade growers, as they

would naturally raise larger stocks of the kinds most in request. A. H.

TWO GOOD INDOOR ROSES.

REINE MARIE HENRIETTE has with me proved the best of all red Roses for forcing. Grown similar to *Maréchal Niel* and the long shoots of last season left to flower, it is quite as free and will grow almost equally as strong. The flowers are of a very brilliant red when grown under glass, although out of doors they are of too dull a colour to take high rank. *Mme. Berard* is another grand Rose not grown often enough under glass. It is also a very strong grower, and, treated in the same way as *Reine Marie Henriette* and *Maréchal Niel*, enormous quantities of grand blooms will be obtained. *Maréchal Niel* is one of the grandest of all Roses, and among yellow-flowered varieties certainly has no equal. I think, however, it is too generally planted as the only good climber under glass. We do not want all yellow Roses, and with the two named, *Reine Marie Henriette* and *Mme. Berard*, we have a good variety of colour. Both of these Roses have very bold flowers borne upon long stalks and possess grand foliage, that of the former being a deep green, while that of the other has the peculiarly pretty bronzy and rosy metallic tints seen among many Tea-scented varieties. As market Roses they will both bear comparison with *Maréchal Niel*, because an equal quantity of flowers can be produced, and they are quite as saleable. Plants of these two varieties that were turned out in the autumn of 1889, last year threw six to ten shoots from 8 feet to 10 feet and 12 feet long, and which are now covered with nice flowers, proving quite as free as *Maréchal Niel* in the same house and position. One more point in their favour. I have never been troubled with canker upon *Reine Marie Henriette* or *Mme. Berard*, while *Maréchal Niel* is terribly affected with this disease. *Maréchal Niel* will often be thriving in the most satisfactory manner, and perhaps be full of young flowering growth with the flower-buds set, when suddenly canker develops itself and the whole plant is quite ruined. Again, you may, as far as you are aware, be treating two examples of *Maréchal Niel* alike, and yet do what you will one of the plants will not thrive. I do not mean to detract from the grand qualities of the *Maréchal*, but I repeat that the two other Roses named are not sufficiently well known as grand climbers on the roof or pillars of a greenhouse. Too often in cutting Roses the gardener is chary of losing any of his wood. This is false economy, especially as regards these strong climbing Roses, because the wood that has flowered should be cut back to the healthy young eyes which are starting to produce more long maiden shoots for the next season's crop. Roses, like all other flowers, are not of nearly so much service for decoration, nor so handsome in appearance when cut with short stalks; indeed half a dozen Roses with long stems and clean healthy foliage are well worth double the quantity cut with short stalks.

RIDGEWOOD.

SHORT NOTES.—ROSES.

Indoor Roses.—I am sending you a small gathering from five varieties of Roses, which we have trained on the roof of a large, span-roofed greenhouse here. The Roses are trained on half-inch circular irons fixed under the rafters, and on three wires running the length of the house. The *Celine Forestier* is remarkably vigorous and free-flowering, some of the shoots being terminated by as many as sixteen buds and flowers, which are very pretty in the bud or half-open state. The house is at the present time rendered very attractive by the large quantity of Roses in flower and a number of *Azaleas* in full bloom; notably, some immense specimens of the old white, loosely trained and a mass of flower.—A. BARKER, *The Gardens, Adare Manor, Limerick*.

Rose The Bride.—From the first introduction of this grand Rose it has been a favourite with me. I have in my room now a fine bloom that was cut nine days ago and is still quite fresh, while its shape is as good as on the day it was brought to me. I consider it the best of all white Roses to

stand. It is very free-flowering, and when one has a stock of plants and so can choose good sound buds for propagating, it is an excellent grower. I think that the chief cause of many good new Roses being discarded before they are thoroughly tried is owing to their being over-propagated. The *Bride* is an example of this, as during the first few years of its being in commerce it was a weakly grower compared to what it is now. The same remarks apply to that grand Hybrid Perpetual *Alfred K. Williams*, also to *Mrs. John Laing* and others. The *Bride* is with me rather a better and stouter grower than *Catherine Mermet*, and if anything also a freer bloomer, while its great substance and perfect shape place it in the first rank of Tea-scented Roses.—RIDGEWOOD.

A ROSE HOUSE.

My Rose house is just now in full beauty, and a brief description of it may not be amiss. It is built due north to south; this I prefer on account of the plants getting the full benefit of the morning and evening sun, while the bars afford a most welcome shade during mid-day. It is over 100 feet long, 16 feet high, and 24 feet wide, span-roofed, and only heated with four 4-inch pipes—a flow and a return up each side of the house. This I find quite enough for a house of this size, as to grow Roses well they want to be well ripened in the summer and to come on steadily from the turn of the days in December. The Roses are grown for market, so that quantity and quality have both to be studied, and after an experience of some twenty-five years I do not see how to improve upon this. There are Tea-scented varieties, such as *Rubens*, *Mme. Lambert*, *Catherine Mermet*, &c., on the side walls, while one side border is used for pot plants and the other is planted with dwarf Hybrid Perpetual Roses to supply dark-coloured flowers. These consist of *Fisher Holmes*, *Abel Carrière*, *La Rosière*, and *General Jacqueminot*. The centre border is planted out with dwarf Teas, now reaching almost to the roof and full of flower. The varieties found of most service besides those already named are *Niphetos*, *Jean Ducher*, *Mme. Falcot*, *The Bride*, and *Francisca Kruger*, these being particularly free and also good growers. Growing up the side pillars and centre uprights are such kinds as *Reine Marie Henriette*, *Wm. Allen Richardson*, *Mme. Berard*, and *Maréchal Niel*. When I say that all are well covered with large, healthy and perfectly clean foliage, it will be readily imagined what a pleasing effect the whole has just previous to cutting for market early in the morning. They have been kept in this clean state by the use of soft soap, with an occasional fumigation with tobacco paper, say, once a month. The chief thing in growing Roses is to avoid cold draughts, sudden changes in temperature, and to use the syringe frequently, taking care that the water is tepid and slightly impregnated with soft soap. The strong growths of the Hybrid Perpetuals are not pruned down to six or eight eyes, as is so often recommended, but are left their full length, only removing the extreme point of the shoots. I cut out the small lateral growths at the same time, and then tie the long shoots down, when flowers are obtained from almost every eye, much the same as with *Maréchal Niel* and other strong growing Teas. After the Hybrid Perpetuals and strong climbers have finished flowering, they are cut back and the wound stopped with grafting wax; this must be applied at once, or the sap will prevent its sticking on firmly. During July and August all the air and light possible are given. They are started again in November, and plenty of bloom can always be cut from the early part of March until July. I also get large quantities of prime sound buds from these indoor plants; these I find are preferable for working upon stocks out of doors, as they are generally sounder and are procured from less pithy shoots. For working up a stock of the choicer Tea-scented Roses there is no better plan than growing a few plants under glass, as both the buds and wood for grafting are much better than when obtained from open-air plants. P. A.

FLOWER GARDEN.

PERENNIAL SUNFLOWERS.

ALTHOUGH the rage for Sunflowers has subsided, I consider them none the less valuable to the gardener, and the popularity they attained at one time has done much to make them known in districts where they were comparative rarities. It has also resulted in leaving us with a few more or less distinct varieties. The Sunflower may be regarded as a hardy plant for the million, and there may be yet a large field left open, and many local varieties that have not yet found their way into commerce. Old English gardens are being ransacked, and many rare old flowers which were favourites with our grandfathers are being unearthed and distributed all over the country. Amongst these not the least beautiful are a few Sunflowers, which have proved of great service in the garden. Almost every year some new sort is brought forward, sometimes found somewhere and at other times the result of cross-fertilisation. Sunflowers

up in spring and keeping the shrubs from encroaching too much on them. This will be found an excellent plan, not only for saving space, a consideration in small gardens, but it also prolongs the season of flowering, making our shrubberies gay in autumn as well as spring, with no hurt to either of the plants employed. For such a position in a dwarf shrubbery,

H. ORGYALIS, which is grown as much for the grace and elegance of its stems and foliage as for its small, though rich, golden yellow flowers, is an extremely effective species. In ordinarily warm seasons it flowers with the profusion of its race, and when doing well is one of the most elegant plants in the large order of Composites.

H. LÆTIFLORUS is also a very fine species, resembling the taller forms of *H. rigidus* so much that many have considered it a mere variety. Though undoubtedly allied, it is apparently not the *H. lætiflorus* of botanists, which has much larger flowers with broader and fewer ray florets of a rich golden yellow, and altogether a very desirable acquisition. This plant, whatever it may ultimately prove to be, and there are two or three forms, is by far the finest of the late autumnal

indeed, it very much resembles. There are several varieties in gardens, one known as *H. multiflorus*, another as major or maximus, with larger flowers, the old double, besides a very fine double form unearthed in an old garden in Ireland, and sent out as *Soleil d'Or*. It is certainly distinct from the old double, but to say it is an improvement is another matter, which will be judged by individual taste.

H. DECAPETALUS, which flowers towards the end of August, grows from 4 feet to 5 feet in height, producing abundance of pale sulphur-yellow flowers. *H. divaricatus*, a small-flowered species, is much inferior as a garden plant.

H. ANGUSTIFOLIUS is only seen at its best in very hot summers; the average season is too cold for this species, and the flowers often get destroyed by the early autumn frosts. It is, however, an elegant species, with abundance of Willow-shaped leaves and yellow flowers.

H. MOLLIS is rather a rare species, but pretty, and well worth growing. It grows about 3 feet in height, with opposite, somewhat perfoliate leaves, woolly, soft to the touch, and with entire margins; flowers $1\frac{1}{2}$ inches to 2 inches in diameter, rich yellow, very distinct and handsome when well grown.

H. OCCIDENTALIS is another somewhat rare species, with orange-yellow flowers and fine compact habit.

Others all more or less desirable are *H. giganteus*, *H. doricoides*, *H. strumosus*, *H. tuberosus*, *H. trachelifolius*, &c. D. K.

GROWING STOCKS FOR SEED.

THERE are few annuals or biennials which require longer time in which to mature seed fully than do Stocks. There are few also which seem to find it more difficult to produce mature seed-pods in a wet, dull summer. Brompton Stocks, which bloom under proper conditions in May or early in June, rarely mature their seed before the end of September, and sometimes even later. In the case of precocious summer Stocks it should not be difficult to secure plenty of good seed, but even these in the open ground and on warm borders will sometimes fail absolutely, whilst at other times only fair results are obtained. Of one special summer Stock I found for the past few years that it was most difficult to secure a good growing sample out in the open, but plants left in the greenhouse seeded admirably and produced a sample equal to the finest Continental growth. It seems not at all improbable that very soon we shall have to grow all our seeding Stocks under glass if we are to obtain good samples. Without doubt, Germany beats us in the matter of Stock seed-production, because of the greater heat of the summer months. Still, there are some Stocks we never seem able to secure in such fine form as are those of our own growth. The Giant Brompton, when we can save it at home, is the finest Stock of the universe, but the German Brompton seems to be a long way below our fine strain in quality. Doubtless, to secure good seed from many varieties, the East Lothian Intermediate, for example, it is well to sow seed under glass early in September, and to have the plants pricked up into pots to stand the winter in a cool house or frame; then there is very good prospect that such plants turned out of pots strong and well rooted will bloom early enough to seed freely by the autumn. Still it seems to be best even with these to grow the plants in pots for seed production, as outdoors too strong growth is apt to be productive of foliage and flowers rather than of seed. Naturally, gardeners or those who grow Stocks for their floral effect know little or care little about the getting of seed. Had we the greater warmth and drier atmosphere of Erfurt and that portion of Germany, there is no reason why we could not produce seed as good and as plentiful as is found there. Whether it would pay to devote houses to the production of Stock seed under pot culture is a matter to be determined only from a business point of view, but certainly Stocks under glass with us find temperature more equable and ripening and the atmosphere dry. It is not at all difficult to winter any summer Stocks,



A group of double Sunflowers (*Helianthus multiflorus* fl.-pl.).

may be cultivated with the greatest ease; they are gross feeders, and the stronger or richer the soil the better the result when they make the waning summer brilliant with their golden yellow flowers. It is true that not a few of this genus are coarse and weedy, totally unfitted for the flower garden, but a good many, some of which are not yet in general cultivation, could be utilised with striking effect in the best kept flower garden, and for mixed borders, &c., they are simply invaluable. The tall sorts, such as *H. lætiflorus*, the more robust forms of *H. rigidus*, *H. decapetalus*, *H. orgyalis*, *H. divaricatus*, &c., make telling groups in the back rows of mixed borders, or, better still, grouped separately and allowed to expand their blooms, without their graceful stems being made stiff and unsightly with stakes and tying. A plan I have seen adopted for the taller growing Asters is also applicable to the Sunflowers, and that is making beds or openings in the centres of Rhododendron and other clumps in which the Sunflowers are planted. In this way they require no staking and no more attention than that of clearing

Sunflowers. The ray florets are of a rich dark yellow, and the disc yellowish, not black, as in *H. rigidus*; it differs from the latter species also in having pointed, not blunt, involucre scales, and in some cases stalked, not sessile leaves.

H. RIGIDUS is a very showy species and a most useful garden plant, variable in habit, height, and in the size and tint of its flowers, and also in its time of flowering. An early flowering variety has been sold under the altogether wrong name of *H. japonicus*, no *Helianthus* being found in Japan so far as I can learn. This is, however, an excellent border plant of medium height, and flowers in early August. The tall forms are also useful, and do in almost any kind of loose soil.

H. MULTIFLORUS, the double form of which is the subject of our illustration, is one of the best all round Sunflowers in cultivation. It is an extremely accommodating plant, and may be grown dwarf or tall, according to the nature of the soil, without in any way interfering with the abundance of its flowers. If not the most beautiful, it is certainly the most generally grown of all the *Helianthus*es. Its origin is very obscure, and Dr. Gray in the "Synoptical Flora of North America" places it as a doubtful variety of *H. decapetalus*, which,

pyramidal or Ten-week, if sown early in September and allowed to become sufficiently strong before really hard weather sets in. Even in a cool house such plants will endure severe frosts better than in a frame: in fact, because the atmosphere of a greenhouse is drier. When of choice kinds or varieties we find that some 75 to 80 per cent. come double, it is easy to understand how large a quantity must be raised to enable a moderate crop of seed of any one sort to be produced. Of course, Brompton and Queen Stocks seed far more abundantly, but as these are presumably hardy Stocks, few of these which have had their hardiness fully tested have by the winter been left alive to produce anything. I think I have never seen such havoc amongst assumed hardy Stocks as the recent winter has shown. In fact it seems probable that, so far as the United Kingdom is concerned, not a single outdoor Stock is left alive. When such really hardy plants as Wallflowers have been destroyed by millions, no wonder that Stocks have gone to the bad. We may house Brompton and Queen Stocks in pots for the winter, but except where there are big pots and ample room for the purpose the plants cannot produce very fine spikes. The chief glory of the scarlet Brompton especially is found in the noble dimensions of the spike of bloom which a strong full-grown plant will produce. Of course it seems essential that plants be so housed to keep them safe through the winter. Still, as the glory of the Brompton Stock is found in the largeness of the spike, if it on the other hand be small, except for the production of seed, the housing of the plants is scarcely worth the trouble. Such plants cannot with safety be planted out even in sheltered places until the middle of April, and then it is too late for them to get well established in the ground to produce fine spikes of bloom. We have some very fine Blood-red and White Giant Ten-week Stocks which, sown early in April under glass and planted out into good soil at the end of May, will give wonderfully fine spikes indeed, and these it is probable the nearest replace the Bromptons the winter has killed. The new giant white named Princess Alice, recently introduced, and the giant crimson are superb Stocks, which merit almost universal cultivation. A. D.

Saxifraga sancta. This is one of the freest-growing and hardiest of all the group, forming dense cushions of deep green rosettes of leaves. It has more than once been accredited with being a shy bloomer, though my experience points in an opposite direction. I may say, however, that I never allowed its tufts to attain more than 7 inches or 8 inches across without dividing them, and I am not sure but therein lies the secret of its free-flowering. Plants of this 5 inches across flower beautifully, and the bright golden blooms are very attractive. To obtain these results I only use ordinary care, giving plenty of water in spring and summer when the plants are growing freely. In this respect it must not suffer. As a town plant few of its tribe do better under smoky influences, and it should not be lost sight of for this reason. It may be increased to any extent by division in spring when the plants have ceased flowering.—J. W. V.

Herbaceous plants.—The ground in many instances being now in good working condition, no time should be lost in cleaning up amongst and forking the ground between these plants. After remaining for some few years upon the same spot, a thorough change is desirable. If this cannot, however, be effected, a great improvement can be made by lifting the plants, then digging the ground deeply, manuring it at the same time, afterwards replanting and rearranging as may be desirable. When this is done any vacancies can be filled up with *Gladioli* or *Liliums*. Carnations, too, would prove useful; so would *Campanula medium calycanthema*. Amongst plants which may now be easily increased by division are the herbaceous *Phloxes* and the various kinds of *Geraniums*. *Spiræas* will move well now, just as they are about commencing to grow, if well supplied with water afterwards. Stocks of the Intermediate section, as represented by the East Lothian varieties, which have been

wintered in cold frames, may now be safely planted out. These will add to the attractiveness of the hardy plant border, flowering at a convenient season, and lasting well for some considerable time. A dusting of soot and lime over the borders now and occasionally later on will destroy the slugs before they can do much harm.—H.

GRASSES.

The nobler Grasses, of which the well-known Pampas Grass is a good example, should be more extensively planted. Occasionally we come upon an isolated tuft of some giant Grass when rambling round a garden, but it is generally in an obscure position; whereas such plants might be so effectually planted as to contribute largely to the more striking features of the place. The Grasses may be associated with the flowers in the flower garden in many cases, where, of course, the flower garden does not consist of a mere assemblage of conventional geometric beds, but admits of the bolder types and aspects of hardy flowers. As isolated specimens upon the turf few things can be planted with better effect, and the dull, hard margin or foreground of many a shrubbery might be relieved and improved by the judicious dotting or grouping of one or several specimens of the best things enumerated below.

THE PAMPAS GRASS (*Gynerium argenteum*).—A conspicuous place should certainly be found for this. It will grow almost anywhere, but varies in stature from 3 feet to 12 feet in height according to soil, aspect, &c. In this respect it is wise to take a little trouble at the first to ensure the plant making a good start and producing a future effect. It loves a tolerably heavy soil which is inclined to be moist, and any trouble taken will surely be more than repaid if the wants of the plant are supplied at the first. There are many forms of it, some good and others bad. The plumes borne by the female plants are always handsomer and more durable than those borne by the male plants. There is a variety called *rosea* in which the plumes are tinted with pink and exceedingly pretty, but it is not common. There is another kind called *Gynerium jubatum*, quite distinct from the common Pampas Grass, graceful and pretty, not so tall, and producing silvery white plumes. The common kind is easily raised from seed, which if sown in summer in a pan or box will germinate freely. The seedlings can remain during the winter, and when spring comes, if they are planted out in some border of good rich soil, they will grow very quickly, and by autumn will be sufficiently strong for planting into permanent positions. The best forms can only be seen when plumes appear, and if it is desired to increase any of them, this can afterwards be done by division. Although advocating here a bold, conspicuous position for these Grasses, it should be understood that exposure is not implied, because the Pampas Grass is at its best during boisterous days and needs shelter from high winds. A conspicuous place might be chosen which is at the same time sheltered or in a measure protected from the fury of the elements.

THE NEW ZEALAND REED (*Arundo conspicua*) is a charming companion to the Pampas Grass, and exceeds it in gracefulness of growth and bloom and the earliness and duration of its season. It likes a moist loamy soil, and in southern or western gardens is a very striking plant, especially when a good specimen is seen isolated upon the turf. It produces its plumes often as early as July, two or three months before those of the Pampas Grass appear, whilst in good soil they grow from 12 feet to 14 feet in length, are extremely graceful, and last a long time. In cold districts it is a valuable plant for growing in boxes or tubs, so that the plants can be sheltered in winter. There are several other fine *Arundos* in addition to the above. *A. donax* is a striking plant in some southern gardens, and quite unlike the New Zealand Reed. It grows best in sheltered spots in warm sandy soils, attaining to a height of from 10 feet to 12 feet. It

produces thick shoots like Bamboo canes clothed with large leaves from bottom to top. It flowers in autumn. *A. donax versicolor* is a valuable variegated form of it, quite hardy in favoured spots and in many gardens if the crown is covered for the winter with some protecting material. It does not grow so tall as the green-leaved type, but it is a most valuable garden plant and easily increased, as if the stems are cut off and thrown into water young plants will appear at the joints. The green-leaved kind can be increased by division. Then we have a native member of the *Arundo* family, which is at once the tallest, most graceful, and effective of British Grasses, that is the common Reed (*Arundo Phragmites*) of our marshes. It grows from 8 feet to 10 feet high in places, is very attractive in autumn when in flower, and might be introduced into gardens with advantage where it does not form a part of the district flora. Its place, however, is in moist soil in a ditch, or by the lake or stream-side; it will not do for isolating upon the turf, like most of the Grasses here mentioned.

EULALIA JAPONICA is a Japanese Grass worthy of the best cultivation. It is thoroughly hardy, for even if killed to the ground the crowns and roots live, and in America it has been known to withstand 30° below zero, which is more than the Pampas Grass would stand. It is of vigorous growth, attaining to from 6 feet to 8 feet in height, and established tufts become as much as 2 yards in diameter. It is very striking when in flower, the panicles being of a brownish colour. In England, however, it rarely flowers well out of doors, and, therefore, it would be well to grow a plant or two in a cool house. The same may be said of the variegated kinds, of which there are two, both of them very pretty and worthy of the best culture. *E. japonica variegata* has its leaves striped lengthwise with white, whilst in *E. japonica zebrina* the variegation is straw colour, and appears in transverse bands across the leaves. *E. japonica gracilima* is a comparatively new addition to this genus with slender leaves, and, as the name implies, a very graceful habit of growth. These three kinds can only be well grown outside in favoured places, but they ought to be cultivated, and in large conservatories or winter gardens where plants can be planted out, these should certainly be grown. The type is easily raised from seed, and seed is sometimes offered of the variegated kinds. The produce, however, generally reverts to the normal green-leaved type, and division is the only reliable means of increasing and keeping up a true stock.

ELYMUS ARENARIUS (Lyme Grass) is a British maritime Grass well worthy of garden cultivation. It is a valuable plant for clothing a bank of loose soil or even sand, as its roots run through, forming a perfect mat and effectually holding in position the soil of the bank. If planted in deep good soil upon the shrubbery margin it grows more vigorously, attaining to 4 feet in height. Its sole beauty is its leaves, which are of a glaucous or blue-green colour, and as the flowers are not very showy they might be removed to preserve the plant in its beauty of leafage for as long a time as possible. It is easily increased by division, and rapidly grows into a large specimen. In a wild state it is most abundant upon our northern shores. There is also an American representative of this family, *E. condensatus*, which is very ornamental and must be included in a selection of the best Grasses. It is very vigorous, of tufted habit, dense and erect, growing to a height of 8 feet. The leaves are long, arching, and graceful, and the shoots are terminated by a flower-spike 6 inches long and greatly resembling an ear of wheat.

SACCHARUM AEGYPTIACUM is another vigorous, hardy, striking perennial Grass, and a native of Africa. It grows as much as 10 feet in height, has Reed-like stems, and graceful handsome foliage. It does not flower out of doors in this country, but, nevertheless, it is fit to associate with the best Grasses, and loves a deep, warm, moist soil.

ANDROPOGON (HOLUS) HALEPENSIS is another very ornamental Grass adapted for isolating upon the lawn in southern or warm western gardens, and in rich warm soil that is not very wet. It forms

great tufts of graceful leafage 6 feet in height. Another kind, *A. strictus*, growing about 4 feet high, is a good companion plant to the preceding kind.

SORGHUM HALEPENSE, a South European Grass, which grows about 1 yard high, is very pretty when flowering in summer. It has long broad leaves disposed chiefly in tufts, and dense many-branched panicles of purplish flowers.

PANICUM is a family of striking tropical and greenhouse Grasses, but there are only one or two members of it quite hardy and suitable for open-air cultivation. *P. virgatum* grows from 3 ft. to 4 ft. high, has long light green leaves and dense panicles of flowers, whilst *P. altissimum* grows taller, is more graceful, and the flowers are of a bright brownish tint.

STIPA PENNATA (the Feather Grass) is a perennial worth growing for the sake of its feather-like flower-spikes, which are useful for decoration when dried. The plant when not in flower is hardly distinguishable from the common wild Grasses, so that it is only fit for growing in some border with a view to enjoying it during its season of bloom. A native of South Europe; it wants a deep warm soil.

All the best perennial Grasses have now been enumerated, and it will be seen that there are enough to make a very pretty feature in suitable associations. They do not comprise, however, all the Grasses worthy of garden cultivation. There are annual kinds which cannot be omitted, such as *Agrostis pulchella*, *Briza maxima*, *B. media*, *Eragrostis elegans*, *Panicum capillare*, *Bromus brizaeformis*, and many others easily found in the seed catalogues. These are most useful when in flower, as their graceful panicles can be arranged so prettily with other flowers, or they may be gathered and dried, and they will be found valuable during winter for filling vases when flowers are scarce. Seed may be sown in boxes in March in any warm house, pricking the plants off when large enough, and afterwards planting them out in beds or borders of light rich soil. A second sowing may also be made in the open air in April if a quantity is desired for use in a green state and over a prolonged season. Those who wish to save their Maiden-hair and other Ferns should grow these Grasses. A. H.

Cheiranthus alpinus.—In quoting my words in a recent issue Mr. Tallack appears to imagine that I have been unable to root cuttings of the above plant. This is not the fact. On the contrary, I have rooted hundreds and lost quantities also. In some batches quite ninety per cent. have rooted, while in others not more than fifty, the cuttings the same in each case, viz. the young growths with a heel attached; indeed any others are of little value. When I said "it could not be rooted from cuttings by everyone," I spoke with a wide experience of the plant in question. Some years ago I gave up inserting cuttings in the ordinary way for the decidedly simpler and easier method of earthing up, with the result that I obtained compact bushes fully twice the size of those I obtained from cuttings and in the same time, a fact alone which justified my recommending its adoption to the general reader.—E. J.

Barbarea vulgaris variegata.—Why have the lovers of winter and spring gardening overlooked the exceptional value of this plant? Surely we have but too few at the most of perfectly hardy plants that retain foliage of a golden hue throughout the winter; yet such is the case with this extremely desirable variety of a very common-place plant. Apart from its decorative value it reproduces itself true from seed, which cannot be said of many plants having such beautiful foliage. Some four or five years since a chance seedling made its appearance and was preserved for some time; unfortunately, in weeding time it was cut up and lost, not before it had scattered seeds here and there, and these, when not covered with snow in

winter time, have been very cheering and bright. While we have many excellent plants with variegated leaves in spring and summer, the numbers that retain their freshness in winter-time are few, and I think that a large field of usefulness might be opened up for it were its merits more generally known than at present.—J. E.

HEPATICAS.

I HAVE some very fine clumps of the single blue and single white varieties growing at the foot of a low west wall, where they have a very warm time of it during the summer, and they are just now objects of great beauty, having large tufts of blossom. In planting, a deep hole was dug and filled with good yellow loam and leaf soil, and in this they have rooted deeply, and the moisture in the foundations of the wall and the roots of the plants being by the side of it no doubt operate to neutralise the heat of summer. A small plant of an *Hepatica* with one or two crowns only and half-a-dozen flowers at the most gives but a faint idea of the beauty of large plants that have become thoroughly established. Being under a wall with a west aspect, the *Hepaticas* are to a considerable extent screened from the north winds, while they are afforded shelter also on the east. As soon as the snow cleared away the buds were seen lifting themselves from the hearts of the plants, and, helped by a liberal top-dressing of old potting soil, they have done grandly. For some reason the double and single reds do not flower so well in a similar position. I succeed best with those in pots plunged in cocoa fibre on a north border.

I think the well-being of *Hepaticas*—I am more particularly alluding to the single blue, single red, and *H. angulosa* as the most robust growing types—depends more upon having a good depth of suitable soil in which to root than having a cool and shaded position. My reason for saying so is that I have seen in old-fashioned gardens strong clumps growing in a full and open exposure and flourishing as well as one could desire. I know one garden in particular where this is so, but the plants are cared for. They are not rudely dug or forked among, the soil round the plants is kept clear of weeds, and in the autumn they are treated to a surface-dressing of manure and leaves. At the same time I am not joining issue with "E. J." in his contention that *Hepaticas* love a cool, partially shaded spot, where they can receive the protection of shrubs of evergreen character.

That the plants are impatient of smoke there can be no doubt. My plants always become deciduous, and I attribute their loss of foliage to the prevalence of smoke-laden fog. Violets are quite denuded of their leaves in the same way. But every spring, before the blooming period is over, they commence to throw up a profusion of strong young foliage, very helpful indeed as shade to the hearts during the hot summer days.

How singularly distinct from the varieties of *H. triloba* appears to be *H. angulosa*. Its creeping rhizomatous underground stems soon form a huge clump, and it spreads itself further and further year after year by this means. Thus it is possible to secure a good quantity of young stock without materially disturbing what I might term the parent root. Mr. Samuel Barlow has a very large bed of *H. angulosa* in his garden at Stakehill, near Manchester, and it widens its tenancy of the soil every season. Thoroughly well established, it withstands the smoke of the manufacturing districts without protection, while the varieties of *H. triloba* have to be grown in pots in a cold frame. And when increase of these is wanted it is done by taking a good-sized clump and dividing it, carefully detaching the outside crowns with some roots attached to them. I do not think it well to pull a clump entirely to pieces, but prefer to leave a plant with three or four good crowns at least, and let it alone for two or three years, until it has so increased as to admit of the dividing process being done over again. The divided single crowns I place round the sides of pots, plunge them in cocoa fibre, and

reput singly the second year. It is a weakening process to divide, especially in the case of the scarce double blue, which increases very slowly indeed. Happily, increase can also be had by means of seedlings, which not only add to the number of plants, but to varieties also.

A correspondent writing to me from Torquay, and who is a great lover of *Hepaticas*, informs me he raised "hundreds of seedlings, many of them deep violet, and some shaded and edged like the *Auriculas*, and also red-flowered forms." George Glenny in one of his books says, when treating of *Hepaticas*, "The double are better worth notice than the single, and, therefore, are mostly cultivated; but the double white is very scarce, if not altogether lost, and therefore the single white is grown for the sake of the variety of colour." One is disposed to infer from this statement—which was written nearly fifty years ago—that Glenny had seen the double white form, if it ever existed. I have never met with anyone who has seen it, though I know some who have heard of it. Did it ever exist, or is it only a mythical plant? And is it possible for anyone to say that the double varieties we know of have been developed from the single forms, as in the case of other flowers? Any information on these points will, I am sure, be very acceptable to lovers of hardy flowers.—R. D.

"E. J." has, I think, somewhat misunderstood my reference to the best soil for *Hepaticas*. I did not mean pure peat, of course, but a dark soil of peaty texture in which *Rhododendrons*, *Azaleas*, &c., delight, as distinguished from the yellow clay soil here. This stuff is without exception as bad a material for *Hepaticas* as can be conceived, and because tending to be waterlogged in the winter and baked hard in the summer causes *Hepaticas* to lose both roots and leaves, and finally to die. I had to make up a special border for my plants on a west aspect, using road trimmings and leaf soil well worked in with a portion of the natural soil, and as a consequence I have *Hepaticas* blooming far more delightfully this spring than I have had them here at any time previously. Without doubt the plants like both shade and shelter from biting east winds. The latter in the spring, when the plants are in bloom or the young foliage is just breaking up, do much harm. Single blues have indeed bloomed long and beautifully this year, some of the plants having been gay for fully five weeks. That the single blues I have are largely seedlings there can be no doubt, as some flowers differ appreciably from others, whilst some bloom so much earlier than others. That assists to prolong the blooming season. One plant specially which opened rather late had blooms as perfectly cup-shaped as those of a Buttercup, whilst in others the petals were much longer. Somehow we rarely see in quantity other than the double red and the single blue, and of these none too many anywhere.—A. D.

Violet Wellsiana.—This, the *Violet* evidently referred to under the name of *Violets* in THE GARDEN of April 4 (p. 307), was raised by Mr. Wells, gardener at Fern Hill, near Windsor, some time since. It is a remarkably fine variety of The Czar or Victoria Regina type, both of which it closely resembles, but has finer blooms. I think *Victoria Regina*, raised by Mr. Lee, of Clevedon, one of the best, the flowers being deliciously perfumed and of excellent form and substance. This variety, however, seems not to have been so widely grown as it deserves, and in the market gardens has not displaced the older Czar of the giant type or the Russian, the best general selection of the ordinary market *Violet*. It is strange that so hardy a plant as the *Violet* should suffer so terribly in its leafage from fogs. Especially is this the case with the doubles, which are grown in large quantities in this locality in fine form up to the end of November, and then they soon lose all their leafage. Single *Violets* have not generally suffered so much in some places this winter, for which the heavy and long-standing covering of snow is to be thanked. But for that hardly a leaf would have been left. On dry days recently, women have been very busy picking *Violet* blooms for market, but the trade is

not now as it used to be, the indifferent home crops of some previous years having largely driven the trade into the hands of growers in more favoured districts. Even with frame culture in the worst parts of the fog area we seem unable to cope with the evil, as the plants seem to be as badly affected under glass as outside.—A. D.

NOTES ON HARDY PLANTS.

Senecio grandifolius.—The writer gives a capital hint (p. 203) as to the usefulness of this noble plant for pot work. I was under the impression that its more common names were *S. macrophyllus* or *Ligularia macrophylla*, but it does not matter much about that; I feel sure the same plant is intended. I have long felt that this was one of the plants yet to be appreciated, although I have only grown it in one way—near shrubs where it can hold its own, and make a grand show with its enormous glaucous foliage and large showy panicles of bright (if small) heads. Here it grows 6 feet high, the stems being straight and stout, and capable of doing without sticks unless much exposed. It would make a noble back line specimen for borders; the flowers last for weeks in midsummer.

Snowdrops.—As these seem to be taken much notice of at present, I may mention that I have just come across a beautiful double yellow kind, which Mr. Allen does not think is the double form of *lutescens*. Though double, it is very beautiful. I have also met with a considerable number of stragglers of *G. nivalis lutescens*. The peculiarity about this kind is that its stems are yellow, too. With regard to other varieties, I had a little lot of collected bulbs sent me. These I have grown in pots; it is evident, however, that they have not made vigorous growth, but they have flowered, and nearly every flower is different from its fellow. There are some remarkable forms as seen by such features, as pose of flower, shape of perianth divisions, markings and blotchings of inner petals, and one has the inner petals imbricate, arranged like a very wide bell in shape with the flange reflexed, pure white on the outside, and those same inner petals velvety or pubescent. I think this batch quite justifies the opinion of an esteemed correspondent, that we may have no end of variety in the Snow-drop genus by crossing and seed-raising, two processes which, no doubt, have happened in the place where the above were gathered.

Hepaticas.—Referring to the kinds with coloured anthers, I have two suggestions to make, either of which must be a fact. Either all must have coloured anthers at one period or age of the pollen, or such varieties are common and exclusive in this district, for I never remember to have noticed a kind of the species *triloba* that did not show colour before the pollen ripened. Of course, I have not so closely observed this anther feature abroad as I have at home. I suppose that it is more remarked upon in reference to the white variety than the different shades of blue and red because the white better shows up the colouring. Another fact which may have something to do with this colour development is that Hepaticas grow here most rampantly, even the double blue, and in further testimony of the vigour of the sexual parts of the flowers, seed and seedling plants are freely produced without cultural care. Hepaticas like plenty of sand. Some roots which two years ago were left on a seldom-used garden walk and were slightly covered with sand have made remarkable roots and growth—position half shaded, variety *angulosa major*.

Leucojum hyemale.—It is with great regret that I find splendid bulbs of this that were two years established nearly all killed by the past winter. I am of opinion, however, that if the bulbs had been a little deeper and in rubbly stuff or burnt loam, they would not have been killed. My reasons for thinking so are that in two instances where the bulbs were about 6 inches deep and slightly overgrown by a mossy *Saxifraga* they are sound. Newly imported ones, too, are sound, though they have been exposed to the frost, but they were planted in freshly-burnt loam, which, I ought further to add, remained fairly dry all the winter.

Orchis foliosa.—In one part of the garden I find that this Madeiran Orchis has been largely killed. I noticed gaps, and dug up the roots which had been well established and had made fine growth in the autumn. They had gone to pulp in the palmate or solid part. Lesson: Mulch with cocoa fibre in future.

Iris reticulata.—The better form of this is simply one of those charming things that can be depended upon in the severest winters and most trying weather to hold its own, make a rich display, and exhale Violet-like perfume in the month of March. It is one of the plants all should give a place to, and not merely in dots of a bulb or two, but in broad patches. Its fragrance will reach across a moderate-sized garden from such plantings, and it then reminds one forcibly of the coming summer. Selected bulbs do well in pots, but only for a season, as owing to the variations of temperature and moisture at the roots, the leaves, and consequently the bulbs, are deficient for the following season. The open air and a low temperature are the conditions this winter Iris loves.

Ranunculus Lyalli.—I think there can be no doubt as to the hardness of this rare plant. I have no grand success to relate, just the reverse, but I come at my point as to hardy or not hardy. The winter of 1890-91 may doubtless be considered to have fully tested plants on the score of hardness, but it might have been worse for gardens had it been more changeful and wet. I bought a very small plant with four leaves. It made two more during the summer, but it would appear that its roots were too short and few to hold in the soil, and I found it in February lifted quite out by frost and laid on the surface. Such exposure might have killed so small a plant, but it is sound in every part and now trying to grow again.

R. Traunfellneri.—One is surprised that this should be killed so generally when its habitat is recalled. Not a plant remains alive here, and I learn that it has been killed in other gardens.

Polygonum sphærostachyum.—This brilliant Knotweed is most happy in a boggy or half-boggy place. In dealing with the roots, do not try to make them grow from the apex like most other things. Its ways are literally crooked. When the knobs or rhizomes are three years old, they may be seen to be perfectly erect, with a slight bend at the bottom like a pot-hook, the growth coming thence, the fibre being most furnished at the bend. Year by year the woody roots get longer, and work up until they stand out above the surface like bits of black stick, the growth always pushing from the base. I do not think the plant is fastidious as to soil, but I am sure it likes moisture. Should it lack this in summer, the foliage will be soft and the flowers deficient in colour. Otherwise they have scarcely a match for brilliancy, and they last a long time individually as well as in succession, the latter for quite four months.

Shortia galacifolia is a capital grower and perfectly hardy, so that ere long we may hope to see it in gardens as frequently as the *Pyrolas*, and far more so than the slow-growing *Galax*.

Saxifraga oppositifolia alba under good treatment is quite as free as any of the other forms of the species. It is now smothered with bloom. We should not be misled by what we see of the type in its wild state, where it rarely occurs in perfectly dense tufts, but more or less straggling. It is desirable to see it more compact in gardens, and this is to be attained by annual transplanting. Biennial plantings will do where the land is stiff. All the varieties are vastly improved if grown in strong loam.

Pampas Grass.—It is madness to trim away the outer brown foliage in the teeth of winter. No wonder specimens have a starved appearance and that some die; they are simply killed. If examined, the outer brown foliage will be found to have sap in the midrib all through the winter. In April and May if left on the plant it will become quite dry and curl in a fantastic manner about the base. Is not the long foliage a pleasing winter

object? It certainly gives a warm appearance, and it must of a certainty protect the heart of the plant from winter wet and cold. Why should it be cut away? J. Wood.

Woodville, Kirkstall.

PERENNIALS FOR SPRING PLANTING.

The Delphiniums, herbaceous Phloxes, single and double Pyrethrums, the various sections of Irises which make up the germanica group need immediate attention at the hands of the planter; they all require a deep and thoroughly enriched soil. The ground, consequent upon the recent rain and snow, is in capital condition for planting—at least on sandy or similar soils. The planting of herbaceous Pæonies that has been deferred on account of the weather should be completed without delay, so as to save as many of the small fibrous roots which are produced at this season of the year. Care should also be taken that these fibres do not become shrivelled by exposure to wind and air. Keep the crowns an inch or so under the surface, dig in plenty of manure as the work proceeds, and plant firmly. Hollyhocks, again, should be got into their permanent quarters as quickly as possible for the same reason, and that they may become established before the dry weather can affect them. The Pampas Grass, particularly old clumps where the centres have suffered through snow accumulating in them, may also need attention. In the event of the centre being rotten or in a decaying state, I would advise lifting the clump and cutting away the decaying parts, replanting the remainder after having deeply trenched and enriched the soil. Whether the snow and frost have caused any damage to these may be ascertained by a sharp pull at the heart growths; if at all decayed, the heart intact or some of the leaves will come away readily; if this does not ensue, all is well.

All the Michaelmas Daisies may now be planted, or at any time during April, some of the best kinds for beginners being *dimosus*, *bessarabicus*, *longifolius*, *formosus*, *Chapmani*, *lævis*, *Novæ-Anglæ*, *ruber*, *ericoides*, *niveus*, and *linearifolius*. Hepaticas should also be planted as soon as the flowers begin to fade and just as the young leaves appear. *Helianthus rigidus* and *H. lætiflorus* should, if their crowns have strayed far away, be gathered together and replanted in a more compact tuft. This almost requires to be done annually, so far as these two are concerned, and especially so if it is desired to have the best results. *Bocconia cordata*, one of the handsomest of all perennials either as a flowering subject or for its ornamental leaves, is specially suited to planting in isolated clumps or large groups in open spaces on the lawn, where it will produce excellent effects in a couple of seasons. The Day Lilies, or *Hemerocallis*, *Galegas*, *Pyrethrum uliginosum*, *Anthericum*, *Spiræas*, *Trollius*, many *Campanulas*, *Columbines*, and a host of other things should receive early attention; while many other things, as *Leucanthemums*, *Oenotheras*, *Funkias*, *Coreopsis*, *Sedum spectabile*, *Thalictrums*, *Lupines*, *Cornflowers*, *Polemoniums*, and many more, may be planted successfully for several weeks to come. A fairly reliable guide to planting, or replanting, is when growth recommences; but if we always waited for this sign we should frequently plant the several species of some genera at wide intervals. Of this the Day Lilies are a good illustration, and while the majority are nearly or quite dormant still (March 18), *H. fulva* and *H. Middendorffiana* have made several inches of new growth respectively. *Sedum spectabile*, again, quite a dwarf plant and late flowering also, has been growing away quite freely, while other plants, attaining to more than twice the height and flowering a month or two earlier, have not as yet made a start. E. J.

Gladiolus The Bride.—Those who grow this chaste and useful form for forcing will have the plants already pushing forth their flower-spikes. It is well to know that even now it is not too late to plant it in the open ground for successional flowering. April planted corms of this charming and graceful plant will produce good spikes during August and Septem-

ber ensuing, when choice white flowers, and particularly those obtainable with long stems so suitable for natural arrangements in vases or the like, are by no means common. Given a fairly rich loamy root-run, the plant has a more vigorous habit than when planted in light or sandy soils. Plant 4 inches or 6 inches deep, always at the latter depth when intended to be permanent.

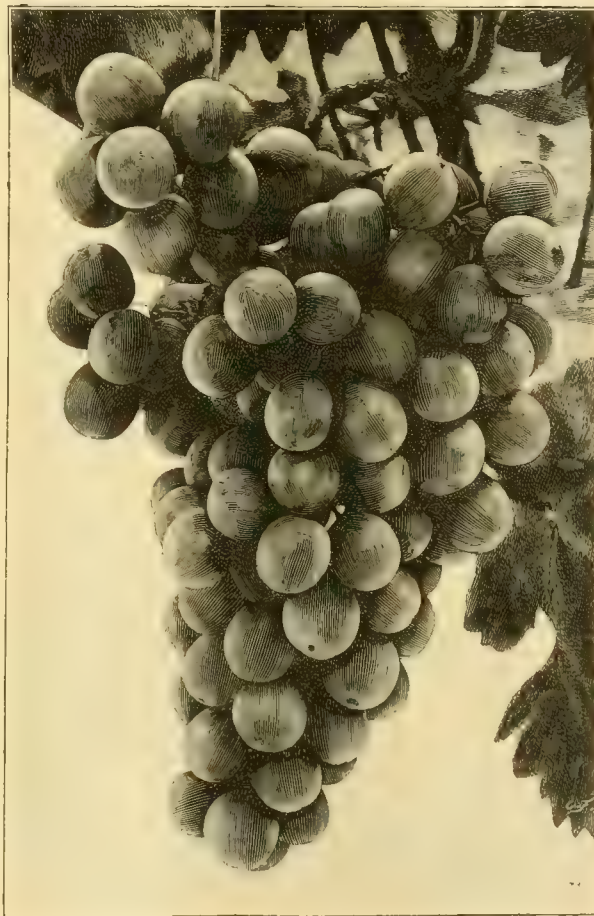
Chrysanthemums outdoors.—I was agreeably surprised on looking round these the other day to find that the clumps of pompons on the herbaceous border and the collection planted under the skeleton frame for cutting had wintered fairly well, and that the gaps were hardly so numerous as usual. I have filled those under the skeleton frame with plants left over for the purpose. The pompons will be replaced by a batch of cuttings that are ready to go out as soon as the weather gets a little warmer.—E. B.

ORCHARD AND FRUIT GARDEN.

TWO MIDSEASON GRAPES.

WHAT is here meant by midseason Grapes are any varieties that are later in ripening than the Black Hamburgh, Madresfield Court, and a few other sorts, but which are yet earlier and not such good keepers as Alicante, Gros Colman, and other well-known late Grapes. This section is a small one, and does not include a really first-class variety. The best known probably is the Gros Maroc, a bunch of which is here shown, and which has gradually become fairly popular, especially where appearance stands before quality. Originally introduced into this country by Mr. Rivers in 1855, it yet failed to attract much attention till within the past ten or twelve years, though now it is to be met with in most gardens where two or three houses are devoted to Grapes. This and Cooper's Black are by many considered synonymous, but I am quite of the same opinion as Mr. D. Thomson, of Drumlanrig, who holds that they are distinct, and, further, that Cooper's Black is decidedly the better of the two. The stock I received from Drumlanrig of the latter has now quite superseded that previously grown as Gros Maroc, the former producing much the longer and handsomer bunches. The bunches produced by the form hitherto grown were short, and could never be had of a large size. There is also a difference in the shape of the berries, those of Cooper's Black being more ovate than those of the other form. In other respects there is not much difference between them, the berries in each case being borne on stout stalks of large size, moderately thick-skinned, of a dense blue-black colour, and carrying a good bloom, the quality in each case being much inferior to that of the Black Hamburgh. Gros Maroc is a better traveller than the Hamburgh, keeps rather longer, and, owing to its more taking appearance, realises a better price in the market. Hereabouts it is a great favourite with church decorators, a few bunches of Gros Maroc looking well in the groups of fruit collected at the harvest thanksgivings. Its merits as a show Grape must not be overlooked, and it is especially serviceable late in August and during September. One reason why Gros Maroc failed so long in gaining popularity is the fact of its being a very bad starter when newly struck. On its own roots it for a time makes very poor progress, and yet it is naturally of strong constitution and a somewhat rank grower. It was soon found that it succeeded best grafted or inarched on the Black Hamburgh stock, and most probably the bulk of the rods of Gros Maroc now being fruited are on this stock. It has a moderating effect on its growth without, however, unduly checking it. On its own roots it is not particularly fruitful, but on the Ham-

burgh stock it is nearly or quite as productive as the Alicante. If, however, large bunches are desired, the long-rod system of training and pruning should be adopted, strong young rods being constantly laid in to take the place of the old canes. The latter might be retained two or three seasons if need be, only in this case, the laterals ought not to be spurred back as closely as those of the Hamburgh and other free-fruited varieties. Gros Maroc forms extra strong foliage on very stiff footstalks, and should, therefore, be given good room, a distance of 4 feet apart being none too much for the rods. Large clusters weighing about 6 lbs. can be had, but as far as appearance goes, one nearer 3 lbs. in weight is to be preferred, and it is advisable, therefore, to pinch off all long ugly shoulders. Under ordinary Black Hamburgh treatment, or



Grape Gros Maroc. Engraved for THE GARDEN from a photograph of bunch grown by Mr. W. Iggulden, Marston House Gardens, Frome.

whether gently forced or not, there will be no difficulty about effecting a good set, and the thinning out of the berries should be rather severe, the individual berries, if well stoned, attaining a great size. If not freely thinned at the outset, it is almost impossible to take out a few more berries after it is seen they are likely to be too thick without marking the rest, the stiffness of footstalks having something to do with this difficulty. No Grape can be more easily and perfectly coloured. Overcropping must, however, be avoided, and the maintenance of a very hot and dry atmosphere hastens ripening, and to a certain extent improves the quality, at the expense, however, of the colour. I make a point of feeding the Vines well and of allowing the berries plenty of time to colour.

ALNWICK SEEDLING must also be classed as a midseason Grape, as it is not adapted for forcing and keeps badly, bunches in good condition rarely being seen in November. This variety is of English origin, having been raised at Alnwick Castle and first brought into prominence under the name of Clive House Seedling about the year 1876. The exact parentage of it is not known, but if I might hazard a guess I should say it was obtained by crossing Black Morocco and Lady Downe's. It possesses several good qualities and quite as many bad ones. For instance, no fault could possibly be found with its habit of growth and productiveness, every lateral being furnished with several bunches, while it can be grown and ripened without the aid of much fire-heat, or no more, say, than the Black Hamburgh needs. Its first failing to be noticed is its shy-setting character, and unless extra pains are taken with it, or more than most Grapes need, the majority of the berries may be stoneless, and fail to swell to a serviceable size accordingly. When the "caps" are thrown off by the flowers, each pistil is found to be furnished with a small globule of viscous matter, and unless this is removed there is little likelihood of a good set being effected. All, however, that is necessary is to go over the bunches when in flower every morning towards midday, drawing them gently through the palm of the hand. This effectually removes the excess of moisture and also lodges a sufficiency of pollen on the stigmas. Some growers go to the length of fertilising the flowers with pollen from other more free-setting varieties, but I do not find this necessary. This variety is much given to form large branching clusters, but if handsome pyramidal bunches are required some judgment should be exercised in selecting, all long shoulders also being early pinched off. Thinning out must not long be delayed, the berries usually being very thick; but if there is any doubt about their stoning and swelling off properly, more than ordinary pains must be taken in the thinning, the bunches being gone over two or three times. The berries attain a large size, or 3 inches and upwards in circumference, so that the thinning out ought to be somewhat severe in the end.

Naturally, some growers succeed better than others with this Grape, but I never yet saw any bunches not fairly well coloured, and if plenty of air is admitted the bloom is intense. As regards the quality, the less said about this the better, as it is decidedly second-rate, and the berries shrivel far too quickly.

W. IGGULDEN.

When to prune Gooseberries.—A very old practice among market growers, viz., that of delaying pruning till the young Gooseberries are large enough for use, was recently spoken of in my presence as being a novel and very good idea, especially where birds are destructive among the buds. That it is both a good practice and by no means novel I can bear witness, it having been successfully practised by friends of mine with excellent results as

long as I can remember. Leaving quite a thicket of shoots on the bushes baffles the birds considerably, these liking a free course. A good many of the earliest fruits sent to the Spitalfields Market are gathered from branches by women as fast as they are thinned out from the trees, this profitable delay in pruning apparently having no ill effects on the bushes. Where there are fewer bushes in private gardens, crowded shoots do not always sufficiently deter bullfinches and sparrows, but this difficulty can be effectively surmounted by tying the branches of the bushes up into a cone-shaped heap, this being done by two men having strong leather gloves and tar twine for binding the shoots together. When breaking into leaf and all danger from birds is past, the trees can be opened out again and either pruned then, or else after the fruits are large enough to use.—M. F.

THE FRUIT CROPS.

HORTICULTURALLY no subject has greater interest just now than the prospect of the fruit crops. What at least seems to be certain, and of which it seems hardly probable we shall be defrauded, is that there will be very soon a magnificent bloom on all fruit trees and bushes. All our hardy fruit trees seem as if only too willing to shed their beauty, for the buds are very stout, full, and abundant. The Pear buds which are so plentiful now have burst their scaly armour, and soon will cover the trees as with a mantle of snow. We have to await the later development of the Apple bloom for colour, because the earlier-flowering Pear, Plum, and Cherry trees all present their bloom to us in peerless white. If the Pears, Plums, and Cherries with their snowy white bloom lead the way, and the Apple trees with their pale, yet more highly coloured flowers follow, they do but lead on to that time when trees and shrubs give to us rich colours in wondrous wealth and beauty. To have a wealth of fine fertile bloom is the first need for the production of a good fruit crop. That much we certainly shall have. All depends, however, upon the weather, and therein lies the crux of hardy fruit culture with us. In urging the claims of hardy fruit culture, we cannot too strongly emphasise our dependent position upon climate, and, unhappily, upon a very uncertain and varying climate, too, one which makes hardy fruit culture perhaps the most unreliable of vocations. Still, we are not to be deterred from pushing on. Our nurserymen during the past winter, in spite of the many obstacles hard weather interposed, have been sending out trees and bushes by tens of thousands, and planting of new breadths in all directions has been proceeding apace. This fact shows that in spite of difficulties and disappointments we have not been discouraged. Wall fruit trees promise well and are now blooming profusely. These, both in private gardens and in some devoted to fruit culture for profit, are of importance, but relative to the great hardy fruits they are of comparatively little value. Fruits which can outdoors only be secured in an eatable condition from warm walls, and even then after an expenditure of labour which often seems disproportioned to the result, can occupy in market estimation but a secondary place. We may be impatient under the strong subjection in which all Nature has been so long kept, but without doubt it is for our good. Presently, when all the earth is as it were a garden of floral beauty, we shall realise that long, if impatient, waiting has been for the best, and that our reward is found in a magnificent fruit crop. A. D.

Red Hamburgh Grapes.—I can corroborate what Mr. Iggulden writes in his sensible article on the Black Hamburgh Vine in THE GARDEN of last week, that when it is cultivated to perfection, no known variety of it has either red or brown berries. A remarkable illustration of this came under my notice more than half a century ago. At the Glasgow horticultural exhibition in 1833, a Mr. Gowan exhibited as two varieties of Grapes a Red Hamburgh and a Black Hamburgh. Mr. Denholm, then gardener at Woodhall—a famous place in its day—took exception to the decision that there was a distinct Grape known as a Red Ham-

burgh. This led to a hot debate between him and the exhibitor, and he accepted grafts of the supposed Red Hamburgh, which he grafted on his own Hamburgh, and in 1836 produced perfectly black Grapes from the graft.—W. THOMSON, *Clovenfords*.

GRAFTING FRUIT TREES.

OLD though the art of grafting may be, it is yet the best and most expeditious method of raising fruit trees in quantity suitable for orchard planting. I absolutely defy anyone to point out any examples, beyond isolated specimens raised by any other method, superior or equal to those trees of Apples, Pears, Plums, Cherries, Peaches, &c., skilfully grafted or budded on to well-proven suitable stocks for their respective kinds. When speaking of grafting, budding is included. It should be understood that there are suitable and unsuitable stocks. Very great importance attaches to the preparation of the stocks by frequent removals and the conversion of wild tap roots into a mass of fibrous surface-feeding roots that will ultimately make wood of a fruitful character, which our fickle seasons are generally able to ripen up in the autumn. These facts are not always realised when gross wood is made by the presence of tap roots. Moreover, trees having strong unchecked tap roots resent removal, and refuse to make proper growth for a couple or more seasons, but often become stunted and stationary, followed by other evils. Such is the result of some ten years' experience, during which time I have been engaged in raising fruit trees of the above kinds by the thousand on the most expeditious and soundest basis for permanent planting. Everyone concerned is thoroughly satisfied with the progress such trees make when planted on their exposed situations, whilst the tenants with such positive evidence before them are more anxious year by year to secure our home-grown trees.

Budding is preferable for standard orchard trees, and is done in July or August according to weather and the state of the bark that has to be raised for insertion of the bud. Grafting often gives the best shaped bush or pyramid trees. We have worked a quantity of best desert Apples, Pears and Plums on dwarf stocks for cordon planting, and extremely promising they look. The Ribston does well by such treatment trained to wires and the hereditary canker is absent. Cox's Orange Pippin also produces clear, large, highly-coloured fruit so grown. There are many other new and old kinds on trial which may form the subject of a few notes at another time. The fact of having some 200 kinds of Apples on trial gives me a free hand for a few experiments with double grafting, which opens up another subject, viz., the influence of stock upon scion. That there is an influence I do not dispute, but the degree of influence is very varying, and somewhat uncertain and unstable in character. At all events I am unable to offer any reliable information as yet. Respecting the grafting and beheading of old trees, I very much doubt the wisdom and am somewhat sceptical; at all events, they should never be attempted unless the trees to be operated upon are healthy and vigorous, for under the best conditions the operation is a severe one, and not unfrequently throws the tree into chronic debility. The best plan is to grub up unsatisfactory trees, planting young vigorous specimens in their place, the time occupied being nearly equal in both cases.

The system of grafting I find best is that known as whip-grafting on to our young prepared stocks quite close to the ground, and April is the best month, always provided that the buds on the scions are not too forward,

which is not very likely if the grafts were stuck in the soil singly on the north side of a wall. Prunings of last year's shoots make good grafts. The operation is as easy as it is simple, and if care is taken to fit at least one side of bark of each stock and scion, and the operation of fitting, tying, and covering over with grafting wax be done expeditiously, 90 to 100 per cent. may be expected to thrive. If grafted quite close to the ground, sticklers for own-root trees may be accommodated, as roots will readily strike out as soon as the cuts have callused over if kept moist. The cuts should not be long exposed to the air or injury may be expected, and success less certain by discolouring of the cambium or inner bark. Growths 4 feet to 5 feet on Apples and 6 feet or 7 feet on Plums may be expected the first season. I always select as kinds stocks having sleek bark, those that go away with vigour and destroy all miffy or delicate seedlings. Furthermore, I have again and again proved the higher bred the Pippins are that are sown for stock, the larger percentage there are of weakly constituted plants; consequently the more unsuitable for general purposes. W. CRUMP.

Mudresfield Court.

Late imported Apples.—A paragraph which went the round of the papers the other day respecting an importation of New Zealand Apples naturally led many persons to conclude that the importation was a novelty. Doubtless the running up of the price so exceptionally high, in fact so high as from 15s. to 25s. per bushel case, proved to be an excellent advertisement of that and future consignments, and will lead the public to regard these New Zealand Apples with special reverence for a time. We have, however, had New Zealand Apples here before in April and May, and excellent have they proved to be, presenting quality more like those of home growth than do the American Apples, which whilst so beautiful are yet too often of a soft woolly nature, and far from being brisk or well flavoured. We cannot hope under any method of keeping to have Apples so good, so juicy, and so fresh after being six months gathered as would be New Zealand Apples gathered only a few weeks before reaching this country. Had we no such importations, doubtless high class home-raised Apples, if we had such to offer, would have secured now fabulous prices. But even with the best fruits in the world it is beyond our power to have them so fresh and good in April as in October or November. Home growers who may be always living in dread of foreign competition need not fear the introduction of these antipodean Apples. They come at a time of the year when home-grown fruits are naturally scarce, and we should be only too pleased to receive delicious Apples fresh and sound in the spring-time. Vegetarians may well rejoice that a new pleasure is added to their menu, which the severe winter has rendered somewhat restricted. We can now enjoy good Apples during one half the year, and fairly good ones for other three months, enough to satisfy the palates of the most exacting. Of course, it pays the New Zealanders to send us so far only their very finest fruits. Did we conclude that all colonial fruits are as good as the samples which reach us, we should doubtless make a grave mistake. We know too well at home that when the finest samples are selected, there remain sometimes two-thirds, sometimes one-half of the crop to be classed as inferior, and perhaps it is about the same thing in New Zealand and in America. When our growers are chided for not assorting their fruit better, they may reply that in selling them mixed they secure as good an average price for them as they would if they selected all the best for one basket, and sent the refuse to market in another. We have to market bad and good; the colonists dare not send us the indifferent samples, because it would not pay. We cannot hope to grow all best; no one ever does except under exceptional methods

of culture and, of course, costly ones. When such is the case only remarkably high prices would pay the grower, and these cannot be had in the midst of an Apple season. If we could hold over our finest fruit until March and then send them to market as sweet, fresh, and juicy as found in November, wonderful prices might result, but it would be running a great risk, whilst growers invariably prefer 5s. per bushel in the autumn to the long-deferred and costly-earned 10s. or more per bushel in the spring.—A. D.

A NOBLE PEAR TREE.

THERE is in Merrion Square, Dublin, a very fine example of Jargonelle Pear tree, planted in the area, and reaching up to the second or third storey windows. It is perhaps one of the very finest examples of the possibility of growing hardy fruit trees in our larger towns, and just at present the lower portion is thickly studded with clusters of its lovely white flowers. I think it is Mr. Bright in his "Year in a Lancashire Garden" who gives the palm to the Jargonelle Pear as an ornamental tree at this season of the year, and there seems no very cogent reason why the splendid fronts of many houses, or at least the gable ends of detached villas, should not be thus garnished. Of course, in country places it is no uncommon sight to see Apricot, Victoria or Green Gage Plum or Pear trees trained upon cottage, farmhouse, manse or vicarage, but the noble tree to which I refer is just now really the beauty spot of one of the most fashionable of Dublin thoroughfares and the cynosure of the eyes of all intelligent passers-by at this flowery time of the year. Like all other useful and beautiful things, this Pear tree has also been an example to others, and there are one or two younger Pear trees on other houses near, but they do not appear to be of the Jargonelle variety, and so, as Mr. Bright has pointed out, are less effective and bouquet-like in their blossoming. The particular tree to which I allude has long been known, and was illustrated in THE GARDEN, November 22, 1873, under the name of Sir Philip Crampton's Pear tree, this distinguished surgeon having planted it in the year 1815. The tree is figured in flower, but it is not merely flowers, or "nothing but leaves" that it produces, since in the description accompanying the above engraving, the late Mr. John Hamilton informed us that in 1873 it bore 1700 Pears, apart from being for most part of the year the glory of the neighbourhood. As many as twenty-two Pears have been borne in one cluster by this fine old tree. I am sorry to have to say, however, I am told that during the past four or five years the top of the tree has shown signs of failure, and now has a bare and blighted appearance, although the lower portion, especially over the entrance door, is thickly covered with its snowy flowers. How, or why, this partial failure has come about it is not easy to say, but it is a fact mourned and remarked by all who knew this historical specimen in its former glory. Formerly many, even if not most of the roots of the tree found their way into a drain that ran in front of the house, and so obtained for the extensive top area the requisite food and moisture. Of this we are assured, since its late owner in describing the tree expressly alluded to its luxuriant growth and great fertility, and remarked that were its branches not checked it would cover the whole house. It is just possible that this fine old tree has suffered by new drains having been laid which exclude its roots and dry up the surrounding soil, and so rob it of its old and congenial surroundings. To whatever cause or causes the decadence of the tree may be due, it is none the less a local catastrophe. If, as I believe, its lessened vigour is due to the cutting off of its long-accustomed food supplies, there is nothing for it but to supply manure and water to its roots by artificial means, and in its present state the pruning knife might be abandoned for a year or two with advantage, and so enable it to make the most of the food and water placed within its reach.

I have never seen such a fine example of a fruit tree in a town garden as that before No. 14, Merrion Square, Dublin, but perhaps some other readers of THE GARDEN can tell us of the good examples

they have seen in other towns. The cultivation of Apples, Pears, and Cherries as ornamental trees, apart entirely from the hope of fruit, is sadly neglected in country places as well as in towns, and I hope this subject may merit some slight encouragement from the new and enterprising British Fruit Growers' Association, as being a by no means unworthy branch of their labour. VISITOR.

TREES AND SHRUBS.

SHRUBBY SPIRÆAS.

Few shrubs flower with greater freedom or keep in an ornamental state for a greater length of time than the Spiræas. They are all of easy growth, too, no particular care either in choice of soil or situation being at all necessary to their welfare.

S. DOUGLASI, from North-western America, is one of the brightest of the tribe, in some of the best forms the long spikes or panicles of flowers being of a deep red tint, while in others they are nearly white, those of the typical plant being a faint pink. It grows with great freedom in this country, and increases rapidly from root offsets, so that once it becomes fairly established no little difficulty may be experienced in getting it eradicated. So rapidly does it increase and so stout of growth is it, that I some years ago planted it out in large numbers as game covert, and the result, I may add, was quite satisfactory.

S. PRUNIFOLIA FL.-PL. is a neat and wonderfully free-flowering plant from Japan. It does not often exceed 3 feet in height, but is broad and branching in proportion, and with neat, lanceolate, and very small leaves. The fascicles of pure white flowers, produced as they are all along the branches, give to this garden species a decidedly ornamental appearance.

S. LINDLEYANA, with spikes of white flowers, large, much-divided leaves, and a robust, upright habit of growth, is an excellent shrubby plant, and one that is well able to hold its own with the general occupants of such a place. This species does not come into flower till well on in the season—September generally.

S. NOBLEANA comes near Douglasi in habit, height, and foliage, but the flowers are not so compactly arranged and are purplish, suffused with pink or red.

FORTUNE'S SPIRÆA (S. Fortunei) is one of the most desirable species, of noble port, and bears abundance of rosy flowers. When in full bloom it is an imposing plant, and one that deserves a great amount of attention from planters. It is a Chinese species, but seems well suited for the climate of this country. Well developed specimens are often fully 6 feet high, bushy in proportion, and well clothed with leaves and flowers.

THE NEPAUL SPIRÆA (S. bella) rarely with us grows more than 3 feet high with rosy-red flowers, which are about their best by mid-July. It is a neat shrub for the border, and one that requires but a minimum of attention.

S. LANCEOLATA, like the last, is of small growth with showy white flowers and a neat, semi-upright habit. The blooms appear in early summer, and remain good for a considerable time. It hails from Japan, and there is a desirable double-flowered form that one does not often see.

S. GRANDIFLORA, a Chinese species, must not be omitted from the list, for it is a noble and bright-flowered species, the blooms being almost pure white. It does well for shrubbery use or for massing in conspicuous spots along the edges of drives and walks.

Generally speaking, the Spiræas are all the better for timely and well-directed pruning, flowering being thus greatly enhanced. A. D. W.

Tree Ivies.—The Tree Ivies have doubtless in all cases originated as sports from the ordinary climbing forms, as instances may frequently be seen, especially on old ruinous walls, when the plant, having reached the summit, will develop a

bush-like style of growth. There are now several forms of these Tree Ivies in cultivation, and very bright and cheerful they are at all seasons of the year. True, they are of slow growth, but for certain purposes this is an advantage rather than otherwise, as when planted in small gardens they do not soon outgrow their allotted space. They are well adapted for the front part of a mass or belt of shrubs, they form a pleasing group on a small lawn, while as rockwork shrubs many a suitable nook can be found for them. The fact that the Ivy will succeed in shady spots and in smoke-laden districts is a great point in favour of these bush forms for town gardens in which space is generally very limited. Good varieties of this class are the tree forms of the common Ivy, and of the very dark green, heart-shaped-leaved Regnieriana, itself one of the finest of the larger climbing Ivies we possess. Variety is also supplied by the golden and variegated-leaved forms of the Tree Ivy. Cuttings do not strike so readily as in the case of the ordinary climbing kinds; still, it is by far the better way to propagate these Ivies, though they are often grafted on to a strong-growing climbing kind, but suckers, or at least shoots, below the point of union are frequently pushed out from the stock and need constant attention for their removal. I have seen the green-leaved Tree Ivies employed for furnishing window boxes in London, and with reasonable attention they will remain in health for years.—T.

THE FIELD MAPLE IN KENT.

THAN the English or field Maple (*Acer campestre*) we have no prettier small-growing tree. This tree is a true lover of the chalk. There are many fine old trees around London, but on the Kentish side in particular. One of goodly proportions is growing nearly in front of the late Charles Darwin's residence at Downe, while another finely-shaped and far-spreading tree is a conspicuous ornament amongst the Rose and herbaceous beds in the beautiful garden at Heathfield, belonging to Mr. Wilmot-Holland. Rarely, however, is the field Maple to be found as a lawn specimen. This is easily accounted for by the great quantity in which the tree may be found wild in most of the copse woods and scrublands of Kent and Surrey. What a pity it is that most persons despise our native flowers, trees, and shrubs, and simply because they are plentiful and indigenous! The tree in question is an example, so is the Guelder Rose (*Viburnum Opulus*)—not the double-flowered form that is common enough in our gardens. How often is it included in lists of berry-bearing plants? The field Maple, however, undoubtedly deserves a far greater share of attention than has yet been meted out to it, for it is a neatly habited tree, with prettily cut leaves, a hardy constitution, and one that can take an existence in positions where even the hardy Beam Tree (*Pyrus aria*) refuses to thrive.

Some of the neatest and most natural fences in Kent are composed of the field Maple, for it bears trimming like a Quick or Privet, and grows dense and strong, almost to the exclusion of every other kind of shrub. When in full leafage a Maple hedge is a most enticing object, and I can well remember when first I saw one in Kent, for in only a few counties can it be seen as such. In autumn tints the leaves of the Maple are rich, while the parallel lining of the bark is curious indeed. Financially, the Maple is not of any particular value unless when of large size and possessing the much-sought-after bird's-eye graining of the wood. The under-wood also sells readily enough.

A. D. WEBSTER.

Eucalyptus in Scotland.—In reply to A. D. Webster's inquiry regarding the large Eucalyptus at Whittingham and Tarrinham, I may say that it has passed through the first winter absolutely unscathed, in so far as any frost has been concerned. A few of the smaller branches were broken off by wind, but that is not a new experience. I may also state that we have seen young plants raised from seed saved here and sown in September, 1885. One of these is nearly 18 feet high, and another over 10 feet. The latter was mowed since first planted, which

checked its growth somewhat. Both these plants, as well as a specimen 6 feet high of *E. coccifera*, are uninjured. I am just now planting out several other varieties on trial, varying from 18 inches to 3 feet in height, and which have been grown in pots.—JOHN GARRETT, *Whittinghams*.

DESIRABLE SHRUBS.

A FEW great favourites of mine, yet very rarely met with in gardens, are the following:—

AZALEA RHOMBICA is by no means a novelty, yet it is very seldom seen, though in all respects a most desirable shrub. It is a freely branched bush, with flowers of much the same colour as those of the North American *Rhodora canadensis*, but it is altogether a much finer plant, the blooms being brighter than those of the *Rhodora*, a good deal larger, and borne in greater profusion. *A. rhombica* is the earliest of all the hardy Azaleas to bloom, being just a little later than the above mentioned *Rhodora*. It is perfectly hardy, and the blooms are very seldom injured by spring frosts.

ZENOBIA SPECIOSA PULVERULENTA.—This, the *Andromeda dealbata* of Lindley, is a most beautiful shrub, of which a characteristic plate was given in *THE GARDEN* as long ago as December, 1883. It is a dense growing bush, that reaches at most a yard high or thereabouts, whose small, yet firm leathery leaves are covered with quite a mealy glaucousness. The flowers, which are like the widely expanded forms of the Lily of the Valley, are borne in great profusion soon after midsummer, when the shrub is in its most attractive stage. A fairly moist soil of a peaty nature just meets its requirements. This *Zenobia* is a native of the southern portion of the United States, and, as a rule, stands our winters without injury.

CASSIOPE TETRAGONA is another peat-loving plant, but much less in stature than the last. It forms a mass under a foot high, composed of numerous branches clothed with small leaves, which are arranged in four rows; hence the specific name of tetragona. The little drooping bell-shaped blossoms are white, and make their appearance early in the summer. A prominent and most desirable feature possessed by this *Cassiope* is that the foliage retains its rich bright green tint at all seasons of the year, provided it be in a fairly moist peaty soil. It is not unlike a large form of *Club Moss*, and is well suited for the cool peaty part of the rockwork. This little shrub, which is a native of the Himalayas, is perfectly hardy in this country.

ARALIA MAXIMOWICZI.—I find this has suffered no injury from the severe frosts, so that no doubts need be entertained as to its hardiness. It is an erect, free-growing shrub, with handsome lobed leaves, which are of a deep green tint, and altogether it is of quite a sub-tropical aspect. This *Aralia* is deciduous, and in winter the large dark coloured spines with which the branches are furnished form a conspicuous feature. Being readily increased by root-cuttings, its propagation does not offer any difficulty. Having been introduced from Japan in 1871, it is not exactly a novelty, but at the same time is rarely seen. This *Aralia* will hold its own in almost any soil, but is seen to the best advantage where the deep descending roots are able to go down some distance.

BERBERIS CONCINNA.—This exceedingly pretty little Himalayan *Barberry* is remarkable from the fact that it does not flower till summer is well advanced. It forms a dwarf, much-branched bush, whose slender shoots are clothed with neat roundish leaves, light green above and of a beautiful silvery-white underneath. The flowers are of a pale yellow colour, while a good part of the foliage is often retained throughout the winter.

STYRAX JAPONICA.—This is a near ally of the North American *Snowdrop tree*, but altogether smaller. Its usual habit is to push up a straight leading shoot, while the side branches are arranged in a somewhat flattened frond-like fashion, and owing to this conformation of the plant its drooping bell-shaped blossoms are seen to the best advantage. The minor branches, which are of a slender wiry character, are numerous, and clothed with

deep green ovate leaves. The flowers of this are pure white with a tuft of yellow stamens. Being borne on long stalks, they usually hang almost clear of the foliage. It flowers during the early part of the summer, and may be successfully bloomed in pots. This *Styrax* prefers a soil that is not parched up in any way during the summer. I have seen it in good condition on a wall, where it was allowed to grow pretty much at will.

RIBES GORDONIANUM.—The common Flowering Currant is in one or two forms to be met with in almost every garden, but the merits of the beautiful golden-flowered species (*Ribes aureum*) have not been sufficiently recognised, while *R. Gordonianum* is comparatively scarce. This is said to be a hybrid between the common and golden Flowering Currant, and its general appearance would suggest that such was its origin. Like the two above mentioned, it will grow almost anywhere, while the foliage is not attacked by insects at any time. The flowers are of a very peculiar colour—a kind of orange-red.

LIMONIA TRIFOLIATA.—This singular and uncommon shrub is by some included in the genus *Citrus*, but it is in general appearance widely removed from the forms commonly grown. The stout branches are plentifully furnished with large spines, so that a specimen of it is a most formidable object. At no time do the trifoliate leaves form a very conspicuous feature, and in the winter months when devoid of foliage it is almost as effective as an Evergreen, by reason of the bark as well as the spines being of a deep, but bright green tint. The flowers, which are borne about the middle of May, add considerably to the beauty of the specimen. They are a couple of inches or so in diameter, and composed of five pure white petals arranged in a star-like manner. It is quite hardy in many parts of England, but at the same time cannot be depended upon to stand the winter in all districts.

ABELIA RUPESTRIS.—The flowering season of this shrub is spread over a much longer period than most others, for it will commence to bloom during the summer, while I have known it continue on a wall till the middle of October. *A. rupestris* when in the open forms a dense twiggy bush of graceful outline, whose slender shoots are clothed with pleasing shining green foliage, and terminated by clusters of sweet-scented tubular-shaped blossoms, which are of a delicate shade of pink. Trained to a wall it will reach a height of 8 feet or 10 feet and flower most profusely. It is one of Fortune's many introductions from China, from whence it was brought in 1844.

NOTOSPARTIUM CARMICHAELIÆ.—This, which is the Pink Broom of New Zealand, is remarkable not only from its distinct appearance, but also from the fact that it is one of the hardiest shrubs from that region. The slender thong-like branches certainly suggest a near relationship to the Brooms, while the small pink Pea-shaped flowers add still further to the similarity. It blooms about the end of June at a time when the flush of outdoor shrubs is over.

GENISTA AETNENSIS.—This other member of the Leguminosæ, which is known as the Mount Etna Broom, was, according to Loudon, introduced into this country as long ago as 1816, yet it is quite a rare plant in gardens, though one of the most elegant of its tribe. It is a tall-growing species, reaching a height of 10 feet or 12 feet, and is of a loose graceful character, the long bright green slender shoots being pendulous and almost devoid of foliage, whose absence is atoned for by the rich coloured bark. It blooms about the commencement of July, at which time flowering shrubs are especially valuable. Like most of the Brooms, a light warm soil suits this best. Seedlings grow freely, so that the rarity of this valuable shrub is difficult to account for.

COTONEASTER HORIZONTALIS.—As yet this is quite an uncommon species of *Cotoneaster*, but one that bids fair ere long to be more generally known. It was only introduced from China in 1885, so that up to the present no time has been lost, for it may be already met with in many tree and shrub nurseries.

The frond-like branches, arranged in a peculiar horizontal manner, are very attractive when clothed with their neat, deep green foliage, and in spring an additional feature is furnished by the pinkish blossoms, that are succeeded by berries, which when ripe are of a bright vermilion tint. The fruits of this *Cotoneaster* are brighter than those of any of the *C. microphylla* and *C. buxifolia* group, to which it bears some points of resemblance, though *C. horizontalis* frequently loses the greater part of its leaves during the winter.

VIBURNUM PLICATUM.—This Japanese Guelder Rose is a very desirable species, and may be grown either as a shrub in the open ground or trained to a wall. Standing singly it forms a somewhat flattened bush that produces its large clusters of pure-white flowers in great profusion. In foliage, too, it is very distinct from most other members of the genus. T.

GARDEN FLORA.

PLATE 801.

GLOXINIA MACULATA.

(WITH A COLOURED PLATE.*)

THE plant here depicted is an old inhabitant of our stoves, seeds of it having been sent from Carthage, in South America, upwards of 150 years ago. I observe that the first figure of it was published in vol. xxix. of Curtis' *Botanical Magazine*, t. 1191, in which its spotted stem, from whence its specific name is derived, is more plainly shown than in the plate now before us. This is a bold and handsome plant, and it was largely grown some forty years ago, but now, with so many fine gesneraceous plants, it has fallen out of favour. The plant is dedicated to Benjamin Peter Gloxin, a botanist of Alsace, and it is said to represent the true species, but this has been quite superseded by the artificially raised hybrids, some of which at the present moment take rank as the greatest ornaments of the stove. The present subject has not, so far as I have observed, been used in the cross-breeding of this family, nor have we any new forms of the plant. I remember the Messrs. Veitch, of Chelsea, had in flower in their nursery in the summer of 1875 a very similar plant, bearing pure white flowers, which had been raised from seeds gathered in New Grenada, under the name of *Monopyle racemosa*, the flowers being much of the same shape. The leaves, however, were not so coarsely toothed as in *G. maculata*, nor was the stem spotted. I have seen nothing of the plant since. I hope it is not lost, as it might pave the way to bring about some handsome forms by diversifying the colours, and thus bring the plant into favour again. The Gesneraceæ are all plants of easy culture, saving in a few exceptional cases. This plant is easily propagated from its tubers and from leaves, and it is especially useful to those having but limited accommodation in their stoves, as the roots having been dried off may be stored away in dry sand in a cool cupboard if the atmosphere is kept dry and not too cool. The soil best adapted for producing fine specimens should consist of a small portion of light turfy loam, good peat, leaf-

* Drawn for *THE GARDEN* in the Royal Gardens, Kew, by H. G. Moon. Lithographed and printed by Guillaume Severelyns.



GLOXINIA MACULATA

mould, and a fair proportion of good well-decomposed manure, the whole made very light by the addition of some good sharp sand. This is a plant which I prefer to put in its flowering pot at the first potting, and therefore care must be given to the drainage, in order that any superabundant water may quickly get away. During the time it is growing a brisk heat is necessary; the atmosphere should be kept moist, and a liberal quantity of water be given to the roots. An occasional light sprinkling overhead from the syringe may be given, but I do not like much overhead watering for any members of the Gesneraceæ.

W. H. G.

STOVE AND GREENHOUSE.

POTTING HARD-WOODED PLANTS.

THE time is at hand for potting the greater portion of hard-wooded greenhouse plants. Many have attempted to grow New Holland and Cape species, and have not achieved the desired success, inasmuch as it often happens that the plants go on for two or three years from the ordinary trade size, and then either die or get into a stunted and unsatisfactory condition. An impression frequently exists that if a plant is potted in soil that is of a nature suited to it this is sufficient to ensure success. But quite as much depends on the way the operation of potting is carried out and on the work being done at the right time.

A plant should never be potted unless the roots are in motion. There are few of the hard-wooded kinds, excepting Azaleas, that do not begin to form new roots plentifully in the spring before much or any shoot growth is made. A very common mistake in potting fine-rooted plants is to defer the work until after they have flowered. When this course is followed it results in the operation not being carried out till the hot weather, with its consequent dry atmosphere, has arrived. This, despite all that can be done in the way of shading and a reduction in the amount of air admitted, causes a necessity for more water being given shortly after the potting than is desirable. When the water-pot has to be much used before the broken roots have had time to heal and start afresh, there is always danger of their perishing. April is the best month for potting the bulk of the hard-wooded kinds that are at all liable to suffer through shifting, as the month is usually mild and the air much more humid than it is later on. When, through some cause or other, potting cannot be done early enough in the spring, as already said, before the roasting dry weather comes on, it is better to defer it until autumn. In this case it must not be driven too late, otherwise the roots do not get sufficient hold of the new material before the dormant season comes on. These remarks, I may say, do not apply to young stock, which will not have their roots crowded in the pots to an extent such as usually is the case with older specimens.

Before any hard-wooded plant is potted, large or small, it should be closely examined to see that the old ball is sufficiently moist. My own practice has been, instead of hurrying through the work indiscriminately, to defer potting any that had attained a considerable size until the soil had got sufficiently dry to require a thorough watering, and then to let a day elapse so as to get clear of all the superfluous moisture. By this means it follows that with shading from the sun and admitting comparatively little air, ten days or a fortnight will pass before water is again needed when the potting is done thus early in the spring. During this time if all goes well whatever roots have been bruised or broken will have had time to heal, and be about again beginning to move. In the case of all hard-wooded plants all disturbance of the roots, excepting by the removal of the drainage, should be studiously avoided. Whether the specimens are large or small if in a condition to require potting,

the delicate young feeding fibres will be closely packed all round the outsides of the ball. It used to be the fashion, and is still too often practised, to loosen these with a pointed stick or something of a like description. The effects of such destruction require little comment further than to say that they much increase the chance of permanent injury through the potting to all excepting strong-rooted, vigorous-constituted kinds, such as an *Acacia* or a *Genista*, which are able to make good the breakage in a way that less robust sorts are incapable of, and in the case of even the strongest-rooted species and varieties there is not an atom of gain by loosening the roots. If you ask those who subject their plants to this barbarous kind of treatment what is the object in doing it, they will tell you that it assists the roots to enter the new soil, which is about as far incorrect as it could be. If anyone who doubts this will take two plants of any of the less robust kinds and carry out the root-loosening with one and leave the other wholly undisturbed, then in the course of a month or five weeks after potting turn both out of the pots and see which is in the best condition and has made most progress, I venture to say he will be satisfied as to that which I have said on the subject being correct. In the case of plants that are confined to pots even of the largest sizes that are made their roots have no chance but to curve round the outsides of the balls in a way that does not occur with things that are planted out and have nothing to obstruct their horizontal extension.

It may be taken as a rule that the harder the balls are consequent on much root progress having been made since the previous potting, the more it is necessary to be careful in making the new soil perfectly solid. The potting lath requires to be used so as to make the new material quite as close and compact as the old ball. If this is not done it is obvious that when water is given it is sure to pass off through the new soil, doing all but irremediable injury in two ways—by making the new soil too wet and leaving the balls too dry, a condition that is often not noticed until death or an unhealthy state is brought about.

The matter of soil is better understood than it used to be. All hard-wooded greenhouse plants, except a few of the strongest rooted kinds, do better in peat than in loam. But there is a wide difference in the nature of peat. The hard, close, black material on which, where it exists naturally, little is found growing but the strongest kinds of Heather, is very poor stuff for most of the plants under notice; so poor in fact that they do little good in it, as even if they live the progress made is so slow and the growth so weak that satisfactory results are out of the question. Except a few of the hardest-wooded, slowest-growing varieties of Heath which require peat more or less hard in texture, this black solid material should be studiously avoided. Brown coloured peat, on which some of the stronger kinds of Grasses grow, dug in turves about 4 inches in thickness, is the kind that answers for most hard-wooded greenhouse plants. This is usually midway in texture between the black Heather-clothed peat and that on which little excepting the Bracken is found. For some things a portion of the latter mixed with the medium textured kind does best. As to the amount of sand it is necessary to mix with the peat, it is well to keep in mind that hard-wooded greenhouse plants do not bear shaking out in the way that is practised with Pelargoniums, Fuchsias, and many other things. When once the roots get possession of the soil they have to remain in it so long as the plant lives; consequently enough sand must be used to enable the soil to retain porosity. The peat named as a rule contains little sand, often next to none.

In bright warm weather the floors of the houses or pits in which the plants are located after potting should be kept quite moist by the use of much more water than necessary at other times, and the plants should have a thin shade to protect them from the sun for three or four weeks after potting. The moist atmosphere coupled with shading reduces the evaporation through the leaves that

otherwise would take place, and which it is necessary to avoid until enough new roots are present to supply the demand in this way.

T. B.

Psychotria jasminiflora.—The genus *Psychotria* is an extensive one, but very few members of it are in cultivation; the only two that I can just now speak definitely of are the species and *P. cyanococca*, which are, in general appearance, very dissimilar from each other. *P. jasminiflora* forms a neat growing evergreen bush, clothed with cheerful foliage, and during the winter and spring months it is plentifully studded with blossoms. The flowers, which are borne in clusters, are much like those of a *Bouvardia*, their colour being the very purest white. They are also agreeably scented. It is not a vigorous rooting subject, and, consequently, must not be overpotted, nor must the compost used be of too adhesive a nature. A liberal amount of sand is necessary for its well-doing. This plant is also known by the name of *Glonera jasminiflora*. The second species, *P. cyanococca*, bears insignificant blossoms, which are, however, succeeded by berries about the size of Peas, and of a beautiful bright blue colour when ripe. The berries retain their freshness a considerable time.—H. P.

Deutzia candidissima plena.—Like all the forms of *Deutzia crenata*, to which it belongs, this flowers naturally later in the season than the pretty little *D. gracilis*, and consequently even when forced it cannot be had in bloom as early as its smaller relative. Still with gentle forcing it may be induced to flower towards the latter part of March, at which time it forms a welcome addition to the greenhouse. The blossoms are freely borne, and being very double and of the purest white, they are by many greatly admired. This variety is, I believe, identical with *D. Pride of Rochester*, and is much superior to the ordinary double form of *D. crenata*, the exterior of whose blooms is flushed with pink, while one in which this latter character is most pronounced is known as *D. crenata rosea plena*.—H. P.

Polyanthuses as pot plants.—When grown in a cool house, Polyanthuses come into bloom quite early in the year, and are very effective in the conservatory, much more so than many plants which require more heat to force them into flower early. We grow a large quantity, chiefly the yellow Hose-in-hose varieties. Some of these are very fine, varying in colour from pale primrose to deep yellow. By selecting the best varieties from year to year and isolating them from the coloured varieties, the strain may be much improved. With the greatest care, however, the seedlings will vary considerably, even when the seed has been saved from the best yellow varieties, which have been grown quite away from any with coloured flowers. I have had many with red or crimson flowers among a batch of seedlings. For pots, the seed should be sown in April. The seed-pots should be placed in a cool shady position, and as soon as the seedlings are large enough they should be pricked off. Later on they may be planted out, or they may be grown in pots. If grown in pots they should be potted as soon as they are large enough and grown on in a cool frame; during the autumn they should be well exposed, otherwise they are apt to begin flowering, which spoils them for the spring. If placed on a shelf in a sunny position, they may be had in flower quite early in the year. They will do best in a house where there is only just sufficient heat given to keep out the frost. The first batch may be put in in December, and by putting a few in at intervals a continuous succession may be kept up, and will make a bright display at a little cost. The delicate perfume also adds to their charm, and I feel sure that anyone who once grows them will continue to do so, for they find admirers among all classes, especially in a season like the present, when everything out of doors is so backward. The alpine *Auriculas* are also very pretty as pot plants, but they do not produce quite so much bloom or last so long as the Polyanthuses. I find it is only two-year-old plants that will make much display. The great advantage of growing the hardy plants, which require so little

warmth to bring them into bloom early, is that they last better and are altogether more satisfactory for the cool conservatory than plants which have been grown on in much heat.—F. H.

AMARYLLIS AULICA.

THOSE who have a large quantity of cut flowers to supply will find many of the *Amaryllises* most useful at this date. These bulbous-rooted plants are so easily grown and bloom so freely, that a few of the varieties should be in every collection. I find *A. aulica* one of the most useful bulbous-rooted plants we have, and one of the most free-flowering. I have a number of plants on shelves in an early vinery that were started in November, and I have been cutting abundance of spikes all through February and March. These plants are not shaded, and are given the temperature and rest like the Vines. There are also a number of hybrids similarly treated, and they do equally well. I prefer 6-inch or 7-inch pots for these bulbs, placing one bulb in a pot if large and three if the smaller ones. When this size of pot is used it is found more useful and the plants may then be used for large vases, and with abundance of healthy foliage are very effective. I rest the plants through the early autumn months, withholding moisture for ten or twelve weeks, but not till the plants have finished growing and been thoroughly ripened by being fully exposed to the sun. They are then laid on their sides in a cool greenhouse, or stood on ashes in a cold frame and covered with a light to keep off heavy rains. I also find it best not to repot every season, but to feed freely, as by this means I get more spikes of bloom. If repotted annually they do not bloom so freely. They will take liquid manure when in a healthy state every other watering, but this does not apply to plants deficient of roots, as then more care is necessary. These bulbs delight in good strong loam, plenty of drainage, with some broken charcoal and quarter-inch bones, placing some coarse river sand around the bulbs when repotting. Many good cultivators use bone-meal, and when the bulbs are repotted annually this is advantageous, but I prefer the bones, and also use some over the crocks for drainage. Repotting is done just as new growth commences, and the compost is thoroughly rammed and watered sparingly till the plants begin to move. A good plan with large bulbs is to plunge the pots up to their rims in tan or cocoa fibre. I grow only on shelves and feed freely, and by this means get a quantity of spikes, and though the flowers may not be quite so large as when the plants are plunged, I find a large number more valuable. *A. aulica* is certainly one of the best of the species for cutting, producing spikes of large handsome blooms. These plants when in active growth are very subject to the attacks of thrips and red spider, and when the bloom is past should get abundant syringing, the under side of the leaves being thoroughly wetted. I put a handful of sulphur occasionally in the water, and find no difficulty in keeping them clear of insect pests. When grown in vineries they should be kept as far as possible from the Vines. For greenhouse decoration these flowers should be more largely used, as they last some time when placed in a cooler house and slightly shaded, but when used for cutting I keep the bulbs in the warmer house, and by this means get a succession of spikes. Though classed as a greenhouse bulb when grown in a greenhouse all the year round they are not so good, and with heat and moisture produce a greater quantity of bloom; indeed there are many of the species which should always have stove treatment. These plants are readily increased by offsets and from seed. When the former method is adopted the offsets should be detached with all the roots possible and be placed in 2½-inch pots singly, giving the newly-potted offsets a slight bottom heat and not much water till new roots are made. Seed should be sown as soon as ripe in a sandy compost, and given the same treatment as to bottom-heat, and a temperature of 70°, pricking the seedlings off into 2½-inch

pots when large enough and keeping near the light to make a sturdy growth. It is an excellent plan when sowing the seeds to thoroughly saturate the compost before sowing, and afterwards to place some *Sphagnum* over the surface to retain the moisture, removing it as soon as the seedlings appear.

Syon House.

G. WYTHES.

RHODODENDRONS IN FLOWER.

THE flowering season of the various *Rhododendrons* that require the protection of a greenhouse is now at its height, and, like their hardy relatives, they in that stage stand out conspicuous from all their associates, while a very great variety is to be found amongst them. Thus of the typical species we have the gorgeous blossoms of *R. Thomsoni*, *R. fulgens*, *R. barbatum*, and some forms of *R. arboreum*, while the white-flowered kinds, or at least those but slightly flushed with pink, are very numerous, especially the hybrid varieties, some of them being deliciously scented, while in others the fragrance is by no means pronounced. Many of these perfumed varieties owe their origin to the Himalayan *R. Edgeworthi*, which has been extensively employed by the hybridist, while in the case of another large and popular group the blossoms are almost scentless. I allude to the tube-flowered section, in which the pink *Princess Royal* stands out as the first raised hybrid. Several members of this group will bloom more or less during the winter, but a temperature somewhat higher than that of an ordinary greenhouse is needed for their full development at that time, and the *Rhododendron* season proper, where forcing is not carried out, may be said to commence about the early part of February with the Himalayan *R. argenteum* or *grande*, which when in full bloom forms a highly ornamental object in a large conservatory. *R. argenteum* derives its specific name from the silvery under sides of the leaves. The flowers, which are borne in large, densely-packed clusters, are deep pink in the bud state, but after expansion they become almost white, with the exception of a crimson blotch at the base of the interior. Besides *R. argenteum*, several other species have very handsome foliage, notably *R. Nuttalli*, *R. Falconeri*, and *R. Aucklandi*.

The flowers of *R. Aucklandi*, each one of which stands clear of its neighbour, are white, flushed more or less with pink, but during expansion tinged with green. A prominent feature of this *Rhododendron*, or rather of some forms of it, for it varies a good deal in this respect, is furnished by the long reddish pink-coloured bracts which surround the leaf buds, and which when growth recommences hang down just below the newly-formed leaves, and retain their brightness for a considerable time. *R. Nuttalli* is another species that during the spring receives a great addition to its beauty other than by means of blossoms. In this case the young expanding leaves are richly tinted. The young leaves of this *Rhododendron* are considerably brighter where fully exposed to the sun than even if partially shaded. It forms a very stately specimen, whose flowers are arranged not in compact clusters, as in most members of the genus, but in a horizontal tier, which usually rests on the large leaves that surround the blossoms. The massive blooms are of a creamy white tint when first expanded, but after a time they become pure white, or nearly so. There are several of these species of *Rhododendrons* with blossoms of a pure white, or nearly so, chief among which are *R. Edgeworthi*, distinguishable from any others in all stages of growth by reason of the dense woolly tomentum with which the undersides of the leaves, as well as the young shoots, are covered. This, which, especially in some individuals is of a rather straggling habit, has large white flowers, with the exception of a yellowish stain in the centre, and they are most deliciously fragrant, while another equally beautiful, but wanting altogether the perfume of this kind, is the Moulmein *R. Veitchianum*, with small deep glossy green leaves, more or less glaucous beneath, and large pure white flowers, remarkable for the crisped edges to the petals. There is, however, a variety of *R. Veitchianum*, viz. *lanceolatum*, in which the edges of the

petals are quite smooth, and if seedlings are raised from the ordinary crisped edge type, they show a good deal of variation in this respect. *R. formosum*, also known as *R. Gibsoni*, and *R. assamicum* is a much branched bush that will reach a height of 6 feet or thereabouts, with lanceolate leaves a couple of inches or so in length and a great profusion of white blossoms, not unlike those of the old white *Azalea*. A group of recognised species, that to me appear as if they might all be classed under one head, are known by the names of *R. calophyllum*, *R. Jenkinsi*, *R. Maddeni*, *R. tubulatum*, and *R. virginale*. They certainly greatly resemble each other, and from a batch of seedlings the produce of a single plant, different individuals could be picked out as widely removed from each other as any of these so-called species. One valuable feature possessed by these *Rhododendrons* is that they flower after nearly all the others are past.

Of deep, rich tinted flowered varieties perhaps the best of the Himalayan species are *R. fulgens*, *R. Thomsoni*, *R. barbatum*, and some forms of *R. arboreum*. The first of these, *R. fulgens*, is of a very sturdy habit of growth that naturally forms a rounded, much-branched bush, whose flowers, which are borne in globular shaped heads, are of a deep blood-red colour, and as shining as if varnished. *R. Thomsoni* forms a more erect and fewer branched specimen than *R. fulgens*, from which it is distinguished by the leaves, which in *Thomsoni* are so broad as to be often nearly round, while in *fulgens* they are ovate in shape and reddish underneath, those of *R. Thomsoni* being very glaucous on the under sides. *R. barbatum*, the third of this group to mention, has the flowers of much the same colour as those of the two others, but in foliage it is different not only from them, but also from any other *Rhododendron*. This is owing to the leaf-stalks and bark of the young shoots being plentifully furnished with long, rigid, dark-coloured hairs. In this the bracts that surround the young leaves are, as in *R. Aucklandi*, very showy, being in the case of *R. barbatum* of a bright crimson colour. Of *R. arboreum* there are many forms in cultivation, the flowers of which vary in colour from deep pink to crimson. *R. neilgherrense* is generally regarded as a form of *R. arboreum*, some of the varieties of which differ as much in stature as in the colour of the blossoms. A very distinct species is *R. niveum*, though it is far less showy than many of the others. This derives its specific name not from the flowers, which are of a lilac-purple colour, but from the fact that the young foliage and the under sides of the older leaves are thickly covered with a dazzling white tomentum very unlike any of the others. It forms a much-branched bush that will flower freely when about 4 feet or 5 feet high. Another of the lilac, or purple-flowered species is *R. campanulatum*, which is a free, sturdy-growing bush that blooms most profusely. Of yellow or yellowish-flowered kinds, the two most generally cultivated are *R. Dalhousiae* and *R. campylocarpum*, the blossoms in each case being of a primrose tint. *R. Dalhousiae* is of a very loose straggling habit of growth, and in a native state is said to be frequently found as an epiphyte on large trees. It is a grand *Rhododendron* when in flower, but is seldom seen in a flourishing condition. As might be supposed from its epiphytal character, it is a shallow rooting species, that succeeds best in a soil principally composed of fibrous peat, nodules of charcoal, and sand, and it needs altogether more attention than the other members of the genus. *R. Dalhousiae* is notable from the fact of being one of the parents (*R. ciliatum* is the other) of *R. Countess of Haddington*, one of the most beautiful greenhouse *Rhododendrons* we possess. *R. campylocarpum* is a free-growing branching bush, bearing a certain amount of resemblance to *R. Thomsoni*, but the leaves are not so round and less glaucous underneath, while they are waved at the edges in a manner totally distinct from any of the others. The primrose-coloured flowers are arranged in a different fashion from that of most *Rhododendrons*, being borne on rather long stalks, so that each stands almost clear of its neighbour. The dwarf growing *R. ciliatum*, with its pinkish thimble-shaped blossoms, has contri-

buted perhaps more than any other to the production of hybrid varieties, while even the typical form is a very ornamental little shrub.

There is a group of *Rhododendrons* quite distinct both in foliage and flower from any of the others; indeed, at the first glance one would scarcely take them to belong to the same genus. They have had various specific names bestowed upon them, and in gardens at least their nomenclature is in a very confused state, as the names of *R. Keysi*, *cinnabarinum*, *blanfordiiflorum*, and *thibaudiense* are often used indiscriminately. The flowers of this section are in shape a good deal like those of a *Correa*, the body of the flower being usually of a cinnabar-red colour, tipped more or less with orange. The smallest flowers of this group are borne by *R. Keysi*, which when large enough is very free blooming. This by no means exhausts the list of Indian *Rhododendrons* available for greenhouse culture, but it is certainly a good and representative selection. By some, exception may be taken to many of these *Rhododendrons* being classed as greenhouse plants, for they will survive many winters out of doors even in the neighbourhood of London, and in the more favoured districts of the south and west they may be regarded as perfectly hardy (as shown by the fine specimens to be met with in Devon, Cornwall, and parts of Wales); still, generally throughout England they require the protection of a greenhouse, as even if proof against the winter's frost, the early season at which they flower renders them very liable to be injured by late spring frosts. Planted out, as in the temperate house at Kew, they are very beautiful, or, failing this, large specimens (quite trees in fact) may be kept in tubs for years without being disturbed at the roots. H. P.

Carnation Mrs. Grenfell is a perpetual flowering kind with a fairly good habit of growth—in fact more characteristic of a perpetual *Carnation* than the majority which have to do duty for such, yet have little or no claim to this particular section. Mrs. Grenfell was to supersede the justly popular *Miss Joliffe*, which is very doubtful indeed, for while possessing blooms of a pleasing coral-pink shade, it has not the full flowers nor the salmon-pink that renders *Miss Joliffe* still unique among perpetual flowering kinds. The habit, however, is good and its colour a desirable one; therefore it will be welcomed by those who favour these exquisite shades in *Carnations* generally.

Arum Lilies from seeds.—It is not generally known that the raising of the above from seeds is a very simple and easy task, and that given a sample of fresh comparatively plump seeds and sown at once in a moist, warm temperature of 65°, the plants may be made to flower in or even under twelve months with good culture. For the first season pots of 5 inches diameter would suffice, and we should not be at all surprised to find healthy little plants, each having a flower-spathe nicely developed, obtaining a ready sale in our markets when grown as above stated. In the first year the foliage and flowers are, of course, only a third their usual size, yet withal they may be used with good effect in many arrangements.

Camellias will soon be past their best in conservatories; it will be better, therefore, to remove the latest blooms and encourage growth by frequent syringings. Any which require pruning should be seen to at once before growth commences, and such regulations of the branches as may be necessary should also be done, so that the young shoots grow in that position wherein they will remain. When in active growth later on those which are in pots and tubs will then take more water than usual; the resources of the plants are then taxed to a greater extent, and this must be met to secure a vigorous and well-developed growth. Occasional waterings with liquid manure will be a great assistance to those which are root-bound and be found preferable to repotting just at this time.—G. H.

Mignonette for pots.—After trying many varieties I find none give greater satisfaction than *Machet* and *Miles* *Spiral*. The way I grow it is to sow the seed thinly in 3-inch pots the second week in July in

a compost of loam, leaf soil, and sand, making the soil firm. The pots are placed in a cold frame and shaded until the seedlings appear. As soon as the plants are ready for thinning, I take out all but three, and when 2 inches high pinch the leader out. When the pot is full of roots the plants are shifted into 6-inch pots, using a compost of three parts loam, one part leaf soil, and one part cow manure with a dash of soot and sand. The plants are kept pinched until September, when they are staked and housed in a cool greenhouse, but where they get full sun; the cooler treatment they have the stronger the plants are. When showing bloom they have liquid manure twice a week. They are now in full bloom. In many of the pots there are over thirty spikes of bloom.—J. HARRISON, *Ardley Hall, Selby, Yorkshire*.

VARIEGATED PLANTS FOR GREENHOUSE.

THE variety of useful variegated foliaged plants suitable for a cool greenhouse is limited compared with those which require stove treatment, yet in looking round one may find quite sufficient material to form a most interesting group, which would enliven and make a pleasant change. I do not recommend the use of variegated plants among flowering subjects, but when grouped together with good green foliage for a background, the effect is very pleasing. In some positions where flowering plants would last but a short period, the fine-leaved plants will keep fresh for a considerable time. There are many greenhouse plants with white variegation, but the weakest point is in the red colouring. In stove plants this is well supplied by the *Dracenas*, and many of the *Crotons* are also very bright. For the greenhouse the varieties of *Acer polymorphum* are fine for spring and summer use. It is a pity they are not evergreen, for the rich deep colour of *atropurpureum* and others would be very serviceable during the winter. These beautiful *Acers*, when grown in pots, should be well cared for during the time they are leafless. It is desirable to protect them from severe frost; they should also be cared for in respect to watering. It is very important that they should be kept quite cool until they can be started properly and kept growing. *Eurya latifolia* variegata is nearly hardy, but to have it in good condition the plants must be kept under glass. I lately saw some fine specimens in one of the London nurseries. The plants had been well exposed, and the margins of the leaves had a beautiful reddish tint. This plant, which requires some care to keep it in good condition, should be grown in a rather light peaty compost and potted firmly, plenty of drainage being used, as the roots are liable to die off if not carefully attended to in the matter of watering. It may be propagated from cuttings, which should be taken from well-matured wood; short side shoots taken off with a heel are best. The cutting pots should be filled half full with drainage and filled up with sand and peat in equal parts, pressed firm, and a little extra sand on the surface. The shorter the cuttings the better. The pots may be plunged in a moderate bottom-heat, but the surface should be as cool as possible. There are several distinct variegated varieties of *Abutilons*, the finest of which is *A. Sellowianum marmoratum*, which has large cordate leaves of a soft green marbled with yellow. *A. Darwini tessellatum*, with smaller leaves, flowers very freely. *A. megapotamicum* variegatum is a pretty variegated variety of slender growth; this is most effective when grown as a standard. Grafted on seedlings of the strong-growing sorts, nice plants can soon be obtained. The stems for grafting on may be from 2 feet to 3 feet high. This variety also makes a nice plant for the roof, where the curious flowers, which have a red calyx and yellow corolla, show off to great advantage. The *Abutilons*, especially the variegated forms, like a light sandy compost, and may be propagated from cuttings taken while the plants are growing freely in the spring. They succeed best in the stove propagating pit, but should be removed to a cooler position as soon as established. It is only when well cared for that these are of any decorative value. *Hydrangea stellata* variegata in a young state is very pretty, and makes a nice edging to a group. The leaves are pale green with a broad irregular margin of pure white. This should be

propagated from cuttings early in the spring; short cuttings succeed best, and should be put in singly into small pots and kept quite close where there is a good bottom-heat. The plants should be grown on in a little warmth, but will last well in a cool house after they are established. I have seen plants of a variety which appears to be an improvement on the above, being equally well variegated and of a much more robust habit. I believe this was brought from the Continent a few years ago.

Agapanthus umbellatus variegatus is a very pretty variegated plant, and one which may be had in good condition at all seasons of the year. It is much smaller in all its parts than the type; the leaves are pale soft green, with bands of silvery white. *Aralia Sieboldi* variegata, when grown in an open position, makes a grand plant, but it is of no value when crowded up under other plants, or where much shading is used. It requires plenty of light and air and a good rich loamy compost. *Eulalia japonica variegata* is a very effective plant for the conservatory, the long, narrow, drooping leaves being prettily striped with white. It is quite hardy, but when grown on in a little warmth the variegation is better and the leaves more elongated. The stock may be readily increased by division; the best time to divide the plants is in the spring, just as they are starting into new growth. Where it is desirable to have dwarf plants they should be potted in light sandy compost. Plants treated liberally grow much taller, but are not so graceful in habit. *E. japonica zebra*, in which the variegation is in yellowish bands crosswise of the leaves, is a very distinct and pretty variety.

The value of *Aspidistra lurida variegata* is too well known to need any further recommendation. Its cultural requirements, too, are very simple, yet I think it would well repay better treatment than it often gets. It is while making new leaves that it is desirable to give it a little extra attention; the plants should then have a good position, and when grown in a little extra warmth the variegation is better developed and the leaves attain to a larger size. Few variegated plants are so liable to revert to the normal green form as this, to prevent which the stock should be increased from the best marked plants and grown in light sandy soil. Slugs are very fond of the young leaves, and a good dressing of soot will keep them off if given just as the leaves push up. After the leaves are well developed, slugs cannot do much harm. *Phormium tenax variegatum* is another grand variegated plant, which under ordinary treatment is always in good condition; the long leaves are regularly striped with red and pale yellow. Well developed specimens have leaves from 4 feet to 6 feet long, and for a background for shorter growing plants they are very effective. This useful plant cannot be propagated very rapidly; division is the only method. It should be potted in good rich fibrous loam, and may be confined to a comparatively small pot. While the leaves are young and tender they require a little extra care, but after they are well developed they will be very serviceable for decoration.

There are two varieties of *Yucca filamentosa variegata*, the leaves of one having broad bands of pure white, those of the other yellowish stripes, the first-named being the better. Although quite hardy it is only when grown under glass that its full beauty is developed; it requires some care to grow this plant successfully, but when plants are once well established they are very serviceable and may be used in any position, as they will not suffer from a dry atmosphere or from cold. The stock may be increased from suckers, which should be taken off as soon as they have made two or three small leaves. When repotting old plants the stout underground rhizomes may be cut off, and if put in sand or cocoa-nut fibre refuse they will start in the same way as *Dracenas*. The plants should be potted in a compost of fibrous loam and leaf-mould in equal parts with a liberal addition of sand, and will thrive best in a rather moist shady position in a cool house. The soil should be kept moderately moist, but excess of water is very damaging. *Yucca aloifolia variegata* is a more robust plant, but it is a formidable plant to handle,

and should not be used where the sharp needle-like points of the stiff leaves are likely to come in contact with visitors. *Y. quadricolor* is another good variegated variety of more slender growth. *Ophiopogon Jaburan variegatus* is one of the most useful plants we have, and can be increased by dividing up old plants; this should be done after the plants have completed their season's growth. If potted in light sandy compost and kept close in a cool frame they will soon take root in the new soil, and may then be used again in the conservatory. When plants are potted in a richer compost and placed in heat during the spring they assume quite a different character, the leaves being broader and more erect. With several crowns in a 7-inch pot they make fine specimens for decoration. *Arundo donax variegata* is another fine plant, but not often met with. It is very useful when in good condition and should receive more attention than it often gets.

For summer use the variegated Maize (*Zea japonica variegata*) is very effective. It comes fairly true in character from seed. There will be a few among seedlings which revert to the green form. Most of the plants appear green when quite young, but they gradually begin to show the variegation as they advance. Grown in good loamy soil with plenty of pot room they soon make effective plants.

F. H.

Plants for hanging baskets.—These are great additions to the appearance of a conservatory when seen in good condition. Those of permanent character should now have attention by top-dressing, and if necessary be entirely made up and for a little time treated to a warmer course. Many plants, however, are suited for these purposes which can be renewed entirely every spring. Such, for instance, are the pendulous types of the tuberous-rooted *Begonias*, *Tropeolum Lobbianum*, *Maurandya Barclayana* (from seed), Ivy-leaved *Geraniums*, and *Lobelia gracilis*, mixed together or separately, the drooping varieties of *Campanula* and *Convolvulus mauritanicus*, all of which are valuable. In making up fresh baskets sufficient room should be allowed for proper watering, otherwise in the summer this deficiency will give rise to trouble and additional labour.—A.

Cupania filicifolia.—This is one of the most elegant of all fine-foliaged plants, its Fern-like leafage being light and graceful. When well grown, a full-sized plant in a pot will develop very large leaves, each often nearly 3 feet in length by 2 feet in breadth. These leaves partake so much of a Fern in appearance as to fully justify its specific name. As a warm conservatory plant its value is most apparent, being a fitting associate for any of ornamental leafage usually found therein. When growing it I found it quite safe where the temperature seldom fell below 47° or 50°. It is disposed to grow rather tall, one strong shoot generally taking the lead; cutting back has therefore to be performed about once in three or four years to keep it fairly within bounds. When this has to be done the plant should be allowed to get quite dry at the root, so as to modify any disposition to bleeding. At such times it is best to keep the plant in a stove until again fairly growing, say until its first growth is fairly well hardened off. When potting is needed, it is best performed at the time of cutting down or soon after. Whilst this process is being done, a few pieces of roots might be spared for propagation, this being the most reliable method of increasing the stock. This *Cupania* thrives best in a rather light soil, but should be firmly potted. During the growing season it will take a good supply of water.—PLANTSMAN.

Cycads.—These plants do not at all times receive that amount of attention which they deserve. They will, it is true, put up with a good deal of rough and ready treatment, but when a more generous course is pursued they amply repay for the little additional trouble. Plants which have not thrown up a crop of leaves for a season or two may be induced to do so now. In a usual way they should not be at all overwatered when not growing, but just now I would advise that they be kept

for a few weeks to come rather drier than usual. Then they should be introduced into brisk heat, such as an ordinary stove where things are now in a growing condition. This will generally have the desired effect, particularly if there has been an interval of two years since the last batch was put forth. If any stand in need of potting, that work should be done before growth commences. Those in large pots will at times need a change of soil; to do this the outer portion of the ball must be taken away, so that provision is made for a goodly amount of fresh, which should consist of turfy loam and fibrous peat, the former predominating. Any in small pots as compared with the size of the plants should be shifted on. The soil should be pressed firmly, and the pots should also be of the strongest make, so as to guard against any possible contingency with respect to breakage. Any that may be infested with brown or white scale should be thoroughly well cleansed before growth commences. For general use *Cycas revoluta* is one of the best, being safer in a cool house than many. *C. circinalis* is a noble species for a warmer house. *Encephalartos villosus* makes a grand plant; so also does *Macrozamia plumosa*. These are all splendid ornaments in a conservatory.—P.

ORCHIDS.

THE DENDROBIUM SEASON.

DENDROBIUMS are beautiful Orchids, and during the past week I have had nearly a dozen kinds sent me from readers of THE GARDEN. From Mr. Malcolm Cook comes a spike of *D. fimbriatum oculatum* of unusual size, both in the dimensions of the individual blooms and the number in the raceme. Then from "C. J." come some flowers of *D. senile*, which was first bloomed in April, 1865, by Mr. Bateman, and last season I saw it flowering profusely in the Messrs. Low's nursery. From "G. C." I have had *D. chrysotoxum*; from "T. M.," *D. Freemani* and *D. crepidatum*; and from several, *D. densiflorum*. Another sends *D. Devonianum*, beautiful large flowers, and of good colour. I have also received the pale creamy flowers of *D. speciosum* and the thin, but pretty white blooms of *D. linguæforme*, both Australian plants. A grand form of *D. nobile* was sent from Mr. Cypher at Bath. Messrs. Seeger and Tropp have sent me blooms of *D. thysiflorum* and *D. Bensonie*, on the latter of which I will make a few remarks. *D. Bensonie* was first sent to this country in 1866, Colonel Benson, its finder, having sent it to the Messrs. Veitch and Sons, of Chelsea, with a request that it should be named after his wife. Since then many firms have imported it, and at the present time it is very common. I have, however, never seen such a fine variety as that just referred to. The flowers are large and of the purest white, the disc of the lip deep yellow, on which stands one large blotch of velvety black. The plant from Mr. Seeger has three flowering shoots, one bearing fifteen flowers, the other twenty-three, and the finest thirty flowers. I saw a spike some few years back bearing thirty-seven large and beautiful flowers all open together. I lately heard the remark made that *D. Bensonie* flowers the first year after importation and then dies, and I have known this to be the case. Why is this? I have flowered the same examples years in succession. I attribute the failure to the plants having been overloaded with soil about their roots, and through their having been kept in too high a temperature. Its leaves are deciduous, and after the growth is finished the plants enjoy a cool temperature and comparative dryness; indeed they may be kept very dry without suffering. A little before this time the early flowering plants will begin to push their buds, when they should be

removed to a somewhat warmer position and be allowed a little more moisture. When the buds are more advanced more water should be given, and from this time until the flowers open a little weak cow manure water given once a week will be found highly advantageous to both flowers and growth. I have always started these plants in very small hanging baskets, with very little soil and ample drainage. In these small baskets they may remain for several years. This *Dendrobe* may be grown in the East India house with a moist atmosphere and plenty of sun and air, and during the night the temperature may be allowed to fall very low without the slightest injury. Plenty of air should be left on in the house at night. After growth is finished the plants may be removed to the *Cattleya* house, and wintered in the cool end of the same house and kept very dry. Under this treatment I have been very successful with this Orchid. There are many different varieties of this *Dendrobium*. When it was high-priced, it was the best plan by far to purchase when in bloom, but when, as I have seen them sold this winter, in large plants (imported) at about 1s. each, the best plan is to buy a quantity and take the possible chances of getting a very good variety.

W. H. GOWER.

Lycaste Skinneri Reginæ (*H. Jewett*).—The flower is a very fine one, and as near as possible of this variety. You may name this with the greatest confidence. It has deep purplish-crimson petals and a deep crimson lip; the sepals white, with rose, but scarcely so deep as in the variety *Reginæ*. The flower sent certainly appears past its best, and so may have lost its colour somewhat. This species deserves the attention of all growers of Orchids, for the plants are very easily accommodated. They flower very freely, and the blooms last a long time when cut.—W. H. G.

Cattleya Lawrenceana.—A fine spike of this superb species comes to hand from Mr. G. Cypher, gardener to Mrs. Studd, The Royal Crescent, Bath. It is the first I have seen this season, and it is very beautiful; the sepals and petals are of a rich rose colour, the lip rich rosy-purple, having a band of very dark purple at its base, beyond which is the white throat. This plant is a native of British Guiana, and requires great heat and a moist atmosphere to grow it well.—W. H. G.

Dendrobium atro-violaceum is another superb flower which I have received from Mrs. Studd's collection at Bath. It is the first time I have seen this variety, and I imagine from the flowers that it is nearly allied to *D. macrophyllum*. The flowers are pendent, the sepals and petals about an inch long, creamy white, profusely dotted with dark crimson on the outside. The lip resembles that of *D. macrophyllum*, side lobes deep purplish-violet, streaked with white, the front lobe pale green on the outside, inside of the same deep purplish-violet, streaked with green. This is a very distinct and beautiful flower, quite different from anything I have yet seen amongst *Dendrobiums*, and if belonging to the *macrophyllum* group of plants it will be found to delight in strong heat and moisture.—W. H. G.

Mormodes Lawrenceanum.—This Orchid, figured in the third part of the English edition of "Lindenia," just to hand, is described as a native of New Grenada, whence it was introduced by Messrs. Linden a short time ago. It flowered for the first time in that establishment during January of the present year. *Mormodes Cartoni* (Hook.) is apparently its nearest ally, the colours of the two being very similar. The present species may be readily distinguished by its proportionately narrower, more acute segments and the markedly pubescent lip. The sepals and petals of *M. Lawrenceanum* are light yellowish green, the former having five purple-brown lines, and the latter seven of the same colour, but rather more distinct. The lip is light ochre-yellow, with a few light brown spots near the base and a few interrupted light brown

stripes down the centre. The column is pale whitish yellow, speckled all over with light purplish brown. It is dedicated to Sir Trevor Lawrence, Bt., M.P.

ANGRÆCUM CITRATUM.

THIS is a peculiarly beautiful species, and in Messrs. Low and Sons' nurseries at Clapton hundreds of spikes of flower may be seen during the latter part of March and the beginning of April. This plant was originally flowered in this country about thirty years ago by the Messrs. Veitch and Sons, of Chelsea. This *Angræcum* is a native of Madagascar. The plant in question, like most of the species from the same country, requires a warm, humid atmosphere to have it in perfection, and it should be grown in the East Indian house, or the warmest house that one has at command. It must have plenty of sun and light, and the plants should be potted in shallow earthenware pans in a mixture of Sphagnum Moss and peat. This last should be good peat-fibre from which all the fine earthy particles have been shaken, and in potting, some moderate-sized nodules of charcoal may be used in order to keep the soil open and sweet. The drainage must always be kept in a free and open condition. Water may be given freely through the summer months, and lightly sprinkled overhead from the syringe. Through the winter much less moisture will be necessary, but none of the *Angræcums* can be kept wholly without water, for having no pseudobulbs to store up nutriment, the leaves soon begin to shrivel and die off if kept entirely without. *A. citratum* is a small-growing species having oblong lanceolate leaves some 4 inches in length, narrowed at the base, and bright rich green on the upper side. The scape is pendulous and many-flowered, some 9 inches to a foot in length, and bears two and three dozen flowers; these are closely set, white, with a tinge of pale citron-yellow.

W. H. GOWER.

Cattleya × Parthenia.—M. Bleu, the raiser of this beautiful *Cattleya* figured in the English edition of "*Lindenia*," gives the following information concerning it:—

This new *Cattleya* is a secondary hybrid, which for the stability of its characters which we meet with in different individuals may be considered a well defined type much more easily recognised than the majority of the species of the labiata group. It is sufficient indeed to see one of these plants in order to distinguish it without the least hesitation from all its congeners, which is not the case with the hybrids of the first operation. Three individuals of this latter were successfully reared; the one acquired in all its parts the character of the mother, while the two others borrowed those of the father, and the difference between them is so great that it is indispensable to have the key of the enigma to recognise their consanguinity. This first cross was effected in 1870 between *C. amethystina* as the seed parent and *C. Aclandiae*. It is from the plant which resembles *C. amethystina*, crossed in 1878, the time of its first flowering with *C. Mossiae*, that *C. × Parthenia* was produced. One particular respecting this novelty is that the time of flowering is far from being constant for different individuals. The first rewarded me with its flowers about the end of April, 1889, the second in August of the same year, then a third at the end of October; three other individuals exhibited successively their first flowers, the second about August 20, and the third in the early days of November; lastly, a fourth would have flowered about December or in January, 1891, but the flowers failed. Several having already flowered twice at the same period, is it not permissible to hope that the others will do the same? In this case would not these diverse varieties justify the epithets *C. × Parthenia vernalis*, *æstivalis*, *autumnalis*, and *hibernalis*?

The sepals of this hybrid are rigid, over 2½ inches long, over half an inch broad, and of the purest white. The petals, of the same length, but three times as broad, are white, lightly tinted with rose

near the margin. The lip is serrated, the throat inside being sulphur-yellow at the base and marked to the middle with four carmine lines; the yellow, which extends about two-thirds to the apex, is then replaced by a brilliant violet-rose colour completely striped with carmine.

Cypripedium Leeanaum (T. T.).—Yours is the typical plant, and although very beautiful, it will not bear the name of *superbum*. This is the result of a cross between *C. insignis* and *C. Spicerianum*. It was raised by Sir Trevor Lawrence, Burford Lodge, Dorking.—W. H. G.

FERNS.

GYMNOGRAMMAS.

THESE when well cultivated are amongst the finest and most interesting of all Ferns usually grown in a warm house. Unlike most other members of the family, *Gymnogrammas* require a



Gymnogramma peruviana argyrophylla.

comparatively dry atmosphere, so much so that they will succeed well where nearly all other Ferns would fail for want of atmospheric moisture. A stage over a goodly number of hot-water pipes (which might be designated a dry, hot place) will suit these Ferns admirably. The only thing to guard against is that of letting them get dry at the roots; of this they are most impatient. They should not be syringed overhead at any time, as not only does this disperse the farinose powder upon the fronds, but it also causes damping. When this latter evil takes place in a large, dense plant it is a serious drawback, often causing the loss of several fronds. The plants require but little shade from the bright sun, as when grown fairly well exposed the fronds are retained in much better condition, looking better also from the fact of their not being so much drawn up. In potting

them my practice is to always ram the soil quite firmly, as in the case of Cape Heaths. Good fibrous peat is the best soil to employ for these Ferns; only for the strongest growers would I use any loam if I had good peat at hand. Some charcoal and crocks broken fine are a useful addition. When proper attention is paid to soil and potting they will continue to thrive for a long time without being disturbed. It is thus possible to obtain good-sized plants in comparatively small pots, which for decoration would be found extremely useful. As an instance of this I would note only one kind as an example; it is that of *Gymnogramma peruviana argyrophylla*. Of this Fern capital plants can be had in 6-inch pots or less. This when well grown is always attractive as well as distinct; in fact, there is nothing amongst the wide range of either Ferns or other plants at all like it in appearance. *Gymnogrammas* are easily raised from spores; where a few plants are grown, the increase in a spontaneous manner will be almost or quite sufficient to keep up the required stock. Seedlings, I find, vary much in character at times, and frequently many interesting variations can in this way be obtained. Many of the improved forms now found in collections have been thus raised of late years. These young plants grow surprisingly fast, and are more attractive than older ones, which are by reason of age much decreased in vigour. When it is necessary to retain old or large plants after they are out of condition at the root, a careful reduction of the ball may be made, so that they can be repotted again into the same sized pot. In doing this a rather severe thinning out of the fronds should also be made as a corresponding check. In repotting these, and others also, I prefer to keep the crown of the plant fairly well up, as it tends to keep the plant drier in that particular and critical part. During the winter season frequent attention is necessary to remove any faded or decaying fronds, more particularly the latter. Drip, too, should be guarded against as much as syringing, previously alluded to. In a small state they make capital table plants, the golden forms looking well in either silver vases or those of a blue shade; the silver forms also look best in those of the latter colour or even darker, but neither one nor the other is seen to good advantage in shades of terra-cotta. In a cut state the fronds are very serviceable upon special occasions, but should be so arranged as to display their colours to good advantage. It cannot be said that they last well in a cut state; for one evening or two even I have found them extremely useful upon the dinner-table. There are several varieties all well worthy of cultivation, the following are selections of these, viz., *G. peruviana argyrophylla*, the finest of all the silvery varieties, is of medium growth, but suffers more from damp than most kinds; *G. tartarea*, another silvery kind, is of much stronger growth, and makes a fine specimen; *G. pulchella* is a very compact grower, suffused with powder of a very pale sulphury shade; *G. Wettenhalliana* is a crested form of the preceding, but a dwarfer grower. Of the golden forms, *G. chrysophylla Lauchiana* is one of the finest; this when true to its character has rather short, but broader fronds than many, and makes a splendid specimen; there is also a major form of this variety. *G. Parsonsi* is a crested variety of *G. chrysophylla*, and makes a very compact plant. *G. Pearcei* and the robusta form are both fine kinds; the latter has a more dense habit and makes a better specimen than the type. *G. decomposita*, a golden variety with fronds very finely divided, is a splendid Fern. *G. schizophylla* and the gloriosa variety are two

of the most elegant growers of the family; the last named is a grand basket Fern, having fronds of extra length, from the points of which issue bulbils forming young plants. When much pot-bound I have found a weak solution of Peruvian guano to greatly assist these Ferns.

PLANTSMAN.

BLECHNUMS.

THIS is a very ornamental family of Ferns, comprising about a score of species, very nearly allied to Lomarias. Blechnums have mostly pinnate fronds of a glossy nature. They are all of a robust and hardy character, and will do well either planted out in the rockwork in a house or when grown as pot plants. The kinds having creeping rhizomes will spread and thus form a dense mass; the majority, however, have an erect caudex, which, however, except in a few instances, does not attain any size. The soil best adapted for these plants is a mixture of loam, peat, and leaf-mould; the whole should be made sharp, road-sweepings being admirably suited for this purpose, as doubtless these will include some little refuse which will materially help the plants. Water should be given in abundance through the spring and summer months, and if the heat can be maintained at about 60° for the stove kinds, and 50° for the cooler kinds, all will be well. During the summer months also the plants may be lightly dewed over with the syringe night and morning.

B. OCCIDENTALE is No. 1 of the specimens sent; it is one of the commonest kinds in cultivation, and when growing and in a healthy state, one of the most beautiful. It is widely distributed throughout South America and the West Indian Islands. Coming from so many localities, there are many forms, and I think some of them are distinct as living plants. The specimen now before me seems to be the common form in Jamaica, in which the frond is about 1 foot in length, bearing twenty-four pairs of pinnae, which are some 2 inches long, of a rich dark green above, and having a bold central stripe of dark red sori underneath.

B. LANCEOLA is the second specimen. This is, I think, the smallest Blechnum that I know; it has usually but an entire and simple frond, but frequently the fronds are also furnished with a pair of side pinnae at the base. In either state it is a very pretty object, and makes an elegant plant for a Wardian case or for a pot. It is too small for planting in the rockery except in a very prominent position. It is a widespread plant, being found in various parts of Brazil, about Panama, &c.

B. CAMPYLOTIS.—This belongs to the occidentale set, but it differs in having narrower fronds, and in the pinnae being distinctly auricled on the upper edge at the base, and those at the base of the frond being refracted. It is a very elegant plant and very distinct in its growth. It is found in various parts of Brazil.

B. LONGIFOLIUM is another elegant plant for a Wardian case; it is a slender, delicate-growing species, having a pair of pinnae at the base; sometimes two pairs are produced, but they are always shorter than the main and terminal pinnae; the frond is from 6 inches to 9 inches high, seldom attaining to a foot, bright green on the upper side, paler beneath, with a very broad central band of red sori. It comes from the West Indian Islands and Brazil, &c.

B. BRASILIANSE.—This is a large-growing plant, and one which no fernery should be without. It is not a new Fern, as it has been in cultivation in this country between fifty and sixty years. It makes a stout erect stem, which with age attains to some 2 feet and 3 feet in height, and with fronds 4 feet or 5 feet long, and some 10 inches or 1 foot broad, leafy down to within some 2 inches or 3 inches of the base. It is deep rich green in colour, and one of the very handsomest plants in a stove.

B. ORIENTALE.—Another beautiful kind amongst

the large growers, and although it has been in cultivation many years, it has never been a common species. Its fronds, 1 foot to 3 feet in length and from 6 inches to 9 inches broad, bear a great number of pairs of narrow pinnae of a pale green hue. It is one of the handsomest of the genus. It comes from China, Hong-Kong, the Malayan and Polynesian Islands and the East Indies.

B. NITIDUM.—This is another very handsome form, which, I think, was introduced some years ago from the Philippines by Mr. John Veitch, but it has always remained a scarce plant. It is nearly related to *B. brasiliense*, but it is smaller than that species, and in some forms the pinnae are much contracted. The sori are very bold and showy.

B. FINLAYSONIANUM.—This deserves to be introduced, if it is not now in cultivation. It is perhaps the largest kind known, having fronds with closely set pinnae from 9 inches to 1 foot long, thus making a bold and effective specimen, the underside of the pinnae having a bold central stripe of conspicuous sori. It is like a gigantic form of *B. orientale*. Native of Borneo and Malacca.

W. H. GOWER.

Lygodium scandens.—As this, one of the best of all climbing Ferns, is now growing away freely, it will be well to remind growers of an excellent method of supporting the long slender fronds when they are required for use in a cut state. Given a wall of fairly good height, such as that of a lean-to vinery, strings should first be fixed near to the pot, radiating upwards, but sufficiently far apart to prevent the fronds from interlacing. These should be provided in number near to that of the fronds, so that the strong growths may each have a separate string and weaker ones not more than two together. To these strings the growths should be trained as they grow; oftentimes they will do this in a spontaneous manner. Then when required for decoration the needful fronds can be taken off without any difficulty. I have seen this plan followed with the best results. Fronds from 8 feet to 10 feet long when they can be thus taken entire are splendid additions for vases or arches or for twining around pillars.—H.

The Bird's Nest Fern (*Asplenium nidus-avis*).—When well grown this is one of the noblest of all Ferns. It is probably not seen so much as it would otherwise be, from the fact of there being inferior narrow-leaved varieties which do not recommend this fine Fern. When, however, the lover of Ferns is fortunate enough to secure a nice young plant of the broad-leaved type, quite the opposite will be the case. This variety will as it gains strength develop leaves of unusual size, they often being 5 feet in length and 9 inches or more in width. It is amenable to either a temperate or a stove treatment. The best plant I ever saw was grown in a span-roofed stove. In a small state this *Asplenium* is capital for vases, good plants being easily obtainable in comparatively small pots. When a superior variety is obtained it should be perpetuated from its spores and selections made of the broadest leaved seedlings. I have found this Fern succeed best in a peaty soil with a fair amount of charcoal and Moss in addition to the same—somewhat, in fact, after the kind of mixture one would choose for many Orchids and about as rough, but pressed together more firmly. Of insect pests its chief enemies are black thrips, which should be closely looked after and kept in check by careful sponging. Slugs and snails are also very partial to the young growing fronds. They can usually be trapped by a bait of sliced Carrots.—H.

Hardy Ferns in pots.—Many of the common native Ferns, when grown in pots, are invaluable for indoor decoration, as they keep perfectly healthy in positions where tenderer, but by no means more ornamental, exotic varieties would perish. The Hart's tongue, one of the most plentiful and easily growned Ferns in our clime, is one of the best for making good masses of dark green fronds, which, when sponged and kept free from dust, are really very beautiful. Many of the Lastreas are also suitable, and if one needs variety all he has to do is to get a few roots of the Devonshire or Cornish Ferns that are really beau-

tiful. One thing is necessary with all, and that is to get them well established in their pots before using them for indoor decoration, as they need to be potted up at least a year before they get over the check of removal and become clothed with a full head of fronds.—J.

THE WEEK'S WORK.

FRUIT HOUSES.

VINES.—**THINNING THE BUNCHES.**—When the Vines of the greater portion of the varieties generally cultivated produce no more bunches than they ought to carry, then there is something seriously wrong with them. More often than not every lateral growth on healthy young rods is furnished with two or three bunches, and the strongest breaks on older rods are nearly as productive. In all such cases the thinning out ought to commence as soon as it can be discerned which bunches on each lateral will best meet the requirements of the cultivator, leaving those not wanted on the Vines any longer being so much wasted strength. The first bunch on the breaks is invariably the biggest, and also very frequently the ugliest, therefore not always the best. Long ugly shoulders ought never to be left on the bunches—unless great weight is the principal consideration—and if after these are pinched off, what is left surpasses in vigour and form the second bunch on the lateral, reserve that only, pinching off others there may be and stopping at the second joint beyond the bunch saved. Sometimes the second bunch on a lateral is the better of the two, and in this case remove that nearest the rod at once. There should be no delay in either thinning the bunches or stopping the laterals and sub-laterals. Nor is it advisable to long postpone further reducing the number of bunches, this in some instances being done before they have flowered, or as soon as it can be seen which promise to be the best—the shy setters, notably Muscat of Alexandria, Muscat Hamburg, Black Morocco, and Alnwick Seedling, being finally thinned after it is seen which bunches are best furnished with well-stoned berries. Even the Muscats would be more likely to stone regularly if a moderate number of bunches were left on the Vines at flowering time.

THINNING THE BERRIES.—Much of this has already been done where moderately early forcing was resorted to, this including many vineries devoted to Grapes for market. As yet, however, the great bulk of thinning has to be done, the second early Hamburgs, Madresfield Court, Muscat of Alexandria, Foster's Seedling, and Buckland Sweet-water now claiming attention. The sooner the thinning out is done in reason, the more expeditious will be the process, and the better it will also be for the Vines. A commencement ought to be made when the berries on the forwardst bunches are about the size of the seed of Sweet Peas and completed before, in most instances, any are larger than ordinary Peas. Those acquainted with the capabilities of each Vine ought to be able to thin the berries so that the bunches require little or no subsequent attention, and there certainly ought to be no necessity for removing berries after these are more than half grown. The first thinning can be done cleanly and well, but subsequent attempts usually lead to disfiguring marks on the berries. Particular pains should be taken not to rub with the hat or hair of the head against the bunches, this and the use of dirty scissors often being the cause of the berries being scarred. Close, compact bunches are the best for travelling and the market, and these can be had by removing extra long shoulders and shortening back the rest with the scissors, faulty points also being removed. For exhibition and general appearance, bunches denuded of lop-sided shoulders, and the rest lightly shortened, it may be, and slung up with strips of matting are the best. The uppermost of these shoulders being drawn up slightly above the horizontal position and the rest within regular distances give the bunches a good pyramidal form, and admit of many more berries being saved, while they are fuller and more compact. Complete the shouldering up at the same time the first thinning is done. In the

case of Black Hamburgh, Madresfield Court, Gros Maroc, and Foster's Seedling the thinning out must be somewhat severe, at least two-thirds of the berries being removed, and if large berries are anticipated, nearly three-fourths may well be cut out. Where they run in triplets the central berries are much the largest, and should be saved. After a very little practice it will be a comparatively simple matter to detect the best formed berries or those well furnished with stones, and it is those that ought to be reserved. Much less thinning out is advisable in the case of Buckland Sweetwater. In this case the branches and footstalks are long and not very stout, and if shouldered up well, the thinning may be of the slightest character, those berries not well stoned being snipped out as the larger berries require space. Hard or carelessly thinned, the bunches are certain to be loose, and dish up badly. Muscats and the other shy setters should be thinned out more gradually, or according as it is seen which berries are stoned, those without seeds rarely attaining a serviceable size.

MILDEW ON VINES.—Once well established in a viney, mildew is very difficult to exterminate, yet unless something is done to keep it down, much harm to the Vines will inevitably result. Thoroughly cleansing the glass, woodwork, walls, floors, and borders during the winter will do much towards destroying germs, and directly the dreaded patches of fungus appear these ought to be either dressed with one of the several mildew specifics or else be coated with fresh flowers of sulphur, in this case not omitting affected bunches. Anything in the shape of a wholesale washing or dressing of growing Vines is simply out of the question, as this would disfigure the crops. Low temperatures and the admission of currents of cold air are especially to be avoided, and the other extreme, coupled with much moisture in the atmosphere, favours its spread. What answers well in checking the spread of Tomato disease will not do in the case of Vines, the admission of cold front air especially being liable to start mildew in houses where it never was seen before. Coating the hot-water pipes with sulphur mixed with milk or linseed oil is a dangerous remedy. It will certainly check the spread of mildew and assuredly have the effect of injuring the delicate cuticle of the berries, rust being the outward and visible signs of the occurrence. Mildew was unusually prevalent last season, and it is to be hoped its first visitation to numerous vineries will also be its last. This was probably due to the treacherous nature of the weather in May. We were favoured with bright sunshine for days together, but this was too often accompanied by cold easterly winds. Those who were tempted to open the front lights of vineries paid the penalty of a visitation of mildew, this being evidenced by the fact of the Vines in front of the houses only being over-run by it. Such chills must be guarded against. At the same time a circulation of air ought to be maintained, even if this necessitates the opening of the doors on the sheltered side of the house.

SETTING MELONS.—In spite of the unfavourable weather, Melons are flowering and setting well, there being fewer malformed flowers than usual. Where any difficulty is experienced in setting a good crop of fruit at one time, it is advisable to pinch off the flowers on the lower laterals, and to stop the latter at the third or fourth joint. From these, more fruitful breaks will quickly result, the flowers opening in time to be fertilised with those on the first breaks higher up the main stem, the aim being to fertilise as many as possible on one day or thereabouts, so that all should swell off together. If this precaution is not taken, the chances are the first fruits set will swell rapidly and the rest turn yellow. Where this has already taken place it is perhaps advisable to cut off the one or two fruits swelling on a plant, in order to make a fresh start with later-formed flowers, four or five medium-sized fruits being preferable to two extra large ones. Where, however, the plants are given good room and more liberally treated at the roots, there is less need to remove the few fruits that have taken the lead, the plants being sufficiently strong to set and swell a succession of fruit. If a couple of fruits, or even a single Melon, start to swell on a pot plant,

let it alone, as later attempts to set more at one time may end no better. Two or three bees, or even a solitary one in the house, and they often remain for days together, will save a lot of trouble in fertilising, but naturally much mix the pollen, the seed saved from the fruit being of no value on account of its unreliableness. Maintain a brisk heat and rather dry atmosphere during the flowering period, fertilising the female flowers towards mid-day, and avoiding overhead syringing for two or three days. Stop the fruiting growth one joint beyond the fruit, and other reserved growths unless required for furnishing at the third joint, everything being done to avoid the use of the knife in removing superfluous shoots.

PRACTICAL.

THE KITCHEN GARDEN.

HARDY WINTER GREENS.—The past winter without doubt has shown the advisability of providing in all gardens a good supply of hardy winter greens or Borecole. It is only in very exceptional instances that they have been destroyed, and in these probably where the plants were either drawn up or overgrown through too early sowing or crowded planting. If I had not made due provision for growing these hardy greens, I along with others who have not done so would have fared very badly indeed. That this class of vegetable is very hardy I have proved beyond doubt, but to make them so the plants must receive rational treatment from the sowing of the seed until planting time arrives. Often the seed is sown thickly in beds, these being arranged along the front of south or west walls. A worse position could not very well be chosen. The same quantity of seed that should be spread over a good space of ground is sown together on about 2 square yards. The plants in such a position draw up very weakly, and if they do not exactly succumb to drought, their condition is greatly weakened. An open site should be chosen for the reception of the seed, and the ground previous to sowing should receive a surfacing of burnt refuse and soot. The seed should be sown very thinly in drills 15 inches apart. Broadcast sowing should not be tolerated, this causing overcrowding as much as anything. A sharp look out must be kept from about the time the seed germinates. The small finches often cause great destruction, these pulling up the small seedlings wholesale, and often they do not wait until the seed germinates, but prey upon it as soon as sown. To prevent this destruction, the seeds previous to sowing should be dusted over with red lead, the seeds first, however, being slightly moistened with linseed oil. Nets would have to be fixed over the bed to prevent the seedlings being pulled up. Not only must the small birds be guarded against, but the turnip fly, if the weather should prove at all dry, is often most destructive. To prevent these attacks, keep the seedlings dusted over with wood ashes and soot. The early morning is the best time to apply these. It is only whilst the seedlings are in the seed-leaf that they are subject to attacks, for as soon as the first rough leaves appear the fly departs for fresh feeding ground. The hardiest varieties only being required, the Cottagers' Kale will be found most useful and very hardy. Equally good are the Green Curled, both the tall and dwarf, and also Read's Improved Hearting. This last is very hardy, and follows closely on those above named. The Asparagus, or Buda Kale, should not be omitted, as with me it is perfectly hardy and the latest of all the Borecoles. With a good-sized breadth of each of the above varieties the grower would be proof against the weather.

BRUSSELS SPROUTS.—A sowing of Brussels Sprouts in the open air at this date will give plants suitable for succession to those raised earlier under glass. Plants from this sowing will generally withstand the severest frost, and as the sprouts are late in forming, the main batch may be cleared off the ground much more quickly. As soon as the old stems are cleared off, the ground should be dug over afterwards as quickly as possible, as this plot above any other has a deal of tramping on in all weathers during the winter months, and on account of the heavy manuring the plot no doubt

received previous to planting, it comes in admirably for Peas.

FRENCH BEANS.—These are proving unusually useful this season. This is a most useful catch crop, for where there is convenience at command their production is very simple. Where there are any cold frames at command these may be used for French Beans. A bed of rich soil is all that is needed, no artificial heat being required in the least beyond the protection of a frame. Spent hotbeds which may have been put to other purposes are admirably adapted for the growth of French Beans. Sometimes the practice is adopted of raising the seeds under glass, either in 4-inch pots, three seeds being placed in each, or either thickly in boxes, these being transplanted when ready. Unless these can have protection when planted out, it is useless sowing thus early, as the plants would be crippled almost as soon as planted out. Where this practice is adopted, however, the best plan is to set out in short rows on south borders, the plants being covered with portable lights, and such as I have previously recommended as being well adapted for the purpose of forwarding early vegetables. These are formed by placing two 9-inch or 12-inch boards on edge at a distance of 12 inches or 15 inches apart, these being kept in position by neat cross pieces. Along the tops of the boards a groove is formed, and in which are placed squares of glass. These being placed along the rows they prove an admirable protection, as well as forward the crop. Not only for French Beans, but early Lettuces, or indeed any dwarf crop that needs protection, this mode of covering is most admirably adapted.

EARLY CAULIFLOWERS.—The present season so far has shown the error of the early planting of Cauliflowers, as unless any that may have been planted out have had the protection of handlights or cloches, I am afraid they will be perfectly useless. Up till now the weather has been most unfavourable for early planting, but there need not now be any fear. Autumn-sown Cauliflowers will have been planted or rather pricked out into frames, so with these especially care must be taken to lift them with good balls. Deeply worked and heavily manured soil is most essential for this crop, and the extra precaution should be taken of planting in deeply drawn drills as additional protection. If a spell of cold and drying winds should set in just after planting, cover each plant with a flower-pot for a day or so. January sown plants are in good condition. These having been grown on in 5-inch pots, they will, no doubt, prove quite as forward as the autumn sown.

Y.

PLANT HOUSES.

THE CONSERVATORY.—Where plants are growing in borders as permanent objects, the condition of the soil should now be seen to. In all probability some of it upon the surface can be removed, so as to make room for a good top-dressing. If this is done carefully so as not to greatly disturb the roots, and the new soil pressed down firmly, the plants will soon appreciate the change. Where there is any suspicion that the plants are suffering from drought underneath, a good soaking should be given before the top-dressing is applied. To do this effectually some holes should be made in order that the water may penetrate downwards in an equal manner rather than run away in any old grooves. Tree Ferns and Palms often get dry at the base near the stems, the former giving indications of distress by losing their fronds prematurely, the latter partaking more of a general sickly appearance. To overcome this a ring of clay should be made up at a fair distance away from the stem, then repeated waterings will be more likely to percolate in the required direction. At the time of a thorough rearrangement, no opportunity during fine weather should be lost of giving all permanent plants and climbers a thorough cleansing wherever possible. A fumigation may be needed; this, then, is the time to do it, bearing in mind a mild turn occasionally is better than too strong applications in rapid succession. Where a garden engine can be brought into play in an effective manner, by all

means use it for an insecticide of moderate strength. For this purpose I have used and strongly recommend Bentley's soluble paraffin, which is both efficacious and of easy application.

Where Tree Ferns are beginning to outgrow their limits and getting within dangerous proximity of the glass, the fronds as they increase in length should be weighted down before they become in any way crippled. The best way to do this is by means of small weights just hung upon the fronds (not tied), and shifted as may be necessary. Palm foliage being more rigid had better be adjusted by means of strings when the plants are getting too tall. Thus, in both instances it is possible to retain the plants for a few seasons longer. When a rearrangement is compulsory owing to the size of the plants, it should now be seen to, the removal being done as carefully as possible if by a change of position it is possible to retain the plants. Special treatment afterwards is needful in the way of additional shading and frequent syringings for a few weeks. The effects of removal may be considerably modified by reducing the number of or foreshortening the fronds of the Ferns, and by taking away some of the leaves of the Palms. Tall *Dracænas* or *Cordylines* should be rooted off at a convenient height. The stems should be notched on one side only at the required height, and then after sawing a 6-inch or 8-inch pot in two perpendicularly it should be bound around the stem just above the incision, then filled with good soil and Sphagnum Moss, being afterwards kept attended to for water.

Other work upon borders just now consists in renovating the edgings; these, if of *Selaginella denticulata* or any other species, always require to be replanted every spring. Even if now looking fairly well, it does not do to be led away with the idea that this work is not necessary and may be allowed to stand over. When the summer comes it will often fail in patches and look bad. By adding a little fresh soil and some sand the cuttings will soon take root and grow apace. In most instances a double row should be put in; this, when completed, should be lightly covered with sand. Other plants can, of course, be used; in some instances small plants of the Maiden-hair or Ribbon Ferns would be better, whilst in the most unfavourable positions I would plant *Euonymus radicans variegatus* in preference to either. Upon planted out beds in a conservatory there should not be any pot plants allowed with the pots forming a conspicuous feature. This can be easily overcome by sinking empty pots into the soil large enough in size to take those in which the plants are growing. As a rule, these will consist of flowering examples, mostly of uniform size, any change being effected without difficulty. In conservatories where pot plants in flower are now making good displays, variations in the style of arrangement should from time to time be made both as regards colour and formation. Instead of a promiscuous arrangement of colours and varieties being allowed to pervade the entire group, a collective method, either of typical plants or colours, might be advantageously followed. Two colours of one or two distinct families might thus be grouped together in a most effective manner.

VENTILATION, &c.—Now that finer weather is prevalent, with no danger of sufficient frost to do any harm, cool conservatories will not need any fire heat. Those which are not exactly termed cool houses may be closed up rather early. A free circulation of air should be maintained in genial weather, avoiding undue exposure to easterly winds when these are prevalent. Shading will now be needed, but use only that which is just sufficient to break the effects of the direct rays of the sun. That previously recommended for stoves cannot, in my opinion, be beaten. Upon the sides of high houses nothing surpasses spring roller blinds.

PLANTS IN POTS.—In many instances, but chiefly where pot plants predominate, there will be several things which remain in the conservatory the greater part of the year. These will probably consist of the hardier Ferns, *Ficus elastica*, *Aspidistras*, and Palms, amongst other plants chiefly of an ornamen-

tal character. This will be a very good time to re-pot them, for from now onwards for some little time to come it will be possible to do without them. In this case they can be kept in a more genial growing temperature for a few weeks after potting, pruning, and cleansing have been seen to. The plants should be kept in as small pots as possible consistent with retaining them in a healthy condition.

FLOWERS FOR SUCCESSION.—Forced plants will not now be so much needed as a main source of supply, and what forcing is now done had better be in a moderate temperature only. If pushed on too quickly, nothing will last so well at any time, but now, with much brighter weather and sunshine, combined with an extra amount of ventilation, they will be of even shorter duration. *Azalea mollis* now put into a gentle heat will open with flowers of good substance compared to the earlier ones. Lilies of the Valley in clumps are now far preferable to single crowns for any purpose. The supply of Daffodils should be regulated so as to prolong the

need to be forced now; with a good choice of other things, it will be a change later on to see them re-introduced into the arrangements. Instead of forcing them now I would, on the other hand, retard them as much as possible in order to prolong the season. Of hardy or comparatively hardy plants, *Primula Sieboldi* and the alpine and other varieties of the *Auricula* can soon be had. J. HUDSON.

ORCHIDS.

I HAVE raised and flowered many seedling Orchids, and find the work very interesting. The hybridising



Gymnogramma pulchella. (See p. 369.)

season; for this purpose they succeed the Polyanthus, Narcissus and other spring bulbs. Autumn-sown Mignonette will now be proving useful for mixing with other flowering plants. Pot Roses will now be especially valuable, lasting far better than the earlier ones. A keen eye should be kept upon all the stock of pot Roses against the depredations of the Rose maggot, which will otherwise soon ruin the buds. Established plants of the early-blooming Rhododendrons in pots will make a good show; these only require the slightest amount of warmth with abundance of moisture. With care in respect to watering, no harm will come to the fine kinds of Amaryllis now in flower, provided they are not exposed to cold draughts. Indian Azaleas will hardly

and raising of Orchids are always seasonable. The field of operations is so wide as to be practically illimitable. Crossing and recrossing may be carried on through a lifetime, and the longest life would do no more than just touch the fringe, however actively it might be employed. Any season will do to hybridise, but I fancy this is about the best time to repot the young seedlings, as they have all the summer before them in which to become established again. I remember the late Mr. Dominy telling me that it was best to allow the seedlings to remain until they became of considerable size in the seed-bed, if that term may be applied to the potting material at the base of the old plants. Other very successful growers say, "Do not allow the plants to

remain long, else many of them will die." My experience is that many of the tiny plants die, and I fancy much depends upon the material in which they are growing. If they lay hold of the peat on one side and a piece of charcoal embedded in it on the other, they are likely to do well for a year or more. My plan of action is to grow a few plants of the commonest varieties of Orchids in small pots, and when they have become well established, with the roots running over the surface of the potting material, the seeds may be sown. Any intelligent amateur or gardener who never hybridised an Orchid or raised a seedling may set about the work on his own account. He must begin with the large-flowered species, such as *Cattleyas*, *Lælias*, *Cypripediums*, &c. The part of the flower which will become the seed pod is in the centre, and is technically termed the column. At the top of the column is a cap, which upon being removed discloses the pollen masses; lower down upon the column will be found a glutinous substance, and to this the pollen masses must be attached with a pointed stick. The work is performed naturally by insects, which convey the pollen from one flower to another attached to their crowns. The humble bees do it in our Orchid houses on the natural system. In less than twenty-four hours after it has been hybridised the flower will close up, and the column rapidly increases in size, but sometimes about twelve months elapse before the seed pod is ripe. When ripe it bursts open, and the seeds, which are like dust, are scattered far and wide, unless the cultivator watches his opportunity, and places the seeds where they are wanted. For one good seed there may be a thousand bad ones, and the right way to sow them is to take the ripe pod and tap the potting compound gently with it; the seeds fall out and lie on the top like a fine white powder. If the seeds do not fall out freely, lay the pod on the surface for a day or two, and then give it another shake up. It may be three months or it may be twelve months before any plants appear. Sometimes they appear in crowds, at other times very thinly, and very often none at all will appear. The young cultivator may think if he gets a good seed pod, which is apparently full of seeds, that his work is well nigh finished; but it is not so. The waiting and watching have begun, and even when the young plants do appear they have an awkward habit of disappearing again before they can be planted out in 2-inch pots; after that many deaths may occur, but by patience and perseverance some plants will reach the flowering stage. A careful record must be kept of the time of hybridising, sowing the seeds, vegetation of the same, pricking out into pots, time of flowering, &c., as this is useful for future reference.

Some classes of Orchids are very difficult to obtain from seed. For many years attempts were made to hybridise the Moth Orchids (*Phalænopsis*). It was easy enough to obtain fine large pods apparently well filled with seeds; but under whatever conditions the seeds were placed they refused to vegetate; but dogged perseverance is ever successful in the long run. It was so in the attempts to produce seedling *Phalænopsids*, but Mr. Seden at last produced a nice lot of plants from various crosses. Even more difficult is it to obtain seedling *Odontoglossums*. We can get good and apparently well filled seed-pods, but never a plant from them in the pots, on rafts, or in teak baskets. I have been informed that seedlings from *Odontoglossum crispum* have been raised in France. There may be something in the climate or in the atmosphere of the cool houses there more conducive to seed vegetation than we have in England. There is no doubt but that in time we will master the art of raising seedling *Odontoglossums*. The plan is to continue hybridising them, and sow such seeds as we can obtain. The seeds should be sown on tough peat fibre and *Sphagnum Moss* at the base of the old plants, preferring small pots to large ones for a seed bed. Portions of the seeds may also be sown on the peat in baskets suspended near the roof. *Vandas* have not yet been raised, but attempts are being made. One of the most enthu-

siastic amateurs I know writes to inform me that he has a ripe pod of a cross between *V. Sanderiana* and *V. corulea*; he says the seeds look quite plump under a microscope. He has sown these seeds under different conditions, and we may hope some will vegetate. The cold east wind still continues, necessitating careful attention to ventilation when the sun shines out. Shading is necessary on most days, but we keep the blinds rolled up as much as we can, as too much shade in cold weather is injurious. J. DOUGLAS.

TEMPERATURES AND FOG.

HAVING been taken to task in the pages of THE GARDEN for advocating a low temperature in plant houses during the winter months or resting season, I am pleased to see the report on urban fog upon cultivated plants advise a low temperature in the following words: "Some cultivators keep the temperature during a fog as low as can be done having regard to the safety of the collections in the houses; others raise the temperature in the hope of, to some extent, excluding the fog. There can be no doubt that a high temperature augments the damage, whilst a lower one to some extent hinders it." I find that a plant pushed forward in the spring after having been kept in as low a temperature as it can without injury fully compensates the cultivator by the rapid growth it makes when required to do so, and is far ahead of plants wintered in a high (often too high) temperature. I contend that the low temperature for a large number of plants is a suitable one and a safe one, if extremes are not resorted to. I know of several large establishments where it is impossible to keep a proper temperature in the large houses even in ordinary winters, and the resources of the gardener must have been taxed to the utmost in such seasons as that we have just passed through. With fruit it is a different matter altogether, as I believe such things as pot and early Vines need a few degrees higher temperature to get them to break freely; indeed I find I am obliged to give 5° to 8° higher temperature in this district to get an even break to that in others favoured with more light and sun. No doubt cultivators in more favoured districts can get their Vines better ripened by having more sun and daylight, so that may to a large extent alter the circumstances, and, of course, a maximum temperature will be the best one, but with an absence of sun a slightly higher temperature in these cases has to be resorted to if early forcing is carried on. I have sent this note expressly to show that a hard and fast line in all instances cannot be resorted to, and the cultivator will find out how far he can assist Nature. One cultivator states he could only save his crop of Peaches and Nectarines by a high temperature, and this I believe, as some of our trees had a few degrees higher than advised and we saved the crop; on the other hand, the same treatment to Strawberries entirely failed, but then this may be owing to different positions of the houses and many other influences, not fogs only. I am certain that we shall not complain of late autumn fog in future as much as formerly. It was the fog in February that did such serious damage to plants and fruit in active growth.—GEO. WYTHES, *Syon House*.

—The notes on the above written by Mr. Wythes will prove to many, if proof were needed, that all kinds of stove plants can be grown in a much lower temperature than what was thought needful twenty and thirty years ago, and any practical gardener who has the working of a large garden establishment well knows what a saving in fuel this lower temperature means. If plants can be grown in a temperature of 60°, why should they be kept in a growing temperature of 70° during the dull winter months, when they should be at rest? I have had to do with stove plants for over thirty years, in my young days living under some of our most successful exhibitors. Some of them were of the same opinion as "T. B.," while others, including the late Mr. A. Ingram, of Reading and Alnwick Castle Gardens, advocated a lower temperature during rest. I should like to know how many gardeners have been able to keep their stoves at 65° and 70°

during the past winter. I mean gardeners in large establishments, not men in small places, who have only a few houses and pet plants, and who are allowed any amount of fuel. Gardeners now-a-days are on a very different footing; in fact, many noblemen have done away with stove plants and Orchids for the very reason that they have been given to understand that such plants will only thrive in a temperature equal to the hottest parts of India. When a young man I was employed in a large private garden with nearly 2 acres of glass. All the fruit and plant houses were of the best, including boilers, heating apparatus, &c., and there was no need of being up later than eleven or twelve o'clock, yet in severe weather we had to be up all night in case stoves, Orchid houses, and early vineries, with Pine stove fell a few degrees below a given temperature. If the houses had been given the right winter temperatures the plants would have been all the better, to say nothing of the young men resting instead of burning fuel uselessly. Plants of all sorts and fruits, too, do better with a lower temperature, say 50° to 55° in very severe weather.—W. C. LEACH, *Albury Park, Guildford*.

GRAVEL WALKS AND GRASS EDGES.

NOTHING adds so much to the good appearance of a garden as good walks and clean, well-defined edges. There is no better time than the present for doing any work in connection with walks, &c. All gravel walks should have a smooth, solid surface, sufficiently rounded to throw off water, but not to such an extent as to make them uncomfortable to walk upon. Any good binding gravel can be rolled down into a firm, solid mass, and when once this is obtained, on no account should it be broken up or loosened unless it be to renovate it by adding fresh material and rolling down again. The systematic hoeing and raking of walks are entirely wrong. When this is done the walks can never be kept clean, and they are never fit to walk upon, as the gravel is always loose. We remember a large area of gravel in which the common *Stoncrop* (*Sedum acre*) grew. For many years this gravel had been hoed, raked, and even hand-weeded. These long years of profitless labour had been in vain, and trying to eradicate such a weed as the *Stoncrop* by hoeing and raking only increased it the more, since each plant became broken into fine pieces, which nearly all grew. At last this gravel was watered with one of the patent weed-killers, and in a fortnight this weed was totally exterminated at a tithe of the cost previously annually spent in vain. All weeds are not so tenacious of life as the *Stoncrop*, but all dirty walks should be similarly treated. Salt is an excellent walk cleanser, and some of the best walks we know are kept perfectly clean by being salted once a year. On the other hand, there are those who object to salt, and say that it favours the growth of weeds afterwards. This is so if the walks are full of seeds as well as weeds, as the salt does not kill the seeds, and when they germinate the young plants find nourishment in it. If persisted with, however, till all the seeds had started, and the walks were not stirred to bring other seeds near the surface, there is no doubt that salt would in the end, after repeated applications, prove effectual. For such neglected walks, however, some of the patent weed-killers are preferable. There is no need for annual applications, because if the walks are edged with Grass that has to be mown regularly, seeds will not find a way to them, except, perhaps, a few stray ones borne by the wind; and if these are observed, they can be, and should be, pulled up before they run to seed. Considering that these weed-killers are used at the strength of one gallon to twenty-five gallons of water, a drum or cask will last for a considerable length of walk; and where labour is scarce they are a great boon. This is one way of keeping walks fresh and clean. The application of new gravel is desirable from time to time, if possible, and the present is a good time to apply it, so that it can be rolled down and made firm before hot, dry weather comes. Where gravel is expensive and not easily obtained, walks may be freshened by turning them, provided there is sufficient depth of fine surface gravel to admit of

this being done without breaking up and bringing to the surface the rougher stuff forming the foundation of the walk. If the gravel is too shallow, turning had better not be attempted; but every well-made gravel walk should have enough gravel upon it to admit of that being done if required. The Grass edges should also now have attention and be put in order for the season. They should be cut with the edging knife, but not in the drastic manner many perform the operation, namely, by annually taking off great slices of turf, 1 inch, 2 inches, or sometimes more in width. We have seen this done annually, till walks and drives have been needlessly widened.

In the course of the season, irregularities are bound to occur in the edges, and sometimes pieces are broken or trodden out, but this does not warrant the cutting back of the whole edge to the extent created by one or two gaps. A more sensible method would be to lift a turf at the spot where the edge is broken, set it forward as far as required, and insert another strip at the back of it. Thin strips cannot be laid down effectually upon the face of an edging, but the edgings can be repaired in their worst places as above advised. This done, previous to cutting, the whole edge might have a good beating with the turf beater, and then the line may be put down and the knife used, and it will be found that only a very thin strip has to be cut away, enough to make the edges clear and clean, but not to make any perceptible difference in the uniform and permanent width of the Grass edge or gravel walk. It is much better to attend to these matters once a year, when a little labour is well and profitably expended, than to leave edges and walks alike to become overgrown and weedy before setting about putting them in order.—*The Field*.

THE PERILS OF THE WINTER.

THE past winter, by the destruction it wrought, illustrated in a remarkable degree the difficulties experienced in keeping alive during a time of unusual severity certain plants nearly or quite hardy. My cold house, at the back of the dwelling, is a lean-to facing south, and, there being a basement, is open below; the floor of the house resting upon brick pillars, it is open to attack, therefore, on three sides, above and below also. The east end is much exposed to easterly and northerly blasts. I may state that I use it principally for storing during winter, plants in large pots used for the decoration of the forecourt garden on the north during summer, where but little will grow. The plants were housed during late autumn before the winter set in.

And now for a list of casualties. Six large specimen *Agapanthus umbellatus* in 12-inch pots completely killed, the roots a mass of rotteness. A large specimen I could just carry of *Agave americana* and several small ones completely killed. Several good-sized plants of *Lavatera arborea variegata*, most effective objects in summer, all killed. Good-sized specimens of *Yucca recurva* very much browned, and the hearts completely gone; smaller plants suffered much less. Plants of *Aralia Sieboldi*, standards with big heads, the tops completely gone, and I have had to cut them down nearly to the ground. *Saxifraga ligulata* and *S. ciliata* in large pots, the latter certainly a little tender, very roughly treated, and the flower-stems of the former are in many instances rotten. Not a *Fuchsia* or a zonal *Pelargonium* left, though I can manage generally to keep them through the winter by allowing them to go dry during times of frost and wrapping old newspapers about the pots. *Ophiopogon Jaburan variegatus* so much injured as to be, I fear, hopelessly beyond recovery. Some fine plants of *Pachyphytum bracteosum*, of which I was very proud, are completely killed. *Cereus flagelliformis* destroyed outright, after surviving the past ten or twelve winters. These are the chief losses. Male *Aucubas* much browned; *Thujopsis dolabrata* the same; while *Osmanthus ilicifolius* and *Retinospora plumosa* look very rough indeed.

I feel sure that it is the frost reaching the roots which caused the main of these losses, and its

effects were enhanced by the fact that my cold house is paved with slabs of slate and completely open below, and so the frost gained ready access to the pots. The best thing I could do was to raise the plants above the floor by standing them upon inverted flower-pots, but the severity of the frost made that precaution of but little avail.

R. D.

NOTES FROM THE RIVIERA.

FROM the daily papers it would seem as if gardeners in England must be having a very bad time of it, and yet when one reads in THE GARDEN of "bright flowers daintily fluttering in the warm sunshine," one is tempted to think there must be exaggeration on one side or the other. Which is most reliable? Here, at any rate, we have escaped all wintry storms this month, but the weather has not been settled, and only a few days have been ideally genial and still. Flowers have benefited by the rains that have now and then fallen, and the gardens at Cannes, Nice, and San Remo have now many charms for the most careless passer-by.

Year by year sees fresh developments of floral beauty in well-cared-for gardens, and few things this spring have been more striking than the gorgeous beds of *Cinerarias* bedded out in various colours under the shade of the Palms. In the open air the flowers attain a colour and solidity unknown under glass, and the absence of aphids is another mark of difference which tells how well they like the open air and cold dewy nights of spring. *Freessias* are now grown very largely and scent the air around, while their clear white and lemon tones are most welcome after the blaze of *Anemones* now just over.

Stocks, white, red, and purple, are grown by the acre for the Paris flower market, as they travel so well, as is the case with the fragrant *Mignonette* now in perfection. The other day in a garden at Golfe Jouan, I learnt with interest and surprise that various French amateurs have been experimenting about the relative or positive hardiness of various Palms and succulents in the neighbourhood of Paris, as well as further south near Bordeaux. Strange though it may seem, I am positively assured that in one garden near Paris the following Palms and succulents, growing outdoors and only sheltered with straw mats during the nights of intense frost, have not been injured in the least. Needless to say, all others have entirely succumbed to such a trial, and it is most surprising that any should be found so frost-enduring. If only they can stand the chill damp of an unkind English summer, we may all hope to see our gardens adorned by one or more of these Palms. Mention has often been made of the vigour and hardiness of the Canary Palm (*Phoenix canariensis*) on the Riviera, but this has proved quite tender, except on these sheltered shores; while a near neighbour, *Phoenix senegalensis*, has proved quite hardy, even near Paris. This is a very bold and vigorous Palm, and if it will stand our low summer temperature, is positively a gain of the greatest value. So far it is very rare, but now that its hardiness has been so unexpectedly proved, it will be eagerly sought after as a most valuable and decorative Palm both for terrace decoration or for planting in sheltered and sunny nooks. *Jubæa spectabilis* is another fine Palm that has proved quite frost-proof, and will, I really expect, succeed in any sheltered English garden near the coast. There are two more Palms of great beauty which thrive only on light sandy soils such as are common in Southern England, and both have stood out near Paris; one is the lovely blue Fan Palm (*Brahea Roezli*) I have

praised before, and suspected its extreme hardiness; the other is curiously a *Cocos*. *Cocos australis* may perhaps stand the frosts even of this last winter, but I much doubt if our summer temperature will suffice for its wants. Still, it is a cheap Palm, and so well worth a trial in some soils and situations. Only two *Agaves* have stood the trial of last winter, and they are curiously about the handsomest varieties in their separate sections—*Agave applanata* in the glaucous-leaved section, and *Agave ferox* in the green section. The latter is rather a small, low-growing kind with most formidable hooked thorns, and the former is very striking with its long, rigid, blue-green leaves, tipped with a sharp, straight, black, spear point.

Banksian Roses are now in beauty in the sunniest gardens, and Safrano and Maréchal Niel Roses getting each day more abundant. The big bunches of these Roses and common Lilac are now a joy to all flower lovers, and tell how widely different our temperatures must have been from those in the north. After the frost blackened *Heliotropes* at Cannes, it is delightful to see that at San Remo no damage has been done to the fragrant walls clad in purple masses of *Heliotrope*, and in the sheltered nooks near Monaco and Esa the *Wigandias* and *Bougainvilleas* are now flowering, though they got cut to some extent during the winter. When one reads of English gardens where even the hardy Daffodil dares hardly raise its head, and then looks on these fragrant and flowery Edens, it seems selfish to enjoy their beauty without trying to make those at home share at least that part which can be conveyed by words.

E. H. W.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 14.

THIS meeting in many respects must be considered the best yet held this season. Orchids were present in large numbers, the most prominent being those from Baron Schröder, other fine collections coming from Sir Trevor Lawrence and Messrs. Sander and Co. From Messrs. H. Low and Co.'s Enfield Nurseries was sent a very brilliant group of spring-flowering greenhouse plants, other excellent groups coming from Messrs. B. S. Williams and Son, of Upper Holloway, and Messrs. Cutbush and Son, Highgate. Messrs. Barr and Son's collection of Daffodils was in all respects an excellent one. The lecture of the afternoon was better attended than usual. On this occasion it was delivered by Mr. F. W. Moore, Glasnevin Botanic Gardens, Dublin, the subject being "*Lachenalias*," of which specimens of different species were laid upon the table, prominent among others being *L. Nelsoni*, *L. tri-color* and its varieties.

Orchid Committee.

First-class certificates were awarded to—

DENDROBIUM HYBRIDUM VENUS (*D. nobile* × *D. Falconeri*).—This hybrid in most respects resembled *D. nobile*, but at a glance one could see traces of its other parent. The colours were those of a fine form of *D. nobile*, somewhat subdued; sepals and petals were broader than usual, and of greater length than in that well-known kind; the lip was that of *D. nobile*, but more expanded, the general contour of the flowers more resembling *D. Falconeri*. The growth was erect, but much more slender than in *D. nobile*. This is a valuable and most interesting addition to the hybrid *Dendrobies*. Exhibited by Mr. N. C. Cookson, Wylam-on-Tyne.

EPIDENDRUM DELLESE (*E. xanthinum* × *E. rhizophorum*).—This is another beautiful hybrid with a terminal cluster of bloom, the individual flowers being densely arranged. The colour is a rich orange-scarlet, the growth slender and erect. Al-

though not a plant of large growth, this is a decided acquisition to its family. From Baron Schroeder.

An award of merit was given to—

LYCASTE MASTERSIANA.—In some respects this might be considered a major form of *L. Deppii*. The flowers are much larger than in that well-known old kind, not of such a deep yellow colour, but with a darker lip. From Messrs. Sander and Co., St. Albans.

Baron Schroeder sent a remarkably fine group of the rarest and choicest Orchids seen for a long time. Most notable among these was a grand specimen of that superb hybrid *Lady's Slipper*, *Cypripedium Morganii*, carrying twenty-two splendid flowers, with in one instance four fully developed upon one spike. This plant was in most luxuriant health, a model of good cultivation. This is without doubt one of the finest of the genus. Another exceedingly choice hybrid was that of *Lælia Digbyana Mossii* (*Brassavola Digbyana* × *Cattleya Mossii*). This has the sepals and petals of the last-named parent, the lip also pale with yellow markings, very broad and beautifully fringed, partaking in this respect of its other parent. This hybrid is without doubt one of the greatest triumphs attained in this direction by Messrs. Veitch and Sons, the raisers. When first shown, in 1889, it was awarded a first-class certificate. The plant then had only one flower; now it has produced two, and these much finer than upon the former occasion. Some exceedingly choice *Odontoglossums* were staged in the same collection, *O. Alexandræ* (*crispum*) being represented by three very fine forms. These were *O. Stevensi*, with markings of a pale brown, a grand arching spike with two branches carrying twenty-two fine flowers; *O. Wolstenholmiæ* has rather broader sepals and petals with more colour; whilst *O. Veitchianum* is of much richer colour, sepals and petals broad and flatter than usual. A fine form of *O. maculatum* var. was shown with very distinct markings, and a pale variety of *O. Pescatorei* with an extra sized spike was conspicuous. *O. hybridum dellense* is quite a distinct variety; it has a trace of *O. Pescatorei* in the form of the flowers, but the ground colour is a rich golden yellow, barred with brown; this is an extra choice kind. *O. Halli* was represented by a plant with two extra long spikes of a well-marked variety. *O. Ruckerianum* was to be seen in fine condition, the branching spike a very strong one. *O. Cervantesi morado* was noticeable from the delicate markings. *Dendrobium nobile nobilius* was represented by a vigorous example with its well-known and highly coloured flowers. *Cattleya Lawrenceana*, of which a fine plant was shown, had blooms with the lip more highly coloured than usual. Another capital form was to be seen in *C. Lawrenceana* concolor, and yet another with the nearest approach to a blue yet seen in a *Cattleya* was in that of *C. Lawrenceana Vincki*. *Lælia Jonghiana* was staged with two fine spikes. Two quite distinct forms of *Cymbidium Devonianum* were to be seen here, one in which a chocolate colour predominated, and in the other a greenish yellow; the latter is a richly coloured form. *Cymbidium eburneum Lowianum* has traces of both of its parents indicated in its name, and is best described as being intermediate between the two. Two other fine varieties of *Cypripediums* were present in *C. macrophyllum* and *C. barbatum Warneri*. Two good examples of *Masdevallias*, quite large specimens, were to be seen in *M. ignea*, nearly 2½ feet through with about 100 fine blooms, and a somewhat smaller, but fine plant of *M. Lindeni* (Gold medal). Sir Trevor Lawrence exhibited a group of well-grown *Masdevallias* from his Burford Lodge collection. These consisted of *M. Lindeni splendens*, a superior variety of the type with blooms of a rich violet-pink colour; *M. Harryana acanthifolia*, another fine kind. Of *M. ignea* several well coloured examples were staged, consisting of the type, with *M. ignea coccinea* and *M. ignea Massangeana*, an extra fine form; *M. Fraseri*, a highly coloured variety; *M. splendida* (hybrid), *M. Shuttleworthi* and its pale variety *xanthocorys*, with *M. Armini* and *M. triangularis* completed a most interesting group (Silver Flora medal). Mr. Whiteley showed a mixed collection of Orchids from his nurseries at Hillingdon. These consisted of healthy and well-flowered plants of *Dendrobiums*

in variety, among which were well-marked forms of *D. nobile*, both dark and light kinds, and *D. Wardianum delicatum*. With these were also several nice plants of *Odontoglossums* in variety (*Silver Flora medal*). Mr. F. C. Jacobb, Cheam Park, Surrey, sent an excellent group of *Phalænopsids* and other Orchids. These consisted of *P. Schilleriana* (good plant and spike), *P. leucorrhoda*, *P. amabilis*, *P. Sanderiana*, the last a very robust plant, all being in excellent health. The beautiful yellow *Oncidium concolor* was here shown in fine form, *Odontoglossum Pescatorei*, *O. citrosum* and the rosy variety, also *O. Alexandræ*, the lovely *Dendrobium Devonianum*, and a fine variety of *Cattleya Mossii* were also staged here (*Silver Banksian medal*). Messrs. Sander and Co., St. Albans, had a group of choice varieties of Orchids, chiefly small plants; the best were *Dendrobium Brymerianum*, with its deep golden flowers and finely-fringed lip; *Ada aurantiaca*, two spikes; *Odontoglossum Coradinei* (a pale variety), and *O. Coradinei hemileucum pictum* (a very elegant form spoiled by its long name only), *O. mulus splendens* (extra strong), *O. triumphans* (a very fine variety), *O. vexillarium* (a strong spike with nine blooms), *O. Roezli* and *O. Pescatorei*. Others consisted of *Angræcum Sanderianum*, with its long spikes of elegant flowers, *Maxillaria Sanderiana* (distinct, richly coloured centre), *Warscewiczella violacea*, *Cypripedium hybridum nitidissimum* (*C. caudatum roseum* × *C. conchiliflorum*), a very fine hybrid *Lady's Slipper*, *Oncidium sarcodes* (two fine spikes), the botanical curiosity *Masdevallia Chimæra*, *Scuticaria Hadweni*, a novel Orchid with Rush-like foliage and flowers not unlike those of an *Odontoglossum*, save the lip, which is cupped; *Zygopetalum graminifolium*, *Maxillaria Kimballiana*, yellow sepals, chocolate centre, spotted; *Lælia elegans Arnoldiana*, a highly coloured variety; *Cattleya hybrida* (*C. intermedia* × *C. superba*), a very distinct hybrid, with the sepals and petals of the first named parent and the lip of *C. superba*; *Odontoglossum Andersonianum lutescens*, a pale form, sparsely spotted (*Silver Banksian medal*). Mr. Malcolm S. Cooke, Kingston Hill, Surrey, sent a smaller, but excellent collection, consisting of *Dendrobium crepidatum*, *Cattleya Mendeli*, *Odontoglossum Andersonianum*, *O. Alexandræ*, *O. Rossi majus*, *Oncidium sarcodes*, and a plant with several fine flowers of *Chysis bractescens* (*Bronze Banksian medal*). Mr. F. A. Bevan had a group of *Dendrobium thysiflorum* and other Orchids, *Aerides Fieldingi* (the Fox-brush *Aerides*) being most conspicuous with two fine spikes (*Bronze Banksian medal*). Messrs. J. Veitch and Sons sent a very fine hybrid *Odontoglossum* (*Miltonia*), *Bleuianum splendens* (*O. Roezli* × *O. vexillarium*); the flowers partake more of the first named parent, the foliage and growth more after the latter; it is quite distinct, with a fine dark blotch upon the lip. From Mr. W. Bryant, Stoke Park, Slough, came a strong plant with several finely spotted flowers of *Cypripedium bellatulum superbum*. Mr. A. Playne, Minchinhampton, showed the novel, but beautiful *Cecologyne pandurata*, with an extra strong spike of twelve blooms of extra size; the sepals and petals are greenish yellow with spots and a blotch upon each lip of black—a most unusual combination of colour. Messrs. Pitcher and Manda showed a hybrid *Lady's Slipper*, *Cypripedium Rowallianum* (*C. villosum* × *C. venustum*), distinct traces of each parent being evident. Away from the other Orchids was a grand plant of *Cymbidium Lowianum* with six extra long and fine spikes, averaging twenty-two blooms to the spike. No award was given to this plant, but it most deservedly ought to have had at least a cultural commendation. It was sent by Mr. Wythes from the Syon House collection of Orchids. This example has been rapidly grown from a small plant in about two years. It would be interesting to many if Mr. Wythes would describe his successful method of cultivation in this case.

Floral Committee.

No first-class certificates were awarded upon this occasion, but awards of merit were made in the following three instances:—

PRIMROSE JAMES NIMMO (grown out of doors),

from Mr. G. F. Wilson, Heatherbank, Weybridge. It is of a deep rich blue, with a tinge of purple and a distinct yellow eye, altogether a fine variety, which, if planted in contrast to yellow kinds, would be seen to splendid advantage.

BEGONIA TRIOMPHE DE NANCY.—(From Sir Trevor Lawrence's collection.) The habit of the plant is an excellent one, very dwarf and compact, being profusely covered with its coral-red flowers. This variety should prove another stepping-stone for the hybridiser of the *Begonia*.

CAMELLIA THE DUCHESS is another of the fine kinds grown by Messrs. Wm. Paul and Son, Waltham Cross. It is of quite a distinct colour, a bluish-pink; the flowers large and full. Even with the large number now in cultivation, this should prove an excellent addition.

To Messrs. Barr and Son a silver Flora medal was awarded for an extensive collection of Daffodils and other spring-flowering bulbs of a hardy nature. The former were shown in good variety. Among these were fine examples of *N. scoticus* (the Scotch Garland Lily), bicolor *Horsfieldi*, poeticus *ornatus*, Santa Maria (deep golden self-coloured), the Saragossa Daffodil, nanus, spurius, Golden Spur, rugilobus, Countess of Annesley, and Leeds. Of other things were staged varieties of *Chionodoxa* (illustrating by the repeated displays the length of time these spring beauties remain in perfection) with *Anemones* and *Hepaticas*. A silver-gilt Banksian medal was most deservedly voted to Messrs. Hugh Low and Co. for an interesting display of early-flowering greenhouse plants, confirming the remarks of a writer in a previous number of THE GARDEN as to their special value. These consisted of the following varieties of *Cytisus* (or *Genistas*), viz., *C. fragrans*, dwarf habit; *C. atleanus*, small foliage, deep orange-yellow flowers; *C. everestianus*, a much darker shade of colour than *C. elegans*, was also shown. The curious, but beautiful *Grevilleas* were represented by *G. Preissi*, *G. rosmarinifolia*, and *G. alpina*, a dwarf variety. Beautiful dwarf plants of *Ericas* were also shown, the best being very compact plants of *E. Cavendishi*, *E. ventricosa coccinea minor*, *E. persoluta alba*, *E. Spenceriana*, and *E. melanthera*. *Boronia*s were finely shown, some plants of *B. heterophylla* being studded with bloom of rich colour; *B. elatior* was also in good condition. *Pimelea Hendersoni* and *P. Nieppergiana*, with *Genetyllis tulipifera*, *Aphelexis rosea* var., *Leptospermum bullatum*, *Eriostemon linearifolium*, and *Anopteris glandulosa* (of *Andromeda*-like character) completed a fine display. A silver Banksian medal was awarded to Messrs. Cutbush and Son for another collection of plants of like character to the preceding. Amongst these were excellent dwarf and profusely flowered plants of *Erica Cavendishi* and others. Some well bloomed plants of *Clivias* were to be seen here also, and a very dwarf form of *Mignonette* with extra large spikes of bloom, well adapted for pot culture; it is of the Machet type, but was named *Snowdrift*, the meaning of which was not apparent. Another Banksian medal was voted to Messrs. B. S. Williams & Son for a brilliant display, consisting of several of their seedling *Amaryllises*, of which *Dazzle*, a bright colour with distinct stripes (plant extra strong), *Emperor Frederick* and *Distinction* (pure white, starry centre) were the best. *Erica perspicua erecta* was here in profuse flower, and *Spirea astilboides* covered with fine spikes of bloom, proved its value as a companion to the well known *S. japonica*. *Erica Cavendishi* and *Boronia heterophylla* were also in fine form.

Mr. Gilbert, Anemone Nurseries, Bourne, Lincolnshire, showed a collection of Daffodils, *Anemones*, and *Crown Imperials*. Messrs. Paul and Son, Cheshunt, staged some of their improved varieties of *Amaryllis* in very small pots. Messrs. W. Paul and Son had *Roses* represented by cut blooms of *Duchess of Albany*, deeper in bloom than *La France*, and a promising variety of *Tea-scented* in *Corinna*, with full flowers of a salmon-pink colour and dwarf habit. From the Royal Gardens, Kew, was sent a most interesting basket of alpine plants in profuse bloom. Sir Trevor Lawrence also exhibited a remarkably fine variety of *Anthurium Scherzerianum* called *lati-*

folium (well named), the spathes also being very superior. Miss Jekyll, of Munstead, Godalming, showed a beautiful form of the common Primrose, having white flowers and a clear yellow eye, called Munstead Early White. Mr. Wythes, of Syon Gardens, sent some well-flowered plants of *Spiraea confusa*, now blooming for the third year in succession. These were awarded a cultural commendation.

Other floral exhibits consisted of those staged for the prizes offered for Daffodils. The competition was not in any sense keen. The challenge cup was awarded to Mr. Cowan, Valleyfield, Penicuik, for a comprehensive display of nearly eighty varieties of the major and minor forms (*Tazettas* excluded). Of the former, Emperor, Empress, bi-color grandis, Sir Watkin, and Horsfield were the best; of the latter, the most interesting were cyclamineus, minimus and nanus; Tuscan Bonnet with flowers almost erect was very distinct. The manner in which this exhibit was staged deserves a word of commendation, the blooms being arranged upon a carpet of green Moss. Southern growers would do well to copy. For nine varieties the same exhibitor was again first; here he had J. B. M. Camm, Ajax maximus, and Leeds Duchesse of Westminster in good form. For six varieties, Rev. W. Wilks, M.A., was first, staging fine blooms. For a collection of Daffodils, Polyanthus excluded, Messrs. Barr and Son's small silver medal was awarded to Miss B. F. M. Doyné, Seaford House, Gorey, Ireland.

Fruit Committee.

A silver Banksian medal was awarded to Mr. Cummins, gardener to Mr. Smee, Carshalton, for a well-kept collection of Apples and Pears, consisting of thirty dishes. The Pears were chiefly stewing varieties, as Catillac and Uvedale's St. Germain. The Apples consisted of Wadhurst Pippin, Bismarck, Gooseberry Apple, and Dutch Mignonne. From Mr. Gilbert, Burghley Gardens, came a very fine dish of Strawberry named John Ruskin. As shown it is best described as a superior form of Vicomtesse Héricart de Thury both in appearance and flavour (awarded cultural commendation). From Messrs. H. Lane and Son, Berkhamsted, came examples of Lane's Prince Albert Apple in splendid condition. This, although a cooking variety, is at this season no mean addition to the dessert. Some of those shown which were of medium size were very highly coloured (cultural commendation).

Fruit of *Solanum guatemalense* (the Melon Pear) came from Messrs. Vertegans & Co., Birmingham. Mushrooms were sent by Mr. Miller, gardener at Ruxley Lodge, Esher. These were of good quality and were awarded a vote of thanks. A small Melon was sent from Davenham Gardens by Mr. Bradshaw, but it is yet too soon to form an opinion upon these fruits. Mr. Leach, Albury Park Gardens, sent very superior fruits of Tomatoes Ham Green and Ladybird. These were highly coloured and of good flavour (cultural commendation).

National Auricula and Primula Society.

—The prospects of the annual exhibition of this society, which will be held at the Drill Hall, Westminster, on Tuesday next, are exercising the minds of cultivators. The season is not only very late, but also a very trying one, for flowers open very slowly, and some growers are at their wits' end as to how to have their trusses of bloom fully expanded by the 21st. That the exhibition will be smaller than usual there can be no doubt, but while it is certain some good flowers will be staged, there will yet be a certain amount of roughness. The self varieties will no doubt be in the best form, as they expand their tips much more readily than do the massive green, grey, and white edges. The alpine varieties will no doubt be very good and much more numerous than the edged flowers. Polyanthus and Primroses, double and single, should be well represented, and the early flowering species of Primulas in strong force.

United Horticultural Benefit and Provident Society.—At the monthly meeting of the above on April 13, the secretary (Mr. Wm. Collins) reported the death of one of the oldest members of the society—Mr. R. H. Bard—who joined it twenty-

three years ago. The deposit standing to his account in the ledger amounted to £39 8s. 5d. This amount the treasurer paid to his widow whom he had nominated to receive the same. Inquiries having been made as to the case of Mrs. S. Vine, who was left with four young children, having lost her husband suddenly whilst gardener at Oak Park, Tralee, Ireland, the committee unanimously voted her the sum of £5 from the benevolent fund to meet pressing necessities. The late member, J. W. Vine, joined only a few years back, his deposit having been paid to his widow at the March meeting. Several new members were then elected. Afterwards the meeting was formed into a special general one for the proposed alteration of the rule regulating the holding of the annual meeting in February, deferring it in future until the second Monday in March. The immense increase during the last few years necessitates this alteration to provide time for the proper inspection of the accounts by duly qualified auditors at the expiration of the current year. This alteration was carried unanimously. Mr. N. Cole, one of the founders, presided at both meetings.

The Gardeners' Royal Benevolent Institution.—Just as we are going to press we learn that Mr. George Ingram, secretary to the Working Boys' Homes, Buckingham Street, Strand, has been appointed secretary to the Gardeners' Royal Benevolent Institution as successor to the late Mr. E. R. Cutler.

NOTES OF THE WEEK.

A note from the Isle of Wight.—I must confess to Mr. Leonard that I am not so certain as I should like to be about the correctness of the name of one of the Primulas which I mentioned last week. I judge this from the leaf. It came to me under the name of *Primula glutinosa* from a first-class nursery, and it was only this morning when I was working in my rockery that any doubt about the matter occurred to my mind. It has not blossomed yet. I may mention, as showing the usefulness of Mr. Wood's glass-holders, that within the last two or three days *Calceolaria plantaginea* and *Primula obconica* have given strong signs of life, and both of them are very often regarded as being greenhouse plants.—H. E.

The Plum blossom.—I fear that the past severe weather has been too much for the Plum blossom. In this garden all the flowers which have expanded are spoilt. I believe this is the result of the very sharp frost we had on the 24th of last month. The buds at that date were very prominent, some of them almost ready to burst. However, I hope that the later buds will have fared better; in fact some which I have examined seem to be all right. You will observe that most of those enclosed herewith have all the stigmas rotted, while the stamens and petals are quite fresh. I trust that a similar state of things has not happened to the Pears and Peaches, and so far as I have been able to ascertain they appear to be safe. This garden is very much exposed to the east winds, and vegetables have suffered very much. Fruit trees never looked more promising, and are in a very backward condition, and if the buds of Pear and Apple trees have not been injured we shall no doubt have a fair crop of fruit.—T. A., *The Gardens, Cirencester House.*

Bauera rubioides.—Although this pretty little greenhouse plant is to be found in bloom more or less throughout the year, it is during the present season that it is seen at its best. Individually the flowers are small, being little more than half an inch across, but their bright rosy colour makes them stand out like little jewels against the deep green foliage. Each flower consists of eight petals, which, being slightly incurved, render it somewhat cup-shaped. The species is found in S.E. Australia and Tasmania; in the latter island it is especially abundant. Several species have been described, but they are now considered to be reducible as varieties under *B. rubioides*. They differ chiefly in foliage and habit, the names *depressa*, *microphylla*, and *humilis* sufficiently suggesting their differences in character. The leaves are about half an inch

long and divided nearly to the base into three segments. As they are sessile and arranged in opposite pairs, they seem at first sight to be in whorls of six. Considering the attractiveness of this plant and its very easy culture, it is certainly worthy of wider cultivation than it now receives. It should be grown in a compost of peat, leaf soil, and sand, care being taken in regard to drainage. It is easily struck from cuttings, and commences to flower when only 3 inches or 4 inches high.

Androsace Lagerri.—This, when well done, is one of the most charming rock plants we have seen for some time. It is not only a much earlier, but also a more abundant bloomer than its near ally *A. carnea*, and though late this year, its usual time is about the middle of February. Many of these delicate alpine plants suffer more from exposure to the sun in our climate than from anything else, and *A. Lagerri* had always proved a very indifferent grower until we found this out. We at last planted it in an eastern exposure in free gritty soil, and an abundance of delicate pink flowers is an ample reward. This plant is easily raised from seed, and as the plants invariably flower the second year, not much time is lost by this method. If plants are imported from the Pyrenees, they often take a couple of years to get thoroughly established, and even then are often very unsatisfactory. We have not yet succeeded with *A. Vitaliana*, which we once saw carpeting the ground with its brilliant golden flowers in a Swiss valley. It seems to us one of the most attractive of the alpine species, and, so far as we know, one of the most difficult to manage well.

Libertia formosa.—In the neighbourhood of London the *Libertias* are scarcely hardy, although at Glasnevin and other favoured places they thrive luxuriantly out of doors. This, however, should not deter anyone from cultivating *L. formosa*, although it may require the protection of a cool greenhouse. It is perhaps the finest in the genus, and during the present month and May makes a really pretty picture. It is of very graceful habit, the leaves, which spring from the rhizome in Iris fashion, being each 1 foot to 2 feet long, narrow, and arching. The flowers are arranged in a dense raceme terminating a scape from 18 inches to 2½ feet in height; they expand in succession, from three to six being open at one time. The perianth is in six parts, three being very small, the others, however, being nearly orbicular, and large enough to make the flower 1½ inches wide; they are of a perfectly pure white. The species was first discovered on the island of Chiloe by Mr. James Anderson, and was sent by him to Mr. Low's nursery at Clapton; afterwards it was found on the adjacent mainland of Chili. It is one of numerous examples which show the affinity existing between the New Zealand and Chilian floras, most of the *Libertias* being found in the former place.

Alstroemerias.—In reference to the several notes on deep planting of *Alstroemerias* which have lately appeared in THE GARDEN, it appears to me that in judging of their capability of withstanding an exceptionally hard winter very much depends on whether they are well established or newly planted. I noted in THE GARDEN about three years ago how I had sown seed of *Alstroemeria chilensis* or *hamantha* in the open on a raised Vine border in April, and that it came up strongly the same summer and even flowered a little. The next two years it was a grand bed, and this year the plants are now about 3 inches high, and quite as luxuriant as before. But last April, wishing to increase the clump, I sowed another breadth alongside this patch. It also came up strongly and flowered a little last autumn. There is, however, at present no sign of growth of this newly-sown patch, and where I have scraped away the soil I can find no growth. I think the severe winter has quite killed the young plants. The old patch raised from seed has not suffered in the least, although it has had no protection whatever. *Alstroemerias* send their roots down a long way, and whether deeply planted or not, if they once get well established before experiencing a regular arctic winter are, in my opinion, quite hardy. It must be the same with other hardy (!)

plants planted out in the late autumn. They have no time to get well established, and then if a so-called old-fashioned winter comes they succumb. I have lost a good many new plants put out last autumn. In future, should I receive new plants or purchase any in the autumn, I shall winter them in boxes in cold frames (except, of course, in exceptional cases) and plant out in early spring. It would be most interesting if growers of hardy plants would give from time to time, as summer comes on, in your columns their experience as to the flowering of so-called hardy plants after the past severe winter with to my mind special reference as to whether planted out last autumn or established clumps. *Alstroemeria aurea* is just showing growth here.—M. C., *Lowwood*.

I quite agree with what "E." says in THE GARDEN, April 4. *Alstroemerias* require to be planted deeply in a light warm soil. At the foot of a south wall is as good a place as any, and if some brick rubbish is mixed with the soil, I think it will be an advantage. I have a row planted at the base of a greenhouse wall, and at the present time the plants are several inches high, and looking as healthy as possible. These *Alstroemerias* are very much admired when in flower. I have several varieties, all of which are very striking, being beautifully marked. They were planted 8 inches deep, and some brick rubbish was mixed with the soil at the time of planting. I placed some long dry litter over them at the commencement of the past severe weather, which I think needful. These beautiful plants are not often met with in private gardens, for what reason I cannot say.—T. A.

Anemone fulgens.—The blossoms of this lovely spring flower are now expanding fast, and are not equalled by any other for brilliancy. The broad overlapping petals and the rich crimson velvet flowers are beyond description. Large patches of this should be found in every garden year by year, and even in those gardens where the soil is unsuitable to it as a permanent subject it is well worth renewing, for no one could, knowing its worth, well afford to be minus the vivid flowers of this plant, which quite surpass anything else in spring. In those places where it could be established in semi-woodland places it would be simply delightful.

Chionodoxa Luciliæ.—The flowers of this are just on the wane; therefore a reminder to those who would secure lovely patches of it to allow the seeds to ripen and fall on the soil below. In this way it gives no trouble whatever, more than, when all the seeds have fallen, to sprinkle a little earth over them to assist in gaining a root-hold. Those seeds which were allowed to fall last year as described are now appearing as young plants in quantity, and the result will presently be a fine colony. Of course seeds may be gathered when it is desired to distribute them to other parts of the garden, sowing as soon as ripe and covering with soil.

Rhododendron Dalhousiæ.—In the temperate house at Kew there is a fine plant now beautifully in flower of what is known in gardens as R. Dalhousiæ. It is really a hybrid variety of that Himalayan species, having been raised about thirty years ago from a cross with R. formosum. In the most important characters it approaches nearest to the true R. Dalhousiæ, although that is the pollen parent, and even where it differs it may be said to have been improved. The flowers are very nearly as large as in the true species, being from 3 inches to 4 inches in diameter, and having also that length of tube. They are pure white, but the influence of R. formosum is seen in the deep rosy tinge which colours the unexpanded flower-buds and in the paler tint which lingers some time after they are open. The flowers are in clusters of three to six blooms. The foliage is intermediate between that of the two parents in size and other characters. The greatest improvement which has been obtained by hybridising in this case is in habit. R. Dalhousiæ, both in its native state or under cultivation, is of poor habit, whilst R. formosum is as dense-growing and compact as an Azalea. The influence of the latter is shown in the more shapely growth of this hybrid compared with the true R. Dalhousiæ. This is pro-

bably the best of the white hybrid Rhododendrons, the flowers being larger than in the Countess of Haddington. As such, it deserves to be widely grown.

Carnation Duke of Fife.—This vigorous perpetual flowering Carnation is not destined to rank among the standard varieties for future use by reason of its sportiveness. This freak it possesses to a considerable extent, and apart from this drawback, the colour, of which so much was said a year or two ago, is decidedly inferior to that of Lucifer and A. Alegatiere. I have grown it ever since its introduction, when plants of it were realising high prices, and I never formed a good opinion of it from the first, and am now more convinced than ever that it is by no means a first-class variety.—J.

Puschkinia libanotica compacta is a most charming bulbous plant now flowering in the rockery. This is, perhaps, one of the daintiest of spring bulbous plants, and should be largely grown by reason of its real worth. The flowers are similarly produced to those of the Siberian Squill and are white, while the external rachis is of a rich porcelain-blue, the latter almost invariably shading into the white. It should be planted in a deep bed of moist peat and loam in equal parts, and allowed to remain for several years undisturbed, when if all goes well it will attain to 6 inches or 8 inches high, and is then a delightful plant.

Two good white Carnations are Mlle. Carle and Mrs. Moore, that is among perpetual kinds. They possess exceptional as well as individual merit, and for these reasons both kinds should be grown. Mlle. Carle is a fine, pure and glistening white, producing several flowers on a spike, and a good perpetual; while Mrs. Moore, with its large and full flowers, is much the best for single blooms, and where those of large size are most appreciated. The flowers of the latter till well nigh fully expanded are of a creamy tint; this eventually passes away and a pure white flower of fine substance, though with little perfume, remains. Both kinds possess good vigorous constitutions.

Anopteryx glandulosa.—This plant, although but little known in English gardens, is one of the most beautiful of those introduced from Tasmania. In that island, where it is found in sub-alpine districts, it forms a shrub usually 6 feet to 10 feet in height, and is notable as much for the richness and glossiness of its deep green foliage as for the abundance of the racemes of white flowers that it produces. The leaves, which are borne mostly in clusters at the end of each year's growth, are from 4 inches to 8 inches long, very coriaceous, and with a serrated margin. The racemes are borne between February and April in considerable numbers at the end of the previous season's shoot, each raceme being erect and 6 inches or more high. The flowers are on short stalks and are cup shaped, measuring three-quarters of an inch across, the petals being six in number. Except in being considerably larger, the raceme and flowers closely resemble those of *Clethra arborea*. One thing which probably detracts from the popularity of this plant is the difficulty of getting it into a shapely form when young, although it flowers quite freely then. As it gets older, however, it grows out of this defect, and when 2 feet or 3 feet high forms a perfectly shaped bush. It requires cool greenhouse treatment, and should be potted in peaty soil. It belongs to the shrubby section of Saxifragaceæ. We lately noticed a number of young plants flowering freely in Messrs. Low's nursery at Enfield.

Eucalypti and the fog.—While Mr. Webster on p. 317 gives us his experience of various species of Eucalypti during severe winters, and that is, that few, if any, of them are to be regarded as hardy even in the more favoured parts of this island, there is one feature that I have specially had my attention directed to during the past winter, and that is in the neighbourhood of London the heavy sulphurous fogs that were so prevalent during the early part of the present year affected the Eucalypti to a far greater extent than the majority of greenhouse plants. Out of about a dozen different species many were killed outright, while in the case of the others the foliage suffered terribly—in fact, just as if they had been exposed to a blast from a

furnace. Some of the commoner kinds of greenhouse Heaths and various varieties of Epacris were not affected by the weather to anything like the same extent as the Eucalypti. That it was not frost is shown by the fact of the Heaths and Epacris being comparatively uninjured.—H. P.

DRAININGS FROM PIGGERIES.

I AM asked by "A Grower" to state why I consider it unwise to apply drainings from piggeries to fruit trees after they are in leaf, and am pleased to take the first opportunity of doing so. Few experienced gardeners probably need to be told that pig's manure is very strong, ranking next to night soil, some authorities even considering it equally as strong. During the winter-time, when there is more rainfall and less evaporation going on, the drainings are fairly well diluted with water, considerably so in fact when the styers are regularly "swilled" down; the ground also being in a moist state and better fitted for its reception and even distribution, and the roots in a hard inactive state, there is not so much likelihood of this strong liquid manure being used to excess. Not a drop of it ought to be wasted, all kinds of fruit trees in full bearing being greatly benefited by its application, and that, too, without much dilution. The case, however, is very different in hotter, drier weather, and when the ground is also drier and roots are active and tender. From repeated experiments I have discovered that no young root fibres will stand contact with very strong liquid manure, and even if it does not kill them they derive no benefit from it unless there is plenty of moisture in the soil. Doubtless "A Grower" or anyone else who knows what he is about might use the drainings from piggeries safely and effectively among the fruit trees during the summer, especially if he took the precaution of doing this after a soaking rainfall, and also of very freely diluting the drainings with water, but I hold it would have been wrong of me to recommend its use without explaining the risks to be run. For risks there are, and this I state after having seen what resulted from a too free use of the drainings of piggeries among choice fruit trees. Experts tell us liquid manure from farmyards generally is very strong in ammonia, and also that the said ammonia exercises great influence on the growth of young plants or trees before the leaves are developed, very much less of it being needed afterwards owing to the foliage being able to obtain the requisite supplies from the air. The winter, then, is both the safest and best time to use the drainings from piggeries. It does not follow that because I advise using the drainings from piggeries during the winter and early spring months only that any collected during the rest of the year should be wasted. On the contrary, I would suggest that a heap of valuable manure be formed principally with their aid, the drainings being emptied on a square heap of soil and decaying rubbish generally. This heap, being duly turned to ferment sufficiently to destroy seeds of weeds and to hasten the decay of rubbish, would by the following winter be ready for use. Even this must be used in great moderation, as it is apt to promote a too rank top growth, and is particularly liable to spoil a crop of Potatoes. W. I.

Seakale grown in seaweed.—I send a few pieces of Seakale to show how well it grows in fresh seaweed. The crowns were covered to a depth of 14 inches in January, and I have been cutting for several weeks. For a late supply I consider this a better plan than growing in pots. It comes cleaner and more tender. The market gardeners along the south coast have grown it in this way for a number of years.—M. S.

* * * A remarkably fine sample.—Ed.

Peach culture under glass (*Subscriber*).—Hobday's "Villa Gardening" (Macmillan and Co.) will, we think, answer your purpose.

BOOK RECEIVED.

"Roses in Pots, &c." By Wm. Paul, F.L.S., F.R.H.S. Seventh edition.

Names of plants.—*Albert Fisher*.—1, *Odontoglossum triumphans*, a fairly good form; 2, varieties of *Dendrobium nobile*, not equal to many others we have seen.—*Hazelt*.—Shrubs next week.

Name of fruit.—*Hazelt*.—Pear *Crassane*.

WOODS AND FORESTS.

TREE PLANTING AND THINNING.

THE winter, or at any rate the season before the leaves appear, is the time in which these should be done. Thinning is generally understood after a fashion, but it is not so much recognised as should be that it is not only in planting that there is work to be done in the proper grouping of trees. When planting is undertaken, however well it may be carried out, years must elapse before any real effect is gained. Where trees already exist, the only care required is in knowing what to cut and what to leave. The great danger is that of falling into formality. Nature never arranges her productions in perfectly straight lines and at perfectly equal intervals, like the bars in a row of iron palings. If the artificial is wanted, there are plenty of ways of getting it without pressing things so essentially natural as trees into service. In tree grouping everything should be done to avoid falling into such an error. One of the great charms of trees and woodlands is the surprises which they afford us at every step; some new and unexpected feature is constantly turning up. In cutting out tree groups the work needs constant supervision. It is impossible to lay out a day's work beforehand. The fall of a single tree or bush is enough to change a man's aims and to re-shape his ideas. A good example of this occurred lately where some groups of Birch were being brought more into view. From the approach to the mansion the tops of a few of these trees could be seen amongst a quantity of rather unsatisfactory underwood on the borders of an Oak plantation. It was intended as soon as the ground was cleared that the area should be planted entirely with young Birch. On the undergrowth of Hazel and Ash being removed, the result was so satisfactory and the effect of the few groups of Birch so good, that it was found unnecessary to plant more. Overcrowding is an error often committed. Some trees require to be in dense masses, but not all. Evergreens cannot, as a rule, be effectively isolated unless there is something specially noble or characteristic in a particular tree. Most deciduous trees can be dealt with in somewhat looser groups, but, as has been said, the work should be done in the season when the leaves are absent. It is very often that better results are obtained from trees which occur accidentally than from those which have been planted for the purpose. It is more from the way in which trees occur in our hedgerows than from the trees themselves that objections to their existence are raised. The trees in a line of hedgerows broken up into three or four groups will be infinitely more acceptable than interminable rows without a break.

In districts where the tree grows freely the Elm lends itself well to grouping. It is a very common occurrence to find one or two towering trees of this species supported by half-a-dozen others in various stages of growth. Where a taller tree appears to be crippling and overgrowing a younger one the young tree must, in almost every case, be sacrificed, as when once checked, if the cause was removed, it will be a long time before it will regain good growth. It does not follow, however, because trees grow closely together they are necessarily in the wrong place. The general appearance and contour of the group must be the guide. The line making the finished group must be kept intact at all cost. Thinning for the sake of timber and for the sake of the landscape must be made to

agree as well as may be, as one cannot be followed to its full length without trenching on the other. A collection of pollards—worthless for timber—will often form an effective group in the landscape. Young trees alone—small trees are not necessarily all young ones—do not as a rule make good groups. Consideration, therefore, should be used before an old tree is condemned. Because a tree is out of the perpendicular it does not follow that it should be cut away. Some of the leaning trunks in an old Apple orchard would make effective trees for grouping. As much as possible trees of the same species should be kept together, and not several kinds jumbled promiscuously together. Even with the same species the habit of growth varies so much, that occasionally their proximity mars the character of the group.

In other instances separate species go well together, as with the Oak and the Ash. When a couple of fine trees do not stand sufficiently close to make a group and not far enough apart to give the idea of two isolated specimens, there is some difficulty in deciding what should be done. The feeling will be towards sparing the two, but possibly it will hardly be the wisest course. Six or seven scrubby-headed Wych Elms would not be likely to be favourably regarded by many, but a group of these trees is very effective, both their stems and branches being very characteristic. Single Elms and Oaks, when their proportions are sufficient, have often as great a value as groups of smaller trees. In making groups, an important thing is to judge their appearance from several standpoints, as what may be entirely satisfactory in one situation may be indifferent or unsatisfactory from another. Where the sacrifice of one or the other must be made, the best result from the most frequented spot will of course be attempted. Old Thorn and Maple trees often form good groups. These are subjects which will have little attraction to those who look upon trees as of so much value for timber, so they generally remain unmolested.

RUSTIC.

The mountain Mahogany (*Betula lenta*).—This Birch is indigenous to a vast area in North America, extending from Canada to Georgia, and attains a height of from 50 feet to 70 feet. It has been cultivated in this country since about 1759. Its leaves are large, cordate-ovate, sharply serrated, and as they unfold in early spring they are covered with a minute, light-coloured pubescence. The flowers, which are in larger catkins than those of the common species, have a delicate aromatic fragrance; they are at their best about the end of May. It furnishes the well-known American Birchwood, so much in favour with cabinet-makers, who employ it in making many articles of furniture. It grows very freely, and has much of that light, graceful aspect so much admired in all the other species, to which, though distinct enough to give a feature in woodland scenery, either standing alone or grouped with other trees, it has a general resemblance. From its tendency to early growth and consequent liability to suffer damage from spring frosts, it should be planted on a dry soil and in a moderately sheltered situation.

Wych Elms by streams.—I have recently noticed some very effective groups of Wych Elm by watercourses. Whether these trees occur by accident or design I cannot, of course, say, but in a valley near here, along which a somewhat tortuous stream runs, there are a number of groups of these trees scattered over a distance of perhaps half a mile. Poplars and other trees also grow here and there. The Poplar is generally looked upon as the tree for fringing watercourses, and rightly enough, too, in the main. In this instance, however, the Wych Elms are decidedly more picturesque. A very noticeable feature is that there is scarcely a tree growing in a perpendicular posi-

tion, and barely two with the same degree of inclination. In trees with long stems and situated on level or elevated ground this habit of leaning in all directions would be a drawback. Here it is not so. The direction of the stems though at once remarked upon is balanced by the amplitude of the heads of the trees and the character and conformation of the branches. Seen from the towing path, as this is the nearest vantage ground, they are at a lower level than the observer. In whatever way these Elms came in the position they occupy, although the surroundings are pretty much in harmony, it is obvious they were never placed for the sake of effect, as they occur in a purely agricultural district where no care is or has been exercised with regard to the landscape. If these groups could be lifted bodily into the heart of some demesne where similar depressions and streams occur—and of these there are plenty—their value would be immense; but situated where they are they probably do not attract the attention of one in a hundred. With regard to planting, the Wych Elm is a tree which in its younger days is less objectionable than some others, as it does not assume the broom-like habit which is so fatal to the appearance of many young trees. For situations such as that here sketched it is well worthy of consideration. It is a tree which would also harmonise well with the Birch.—R.

The Lime.—This is a tree which does not generally thrive in such high situations as some other species, but it seems to do well on comparatively stony soils. On hillsides where the subsoil is rocky I have seen it attain a large size. I have recently been noticing some very fine trees of the common European species in situations of this nature; in fact, I do not recollect having seen more remarkable trees. It is a tree which is more planted in some districts than in others, but I think it is scarcely favoured as it deserves to be. As a timber tree it has considerable value—at least, a higher than the average of our common trees—and its ornamental character is beyond dispute. This must have been recognised long ago, for it is mostly in the neighbourhood of the ornamental grounds that it is seen. For street planting in provincial towns and cities it seems to be coming into use. In these places it is essential to select a tree which becomes effective at an early age. This the Lime certainly does. Beyond these limits, however, there seems no reason why the Lime should not be more commonly seen. It cannot be regarded as being fastidious as to soils. It will certainly grow on as wide a range as the Poplars. One of the largest Limes I know and a fine white Poplar stand side by side.—X.

Larch plantations in the landscape.—At the time of writing, so far as masses are concerned, the Larch plantations appear brown and bare. A close inspection, however, reveals the fact that the time is close at hand when their appearance will be entirely changed. The little fascicles of leaves are breaking out at a million points, and are only awaiting a short spell of genial weather to hide to the distant view all the stems and branches of the trees. In a purely agricultural district, where a comparatively small portion of the land is occupied by woods and plantations, the Larch is mostly relegated to filling up odd corners. For this it seems a tree peculiarly suited. Where woods occur here they are mostly Oak, but it is seldom, if it is attempted, that the Oak does well in very small colonies. With the Larch it is different, as, provided the situation and soil are at all suited, it is a tree which in out-of-the-way corners soon runs up to a usable size. As well as this, in the spring-time before the bulk of deciduous trees are in leaf, the foliage of these small plantations of Larch here and there in the landscape is very grateful. The effect is more observable when the trees do not occur at too near intervals.—R.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHARD AND FRUIT GARDEN.

WHERE FIGS SUCCEED.

IN most gardens where Figs are grown those in charge have very frequently to hear an expression from visitors to the effect that they do not like them, this being accompanied by a slight shudder, and very often they are spoken of rather slightly. When once a taste is acquired for them, a very different tone is adopted, and we then hear them spoken of as being very delicious. Rightly so, I think, for it is doubtful if there is a more wholesome or delicious fruit cultivated, always provided the Figs are well grown and fully ripe. As a dessert fruit Figs are decidedly high-class, and in gardens, therefore, they are grown under glass, large quantities also being grown on trees located against sunny open walls. Figs are by no means difficult to grow, but all alike do not meet with success. Nor are the reasons for a good many failures far to seek. What Figs require and must have is plenty of light and heat, a very firm and not over rich root run being also most desirable. For a few years they are fairly productive against back walls of lean-to houses, but in time the fruits are produced on the uppermost branches only, and in small numbers there. If the same trees were gradually trained a few feet down the roof more fruit would be forthcoming than ever before, and this might well be done in many cases where the back walls only have hitherto been devoted to the trees. The plan of growing large bushes in the body of the house, the back walls also being covered, answers fairly well, but in the long run it will be found much the better plan to be content with two or three trees, no matter how large the house, and to train these up the roof only. Thus treated the growth is usually short-jointed and exceptionally fruitful, the Figs being also large and of superior quality. This plan of training is suitable even for quite small forcing houses, the trees in this case having their roots confined to narrow borders, and well fed when in full bearing. It is not in houses where high temperatures are maintained, or such say as would suit Melons well, that the trees are apt to form soft unfruitful wood, but rather in unheated structures. Thin training, though desirable in all cases, is absolutely necessary in unheated houses. A judicious selection of varieties is also of great importance. According to Mr. Barron, whose highly instructive paper on "Figs and their Culture," recently published in the *Journal of the Royal Horticultural Society*, ought to be read by all interested in this fruit, there are no less than sixty-six distinct varieties in cultivation, but the old Brown Turkey would yet appear to be the best of the lot. So good in every way is this popular variety, that there is little or no need to plant any other sorts—under glass at any rate. It is the surest bearer under all circumstances; it forces readily, and succeeds well in or out of pots, while the fruit is sometimes very fine and always of superior quality. The second, and in some instances third crop, though frequently so small as to be quite unrecognisable, is particularly delicious, many people eating these readily who were previously under the impression they could not eat Figs.

Along the south coast, notably where a chalky

soil abounds, Figs succeed fairly well as standards, but probably will have been much injured by frosts during the late winter, and this class of tree cannot be said to be reliable. In a Sussex garden I have gathered bushels of fine fruit from standards, but for my own eating should prefer those grown and ripened against sunny walls. In less favoured districts especially, the proper positions for Fig trees are the angles formed by the junction of a south wall with a wall facing westwards, these perhaps being the hottest corners in the garden. But if these are the best, it does not follow that they are the only positions where Figs will succeed, though it is next to useless to plant them against any other than south walls, and the higher the walls or the more head room that can be allowed the better. That Figs are occasionally to be seen doing well against walls with a south-west aspect I readily admit, but as a rule the wood fails to ripen sufficiently in such positions, a moderately severe frost being liable to cut it down to the ground. Once a tree has of necessity to start afresh from near the stems, it is usually several years before it again attains a productive state, nothing but long sappy shoots being formed; hence the great necessity for protecting the points especially of the branches every winter, the trees being unloosed from the walls for that purpose. Those straggling trees either with their heads well above the walls or else which have not been kept closely trained to the higher walls and blank sunny ends of high buildings will have fared very badly in many places this winter, and I shall be surprised to hear that the south coast trees even have escaped injury. It is true allowing the trees to have their head somewhat is a certain way of checking grossness, the wood made being principally short-jointed, hard, fruitful, and not so easily crippled by frosts, but hereabouts the past winter has been too much for this class of wood even. The safest and best practice, therefore, with wall trees is to keep them freely thinned out, regularly trained, no attempt being made to confine them to a limited area, and to further protect them with mats, Fir branches, or straw thatch. The pruning should be delayed till the young fruit shows at the points, or say late in April, and then should chiefly consist of thinning out, long naked branches being cut back to near the centre of the trees, or else foreshortened to a well-placed younger fruiting branch. Thus treated, the trees are kept furnished with young fruiting branches throughout their surface, and not at the ends only, as too often happens. As far as my experience goes, the number of trustworthy varieties for open-air culture is very small. Foremost amongst these must be placed our old favourite Brown Turkey, this being the sort most generally grown, and it cannot be improved upon. Brunswick is also a hardy variety, but not nearly so fruitful as the Brown Turkey, while the white Marseilles is perhaps the most delicious variety of all. The tree is hardy, very productive, and the fruit small, but when well ripened the fruit can be eaten by most people.

Not a little depends in each and every case, or whether the trees are planted under glass or in the open at the present time, upon the preparation of the borders for their reception. Rank growth being most undesirable, a rich, loose root-run ought not to be provided. The finest and most productive trees I have ever seen were rooting in a limited border formed exclusively of the surface soil brought away from the Shakespeare Cliff, near Dover. This, it is almost needless to point out, is of a very chalky nature and scarcely capable of growing

any other fruit tree but Figs, Pears planted in it presenting a wretchedly starved appearance. Only a limited number of my readers are in a position to use much chalk or chalky soil in their preparation of a border, but if it can be had it might well be mixed with fresh turfy loam, one part of it to two parts of the loam, a sprinkling of half-inch bones being the only other addition. An excellent substitute for chalk will be found in old mortar rubbish, clear of particles of wood, and if fresh loam, use less of this and add common garden soil. Comparatively small borders answer well in any case, these being well drained, and if need be, that is to say if a clay subsoil abounds, the bottom ought to be concreted to a considerable distance around in order to keep the roots out of it. It is also advisable to make the borders very firm, and if there is a path or roadway in front of the outside trees, these have a good effect on them, checking grossness and promoting productiveness.

Somerset.

W. IGGULDEN.

TREATMENT OF YOUNG VINES.

IN training young Vines, the usual mode of procedure, and especially so during the first year of their existence after planting, is to allow the leading growth to grow ahead unchecked until the top of the house is reached, and oftentimes this mode of treatment is carried to such an extent that the growth is allowed to extend down the back wall. The reason generally given for this treatment is that a corresponding amount of root action takes place. This is most undoubtedly correct, but whether this increased root action with the subsequent after treatment the Vines receive is beneficial I very much doubt. Under this treatment the roots made, instead of being wiry and fibrous, as they should be, are gross and very soft in texture, the majority dying back during the winter. Again, at pruning time, these same Vines are pruned back to perhaps 6 feet or 8 feet of young rod, with the result that the majority of the eyes fail to start into growth, except, perhaps, three or four at the top. Under the circumstances, and by the mode of treatment they have been previously subjected to, what else could be expected? Many gardeners must have noticed when young Vines have been extending so freely what fine leaves and bold buds are formed, whilst those lower down are in a very latent condition. What else could be expected when growth which will be surely cut away is allowed to grow ahead to such an extent as to draw away the nutriment from the lower buds, and so prevent them from plumping up and failing to start into growth when forcing begins? When such a state of things exists, the gardener in charge comes to the conclusion that the Vines were not shortened back sufficiently, and under the circumstances probably not; but if the Vines had previously been grown under a more rational course of treatment, then 6 feet or even 8 feet or 9 feet of young rod could be left with advantage, with the certainty of the eyes starting away regularly and well. There is no benefit whatever in allowing the young leading growth to extend to the top of the rafters; such treatment builds up an imaginary fine rod, and for the time being gladdens the heart of the grower, but only for a time, as during the following spring he is sorely disappointed, and especially so when a fair length of rod was left. When the growth is allowed to extend to such an extent, the roots rush through the border, as it were, and do not form a mass of fibrous feeders. The bunches that are formed are of a very straggling description, and more often than not the berries shank to such an extent as to jeopardise the crop. A medium-sized well-ripened rod of from 8 feet to 10 feet in length is by far the most satisfactory, and as a well-known exhibitor once remarked, "What is the use of building up a fine-looking rod just merely to look at for a season and to show your friends, knowing that the best and most satisfactory-looking part will be cut away at pruning time?" I have given the method of treatment I am about to describe a fair trial, having

practised it on four different sets of young Vines, also odd rods in other houses, with what, I may say, the best results. Lady Downe's even succeeds well under the same treatment, there not being the least difficulty in getting the eyes on the young rods to start away well. Most gardeners will have noticed that pot Vines rarely fail to start regularly and well from top to bottom, and why should planted-out Vines not do the same? Instead of allowing the young leading shoot to run up to the top of the house, it were stopped at 8 feet or thereabouts and the laterals pinched, and the rods otherwise managed as if for pot Vines, the results during the subsequent season would be much more satisfactory. The young rods would ripen up early and well, and the buds would plump up almost to bursting with the result of each starting away vigorously the following spring. Six feet or 8 feet would be a suitable length to leave, and I have even left 13 feet, and each eye started regularly from top to bottom. These Vines are only temporary, and as each season comes round I am very reluctant to cut them out, so satisfactory are they in every respect. The young Vines being managed as in the case of pot Vines, the roots made are correspondingly satisfactory, these being very numerous, quite close to the surface, and of a hard and fibrous description. Latterly on applying a top-dressing, it was an impossibility to prick over the surface, as every inch was full of roots. The wood made from such Vines is very fruitful; in fact, it could hardly be otherwise. Towards the end of the season, when the wood has ripened to a fine nut-brown colour, the side laterals should be gradually shortened back to the main bud, taking particular care not to injure the main leaf at the base, and which is the storehouse for perfecting the bud. Cutting out the laterals has the effect of the main force being concentrated on the buds. Y. S.

RUST ON GRAPES.

THIS is caused in many ways, and unless the drastic remedy of cutting away large numbers of the affected berries be followed out, it is difficult to get rid of it; indeed, in many instances it affects the whole bunch. I have seen this occur very often in old-fashioned flue-heated houses, as the sulphurous fumes have escaped through the crevices of the flue, thus causing the injury. In houses heated with hot water this should not be, unless the pipes are covered with sulphur before the skin of the Grapes is sufficiently hardened to resist the fumes. It is surprising what a small amount of sulphur injures the berries in their early growth. I have seen sulphur used with great advantage for red spider by those who understand its danger, but it is not safe for anyone to use it indiscriminately. Hot-water pipes are mostly placed out of sight as much as possible; at any rate, they are frequently covered with staging, or made use of in some way, and it often occurs that these pipes are thickly coated with sulphur, and this is left on until that on the top side is nearly washed away. In some cases the under part of the pipes retains the sulphur dressing and is often the cause of rust, as the pipes are kept warm for the Vines in bloom, and just as the berries set, the sulphur does the injury, not being thought of. It will no doubt be said that anyone can readily tell if there are fumes of sulphur, but such is not always the case, as often the quantity left is so small. The pipes in many vineries are often painted yearly, and when this is done it is of great advantage, as it removes all dirt and insects lurking in crevices and presents a neat appearance, besides removing all traces of sulphur. I use a black varnish for this purpose, and it answers well. I have seen rust caused by the fumes from coke being driven into the house through an open light; also by the stokehole being placed close to a vinery door, so that when the fire has been stopped the sulphur fumes have caused much injury. As is well known, rust is most common in early houses where a great amount of heat is applied. Draughts are also bad, and at times cause the mischief. Rubbing the berries in any way also causes it, even if slightly touched by the hair when the berries are young and tender.

Handling the bunches, too, in thinning is often the cause of injury, the greatest care at that stage being required; careful airing is also necessary. Another matter worth attention, especially with young beginners, is the careful use of the syringe at this time, as if the water is applied with force it causes rust when the bunches are syringed soon after they are set, and before the skin is sufficiently hardened to resist it. G. WYTHES.

Syon House.

THE FRUIT CROPS.

IT is said that the unexpected always happens; it really is often the case. Unless we get unusually bad weather in May and something very unforeseen occurs, we must have one of the most fruitful seasons we have had for years past, as everything points to this now. Apricots have had a very trying time of it, and it has been very cold during the whole time they were in bloom, but, fortunately, it was dry, and they have set well, and are, I hope, safe now, as the fruit is swelling fast, and the leaves are protecting it and helping much to prevent radiation from the wall's surface. Peaches and Nectarines are just opening their blossoms (April 20), and they cannot possibly look stronger or better, and hugging the bricks as they do they are in fairly warm quarters, as the sun now, when the clouds clear, is powerful, and the flowers being so late in expanding cannot fail to set well. Plums both on walls and out in the open are crowded with buds, that is where the bullfinches have not been too busy, as in some gardens and orchards I find they have sadly injured the trees. There is, therefore, every prospect of a heavy crop of this esteemed fruit, which to all appearance will be as abundant as it was some years ago, when there was said to be such a glut that Plums did not pay for gathering. Cherries look exceedingly well, and Pear trees are literally crowded with buds, which look strong and are now fast expanding, as the scales are falling and the blooms branching out. With us those on the Quince stock are the fullest, but there are plenty and to spare on the Pear, and all would have been the better for thinning, which is our usual practice, but the pruning season owing to the bad weather was short, and we had to push on to get done. Apples also look uncommonly well and are abnormally late, as they have moved but little, but when warm showers fall, no doubt they will come on with a rush and quickly burst open their petals. I am more concerned for the bush fruit than any, as I fear the frosts have injured the Gooseberries and Currants, which look browned, but they may get over that if we have a change of weather soon. Strawberries are pushing up strong, as the snow protected and rested them, for they were snug for weeks under its covering, and there have been no cutting winds to injure the foliage. Nuts had but few catkins, but plenty of female flowers, and it may be that there was pollen enough to fertilise the whole or greater portion, and if so, the harvest will be one of abundance.

Woolverstone Park, Ipswich.

J. SHEPPARD.

Well-kept Apples.—It may be taken for granted that only under conditions so exceptional that we so far hardly possess them can we hope to keep high-class dessert Apples late into the spring. At the recent meeting of the fruit committee of the Royal Horticultural Society, some apparently nice-looking Apples of about twenty kinds from Hackbridge were shown, but most of them were too far gone, and when that is the case it is difficult to see what is gained by such long keeping. A very plump, handsome sample of Blenheim Pippin from Esher looked as good as in the early winter, but when cut many were discoloured. These bore the appearance of being as well preserved as Apples could be in April. They had been carefully packed into the bottom of an American fruit barrel and stood on the asphalt floor of a sunken fruit room. Probably a couple of months since they were in perfect condition, and would have obtained a very high price in the market. It would seem either that we have yet much to learn as to the best method of preserving our highly-flavoured and softest

fleshed Apples to a late period, or else that we do but attempt the impossible. One of the very best of late-keeping kitchen Apples without doubt is Lane's Prince Albert. Of this a beautiful sample, handsome, richly coloured, and superbly kept, was shown at the same meeting, the flesh proving to be as firm, crisp, juicy and acid as at Christmas. These fruits had been kept on a shelf in an ordinary fruit room at Berkhamsted. Judging by this character alone, for its splendid cropping qualities are widely known, Prince Albert deserves to rank amongst the best and latest keeping of all our Apples. It is a pity that some small prize could not be offered at the meetings another year for the best preserved Grapes or Apples in April and May.—A. D.

STRAWBERRIES AFTER FORCING.

PROBABLY the bulk of Strawberries in pots is after being fruited thrown away, but this simple way of getting rid of what has already cost so much in the way of labour is not always to be commended. Many of the earliest varieties would, if properly treated, produce another late summer or autumn crop of presentable fruit, and which are sure to be appreciated by those for whom they are grown, while the later sorts planted out would yield enormous crops during the next season after planting. A press of much other work and a scarcity of room are doubtless among the principal causes why so little is usually done with the old pot plants, and it is only fair to add that unless they are well attended to by those who do preserve them for second cropping, they will be of very little use.

The still popular Vicomtesse Héricart de Thury is one of the best for autumn fruiting, no other variety, if we except Princess of Prussia, I have yet tried yielding such a profusion of fruit—somewhat small, it is true, but superior to all others in point of quality. Noble is also wonderfully fruitful, early forced plants of this producing a second crop in August and September. In this case the fruits are large and more tempting in appearance than those of Vicomtesse, but the quality is no better in the autumn than when the fruit ripens early under glass or in the open. I have not had much experience with La Grosse Sucrée as an autumn fruiter, but believe the majority of forced plants would throw up again. The old Keen's Seedling, and which is still forced in some gardens, was one of the first I ever saw cropped twice in the same year, and it pays for any trouble that may be taken with it. As Auguste Nicaise becomes better known and the stock of it increased, this also will be very extensively forced, and if some or all of the plants are planted out after forcing, they will produce heavy crops of extra fine fruit of fairly good quality too. In each and every case it is most unwise to turn out forced plants that are to be saved for autumn fruiting direct from heated houses into the open air and to otherwise neglect them. Cold pits or frames are better places for them, and wherever they are placed under cover the watering must be kept up. After they are once hardened off, then the sooner they are transferred to suitable quarters in the open the better. There are two methods of procedure open to cultivators, and having tried both repeatedly, I am of opinion that the best plan is to adopt both. Most of the earliest forced plants, and which are ready for planting or turning out any time during April, will, as a rule, produce and ripen the best portion of their second crop from the middle of August to the end of September. These, therefore, may well be planted out where they are to mature their crops; whereas, some provision ought to be made for lifting and ripening the suc-

cessional batches under glass. The latter could be lifted and potted up when well set with fruit, but would mostly require 8-inch or even larger pots. Strawberries in pots are very effective table plants and are particularly appreciated for shooting parties held during October and onwards, but nothing larger than 6-inch pots can well be tolerated on either the table or sideboard. In order to get over this difficulty, my friend, Mr. A. Moore, Cranmore Hall, has long since most successfully adopted the plan of plunging a considerable number of forced plants of Vicomtesse Héricart de Thury in the sunny borders alongside kitchen garden walks. The pots are buried just below the surface, and being kept well supplied with water and liquid manure, the plants grow strongly, the roots spreading out into the garden soil and fruit abundantly. When the time comes round for lifting, a portion of the garden soil and some of the over-running roots are removed, and the plants are then set in saucers on swinging shelves in cool Peach houses. In this manner a capital lot of fruiting plants is obtained, these affording a long succession of fruit, the best of these having their trusses neatly staked out and otherwise prepared for table decoration. What Mr. Moore does so well many other gardeners might with advantage to all concerned strive to imitate, and the least that can be done is to pot up a considerable number of the best of the fruiting plants before frosts cripple them in the autumn. Without the aid of much fire-heat occasional dishes of serviceable sized fruit could be had up to midwinter and even later. Unfortunately, far too many flowering and other plants in pots have to be stored under glass in the majority of gardens for those in charge to be able to devote much space to Strawberries, but probably it would pay to sacrifice some of them in order to make room for the latter.

According to my experience, Sir J. Paxton, James Veitch, President, Sir C. Napier, and British Queen are not often induced to fruit twice in one season; but if those fruited in pots this spring are carefully planted out, exceptionally heavy crops would result next year. So well is this fact understood, that I frequently get applications for all the old pot plants I have to spare from owners of small gardens who wish to plant them out. Where many err is in keeping the plants after they have produced these heavy crops. Instead of this they ought to be regarded as exhausted and hoed up accordingly, as it is very certain it does not often pay to longer retain them. Much, however, depends upon the way in which the plants are treated. It will not do to plant in a careless fashion and leave them to take their chance. For the autumn and winter fruiters a sunny border ought to be selected, and those to fruit next year should have a good open position in common with the ordinary crops of Strawberries. Short or well-decayed manure ought to be freely mixed with the top spit where the roots can come quickly into contact with it. After the plants have been cleared of old leaves and runners, the old balls should (a few hours prior to planting) be well soaked in a tub of water if need be, and when turned out of the pots may be reduced somewhat, and then planted well below the surface without burying the hearts, and not, as too often happens, be raised above the surface, where they must suffer greatly from exposure. It is also of the greatest importance that the soil be firmly rammed about the roots, or otherwise when they are watered, as they must frequently be, it will be so much labour wasted. Crowding the plants must also be avoided. Those to be

lifted may be put out 18 inches apart in rows 2 feet apart, but those planted for fruiting next season may well be disposed 2 feet apart in rows 30 inches asunder. W. IGGULDEN.

FERNS.

TRICHOPTERIS.

THIS genus of small-growing arborescent Ferns from Brazil must not be confounded with another pretty little Brazilian Fern called *Trichopteris*, *T. elegans* being the only species known. The present genus is nearly related to *Alsophila*, and when last in Dublin I saw in Mr. Bewley's garden at Blackrock the only specimen on a stem it has ever been my good fortune to see. Mr. Bewley at that time took a great interest in Ferns, and many beautiful species could be found there. The two species known are highly desirable plants, and they are well worthy of special attention. Both are natives of Brazil, but I am not aware that any locality is given, so that one may imagine they are rare plants even there. The last time I saw either of these plants was in the nursery of the Messrs. Backhouse and Sons, of York, where many other rare Ferns are grown. The genus *Trichopteris* requires stove heat, and should be potted in a mixture of loam, peat, and leaf-mould made sandy; the pots must be well drained, and through the summer months a fair share of water should be given their roots, whilst a gentle dewing overhead from the syringe will be found of the greatest advantage.

T. EXCELSA has a thin stem, the crown of the plant and the base of the fronds being clothed with rather coarse, blackish, chaffy scales; the fronds are spreading, each pinna being about 4 inches or more long and an inch wide, dark green on the upper side, paler beneath.

T. ELEGANS.—This in the young state has the fronds lobed. The fronds are somewhat fleshy in texture, deep green above, paler beneath and slightly woolly. W. H. GOWER.

Adiantums becoming brown.—"H. S. W." says he has potted his various kinds of *Adiantums*, and now all the fronds are turning brown. I suppose he means all the old fronds. The best plan will be to cut all these off at once before the new ones come up. It should be done before growth commences, as then there will be no breaking of the little coiled-up knobs upon the young growth, and which it is very difficult to avoid. *Adiantums* that have only shabby fronds' should, when potted, be invariably cut over.—W. H. G.

Seasonable floral decorations.—There are many most beautiful flowers from amongst those grown in our stoves and greenhouses which cannot be cut with any length of stem. For these shallow glass dishes are very suitable when they hold a sufficient amount of water to keep the flowers fresh. The *Stephanotis* belongs to this category; it is very rare that any length of stem can be had with this unless it is the terminal truss upon a shoot, but this even then is not very convenient. Given a shallow dish, some Moss sufficient to form a thin layer should be placed in the bottom, *Sphagnum* being preferred. This Moss will keep the flowers somewhat in position, besides which it greatly assists in preventing the water from being spilled over the sides. When the desired quantity of water has been added, then the Moss will float and be found to serve a good purpose. These shallow dishes can be used of moderate size only with good effect, and upwards into larger sizes according to the purpose for which they are required. Before placing any flowers in such vases, a surface covering with a fringe overhanging the sides of some light Fern should be chosen. The common Maiden-hair of our houses, or the British form, are for this

purpose very suitable. The first named when well hardened will last the longest, but the latter is a most pleasing change, especially at this season of the year with its delicate shades of pale green, than which nothing in its way could be more beautiful. The dwarf forms of *Davallias* could also be used, so also could the fronds of the Gold and Silver Ferns, inverting the fronds if needful to better display their peculiar beauties. Besides these there are other kinds of suitable foliage, such as the leaves of *Caladium argyrites*, small shoots of *Fittonia argyoneura*, &c. With a good preparation by way of a carpeting no great amount of flowers is really required; they never need be used to fill up, as some would term it; that has already been done in the groundwork. *Stephanotis* could be used by itself with very good effect in these vases, or it could have one other colour mixed with it; the flowers of *Ipomœa Horsfalliæ*, for instance, would look well (for one or two days); so also would those of *Dipladenia boliviensis* or pale blue Violets. Many of the Orchid family could be made the very best use of in these flat vases; the *Dendrobis*, for instance, with which but little stem can be had, flowers of the *Phalænopsis* and of the smaller kinds of *Cattleyas*, or single blossoms of the larger kinds of *Odontoglossums*. *Gardenias*, too, could be conveniently arranged in these shallow dishes with some of their own foliage. Omitting a too free use of scented flowers, these arrangements are appropriate to either the drawing-room or the dining-table, being infinitely better than making a free use of wire as artificial stems when it can be dispensed with entirely.—J. H.

PUBLIC GARDENS.

Spring flowers in Regent's Park.—Recently on any fine day many have seen a very good example of spring flower work by the central walk in this park. Anything prettier or showing better the change that has taken place in flower gardening in our time it would be difficult to find. The expanses of *Crocus* in many colours, of *Scilla*, and other early flowers are really effective in the mass of colour, and at the same time naturally and prettily done—not heavy or formal in any way. Much of this beauty is seen by the sides of the broad walk, which a few years ago was bare ground. We do not know who is responsible for the work, but have nothing but praise for it.

Thames Embankment Gardens.—A proposal is made, the issue of which will be awaited with interest by residents in the metropolis. The lands at present leased as gardens to private owners, and situated between the New Scotland Yard buildings, near Westminster Bridge, and the Victoria Embankment Gardens, near Charing Cross, are Crown property, and the Earl of Meath suggests that the Government should undertake not to renew the leases, which cannot now be very long, or otherwise dispose of the property, until the London County Council has had the opportunity of purchasing the lands for the purpose of adding them to the area of the gardens at present open to the public. His lordship will shortly put a question on the subject to the Government.

The Alexandra Palace and grounds.—The Bill promoted by the London Financial Association for repealing the protective clauses of the Muswell Hill Estate Act, 1866, and the Alexandra Palace Act, 1877, has been withdrawn. The Alexandra Palace and Park are consequently safe at present from the builder. It is believed that negotiations will be at once set on foot to secure this unrivalled park for the use and the recreation of the public in perpetuity. London cannot afford to lose the Alexandra Park; it is too important a lung to be dispensed with.

Higham Park.—This picturesque addition to Epping Forest, having been acquired by the Conservators, it is hoped that the Duke of Connaught, as Ranger of the Forest will inaugurate the same and dedicate it to the use of the public in the early part of the summer. The beautiful lake that forms part of this important acquisition will doubtless be as attractive to the boating public of North and East London

as that already known as Connaught Water, which has been so much resorted to since the forest became public property.

NOTES OF THE WEEK.

Ornamental Grasses.—"A. H." (p. 358) has left out of his list of these, two of what I consider the most distinct—*Apera arundinacea*, certainly the most elegant of all Grasses, and the purple Melick Grass, which grows 4 feet or so high and bears a deep purple inflorescence quite distinct from all others.—T. SMITH.

Flowering of the Almond.—A London contemporary in referring to the variable character of a London spring, to note the time of the flowering of the Almond tree in the London parks, says that one tree in Battersea Park has flowered upon the following dates: 1885, March 2; 1886, March 26; 1887, April 4; 1888, March 16; 1889, March 28; 1890, February 23; 1891, April 6—there being thus a difference of no less than forty-two days between last year and this in its flowering.

Hepaticas from seed.—Everyone should carefully save now all the seeds of these to be found. I have a batch of seedlings raised from *H. triloba alba*, and, curiously, there are no white-flowered varieties among them; on the contrary, those which have bloomed so far are of a most distinct rosy grey colour, a tint difficult to describe, but very charming and one that I do not remember to have seen before in any flower.—T. SMITH.

Primula latifolia botanists invariably put down as a variety of *P. viscosa*, although to me quite as distinct as the majority of so-called species. It is one of the most robust of this large genus, more easily managed than most of them, and rarely fails to produce an abundance of characteristic flower heads. The leaves are as large, sometimes larger than those of the *Auricula*, of a white hoary appearance, hairy, and without any meal. The flowers, of a deep violet-purple, and varying in size a great deal, are produced in large heads, and last a considerable time after opening. This Primrose will be found amongst the most useful for the outdoor rockery, where it will be found to flourish on an east or west exposure. It will be best planted under a ledge to ward off excessive moisture during winter.—K.

Primula Heeri is one of the newer hybrids, and one of the most robust and free-flowering we have yet seen. It is between *P. hirsuta* and *P. integrifolia*, and fortunately takes more after the former than the latter parent. It forms tufts of strap-shaped leaves somewhat resembling those of *P. integrifolia*, but half as broad again, slightly toothed, and hairy. The flowers, which are rich rose-purple, are produced in the greatest profusion, making a very bright patch on the rockery in early March. It seems to like a western slope on the rockery best, and thrives well in a rich loamy soil rather damp than otherwise. This pretty species is sure to be a general favourite, and as it produces many new growths in a year and is easily divided, it will not be long in finding its way into commerce.

Befaria glauca.—This plant, although discovered and introduced to cultivation between sixty and seventy years ago, is still a rarity in English gardens, in spite of which, however, it is one of the most beautiful flowering shrubs that have been brought from South America. The genus belongs to the Ericaceae family and is nearly allied to the *Rhododendrons*, occupying on the Andes positions similar in altitude and climatic conditions to those in which the Himalayan *Rhododendrons* are found. *B. glauca* may be taken as the finest representative of the genus, which altogether contains some twenty species. It flowers with the greatest freedom and most frequently during the earliest portion of the year. At Kew a succession of bloom has been maintained since the beginning of the year by a few plants, one of which is still in flower. The inflorescence is in the form of a short, but densely flowered raceme, several of these being borne at the end of the ripened branches. Each flower is about 1½ inches across, the petals being seven in number, linear-oblong, and of a bright rose. The leaves are deep green above and glaucous beneath, 3 inches to

4 inches long, and narrow-oblong. Although not capable of withstanding frost, a very low winter temperature suffices to keep it in good health. It should be potted in peat and sand and kept continuously moist at the root. During July and August it may be plunged in an ash bed out of doors.

A charming combination.—One of the most refreshing mixtures of this biting bleak spring was the following: A series of circular beds furnished with a single standard Rose in the centre, the base carpeted with the Crimean Snowdrop, amongst which was growing thinly *Chionodoxa Luciliae*. The effect must be imagined or painted, for it cannot be described. The nearest resemblance to its delicate beauty I have ever met with before was a mixture of Snowdrops with the Siberian Squill. But the latter, though exquisite in colour, lacks the grace and, shall I say, fitness of artistic blending and companionship that characterises the Glory of the Snow as it skims rather than rests upon the surface of the Snowdrops. If drops, as it were, in oceans of turf were so charmingly beautiful, what would groups scattering far and wide over turf and copse be? What, indeed? Surely many readers will prove for themselves next autumn.—D. T. F.

Cytisus filipes.—Amongst the numerous and beautiful species of *Cytisus* that are cultivated both in the greenhouse and out of doors, it would be difficult to find one of greater elegance in habit than this, although it is far from being the best known. It is a greenhouse species, and succeeds either grown in pots or planted in the conservatory border, the latter method being preferable. Specimens large enough to show its proper character consist of a single stem 2 feet to 4 feet in height, surmounted by a dense mass of graceful pendent branches, almost slender enough to justify a literal interpretation of the specific name. During the months of March and April these drooping branchlets are thickly studded with pure white fragrant flowers, making a most charming picture. The flowers, however, are not large, and the plant is shown to the best advantage when it has a background of deep green-foliaged plants, for which reason it is better if it can be planted in the conservatory border. Its habit, too, besides being so graceful, is so distinct from that of the majority of the plants used in this way, that for this quality alone it deserves a place. It was introduced from the island of Tenerife in 1838.

Odontoglossum Sanderianum.—Of the Orchids flowering at the present time, there is not one, perhaps, whose fragrance is at once so strong and so pleasant as that of this *Odontoglossum*. It is almost exactly like that of the Hawthorn, and is powerful enough to be detected at some distance. Although in floral beauty the species cannot be said to equal the majority of its fellows, a well-flowered plant, especially if it is one of the better varieties, is both pretty and elegant. Just now there is flowering in the Kew collection one of the best forms yet imported. The flowers are 3 inches across, the sepals and petals being lanceolate, tapering to a long point, and slightly twisted. In colour they are yellow, but thickly marked with irregular blotches of reddish-brown. The lip is large, being over an inch long, and in the main oblong in outline with a frilled and dentated margin; it is pure white with one large magenta-coloured blotch just above the crest. The column is white furnished with two yellowish wings. It is nearly related to *O. constrictum*, but is superior in every way to that species. It should be grown along with *O. crispum* and treated similarly. Mr. Sander introduced it from Caracas in 1881.

Dendrobium Brymerianum.—Although the genus *Dendrobium* contains several remarkable and curious plants, it is chiefly in habit that these peculiarities appear. *D. cucumerinum*, for instance, has short leafless pseudo-bulbs, exactly like Gherkins, while *D. teretifolium* has no pseudo-bulbs at all, but hard, leathery, cylindrical leaves attached to thin wiry stems. There is, however, no species that combines beauty and remarkable structure of flower in such a marked degree as *D. Brymerianum*. It is a plant that should be in every collection. At

the meeting of the Royal Horticultural Society on Tuesday a finely grown and flowered specimen measuring 1½ feet through was shown by Mr. Sander, of St. Albans. The stems are 1 foot to 18 inches high, swollen at the middle, and bearing a few bright green leaves towards the top. The flowers are produced in twos or threes and are of a bright golden yellow, all the parts having a glazed appearance. The sepals and petals are oblong and a little over 1 inch long. The central portion of the lip is somewhat triangular in outline, with the margin on every side surrounded by a dense mass of branching interlacing filaments, those at the front being an inch in length. One character which adds much to the beauty and decorative value of this *Dendrobe* is the fact of the flowers being accompanied by abundant dark green foliage. The species, which is a native of Burmah, was first flowered in 1875 by Mr. W. E. Brymer, after whom it was named.

Rhododendron Championæ.—Messrs. Veitch exhibited a well-flowered specimen of this interesting species at the Drill Hall on Tuesday. It is a native of Hong Kong, but although discovered on that island as long ago as 1849 it flowered for the first time in this country at Kew in 1888. In many respects it is quite distinct from any other *Rhododendron* in cultivation. The leaves are 3 inches to 6 inches long, broadly lanceolate and pointed, the margin, surface, and petiole being thickly set with short hairs. The foliage frequently has a deep reddish purple tinge, rendering it quite ornamental in itself; some plants, however, do not possess this character, owing either to varietal differences or possibly to differences in treatment. This colour is certainly more highly developed in plants that are exposed during the summer to the air and sunshine out of doors. The flowers are produced in clusters of two or three, each one being about 4 inches across and wholly white, with the exception of a group of yellow blotches on the upper petal. The petals are divided almost down to the base, scarcely leaving any tube to the corolla. This and the curious manner in which the edges of the petals are curved back render the flower very distinct in appearance. As a garden plant this *Rhododendron*, although decidedly worth growing, is scarcely up to the average of the genus, but as a subject for hybridising it may be found of value on account of the distinct and ornamental character of the foliage. It requires greenhouse treatment.

Anderson v. the Vestry of Hampstead.—The plaintiff in this case was a nurseryman in Belsize Park Gardens, and he brought his action against the Vestry upon the ground that a sewer over which the defendants had control burst, flowed into his conservatory, and did damage there. The trial of the action came on some time ago before his lordship, when the matter was referred to arbitration. The arbitrator awarded the plaintiff £354 9s. 6d. Mr. Philbrick, Q.C. (with him Mr. Dennis), for the plaintiff, now moved that judgment should be entered for him for this amount. Mr. English Harrison (with him Mr. Lush-Wilson), for the defendants, did not object to this, but he asked his lordship not to make the defendants pay all the costs of these proceedings. The plaintiff originally did not seem to claim more than £200, then it was £500, and afterwards £2000. The claim was shown by the award to be extravagant, and it being of such a character, caused a protracted arbitration, and it was submitted that it would be unfair to saddle the Vestry with all the costs which had been so run up. Mr. Justice Denman saw no reason to depart from the ordinary course, and therefore there would be judgment for the plaintiff for £354 9s. 6d. with costs.

Substitute for stable manure.—I am unable to obtain ordinary stable manure for my Roses, wall Pears, and border plants without great inconvenience and inordinate expense. Will you kindly advise me as to a handy substitute suitable for the generality of plants usually found in the garden border? Many amateur gardeners must be in the same fix, and will consequently be as thankful as I for some general directions as to quantity, time of application, &c., of the substitute that may be recommended.—PUZZLED.

TREES AND SHRUBS.

SELECT SHRUBBY SPIRÆAS.

THE Spiræas are remarkable for their free flowering and the beauty of their blossoms, which from early spring to autumn contribute greatly towards the floral embellishment of our gardens. Although they will grow and flower well in almost any situation, it is only when in a good holding and rather moist soil, well exposed to the sun, that their beauty becomes fully developed. Most of them seed abundantly, but it is not necessary to propagate them in that way, as they produce suckers freely, which may be detached without difficulty in winter with a few roots adhering to them, and which, with ordinary care, will make good plants. The following will be found to be a good selection, viz. :—

S. ARIÆFOLIA.—This attains a height of 8 feet or 10 feet. It is a kind often met with, but mostly in shrubby thickets, while to show off its beauty to advantage it requires an open position. When isolated it forms a large bush of regular outline, densely laden during summer with fine plume-like panicles of whitish flowers.

S. BELLA.—This has a neat, compact, but by no means dumpy habit, while its flowers, which are borne in great profusion, are arranged in comparatively large corymbs of a deep rose colour. It is a native of Nepal and perfectly hardy.

S. CALLOSA, OR FORTUNEI, bears deep rose-coloured flowers arranged in corymbs, and blooms almost continuously throughout the summer. It is upright in habit, and even when not in flower is attractive, owing to the young leaves and shoots being red, which, when lit up by the declining rays of the sun, has a very pretty effect. It is a native of Japan. There is a white variety of this species, which is much dwarfer in habit than the type. It forms a dense shrub of about 2 feet in height, and flowers earlier than the species.

S. CHAMÆDRIFOLIA is a very widely distributed kind, being found throughout the northern parts of Asia and America. It is a dense twiggy bush, studded during June or July with corymbs of white flowers, which are very ornamental.

S. CONFUSA, the shoots of which are terminated by dense flower-spikes often 1 foot or more in length, and white in colour, slightly tinged with green, is a plant of very free growth, and one which, even during winter, may be distinguished by the fastigate arrangement of its branches.

S. DOUGLASSI.—This is an erect-growing kind, the young leaves and shoots of which are pubescent, and the flowers, which are pink, are borne in long upright panicles.

S. LINDLEYANA.—This forms a large, pyramidal, handsome shrub, clothed to the ground with pinnate foliage, and towards the end of summer each shoot is terminated by a large feathery plume of white flowers. It is a native of Nepal, and sometimes gets a little injured by frost in winter, but quickly recovers.

S. LEVIGATA is another distinct kind, and one that, when out of flower, would at first sight scarcely be taken for a Spiræa, its dark green, firm, glabrous leaves resembling more those of a Daphne. It acquires a bush-like shape, but does not produce suckers, and therefore its propagation is somewhat more difficult than that of some of the others. It may, however, be effected by means of layers. It is a native of Siberia, and a plant that should be grown, not only on account of the singularity of its growth and foliage, but for its slightly tinted white flowers, which are very pretty.

S. NOBLEANA.—This is said to be a hybrid between *S. Douglasi* and *callosa*, and possibly it is, as its flowers seem to be intermediate between those of its supposed parents. On the other hand, wild specimens sent home by Lobb from California agree with it in every respect. Whatever its origin

may be, however, there can be but one opinion of its value as a fine summer-flowering shrub.

S. OPULIFOLIA.—Amongst Spiræas this is one of the strongest growers, attaining, as it does, a height of 10 feet or 12 feet. It produces pure white flowers in large dense corymbs, which, together with the leaves, bear some resemblance to the Guelder Rose. It is a native of North America, but has been cultivated in this country for nearly 200 years. There is a golden-leaved variety of it which in spring is very bright, but as the season advances it becomes more like the normal type.

S. SALICIFOLIA.—This is a widely distributed and very variable kind, differing greatly in size, and also in the colour of the flowers, which vary from deep pink to white, and are borne in light feathery spikes during July or August. Some of the forms are as much as 6 feet in height, while others are but creeping shrubs.

S. THUNBERGI forms a slender-growing shrub,



Spiræa ariæfolia.

small in all its parts, but with gracefully arching branches. The flowers resemble those of the Hawthorn, but are much smaller, and clothe the whole length of the shoots. A great point is their earliness; they expand with the first return of spring, and on this account the plant is often forced, treatment to which it readily submits; indeed, with very little assistance it may be had in flower at any time during the winter.

S. TRILOBATA.—In addition to being showy, this is an interesting kind, owing to its trilobed and glaucous leaves. It is dwarf and twiggy, and its pure white flowers are borne in comparatively large corymbs, and in great profusion in May.

DOUBLE-FLOWERED KINDS.—These are *S. prunifolia* fl.-pl. and *S. Reevesiana* fl.-pl., the former one of the earliest to bloom, being often in flower by the end of March, and very pretty its little rosettes

of pure white flowers are when fully expanded. The second flowers later, but is equally pretty. Both produce long, slender, arching shoots studded with blossoms—indeed, quite floral wreaths.

SHRUBS SELDOM FORCED.

In speaking of shrubs suitable for forcing, the mind naturally reverts to such well-known plants as Deutzias, Lilacs, Cherries, and Plums of various forms, Azaleas, Rhododendrons, and a few others; still, outside of these well-known shrubs there are many more available for the same mode of treatment. Messrs. Veitch frequently show us some notable things in this way at the various horticultural meetings in the early part of the year, and recently good flowering examples of the singular *Xanthoceras sorbifolia* were among their exhibits. It is certainly very distinct from any other hardy shrub, the stout, rather erect-growing branches being terminated by simple racemes of blossoms. The individual flowers are white,

with a coppery-red blotch at the base of the petals. The bright green compound leaves—suggesting the specific name of *sorbifolia*—are produced just about the same time as the blossoms; but under glass they are very delicate, so that after the flowering season is past special care should in their case be taken to protect them from cold cutting winds. In this country the *Xanthoceras* frequently fails to bloom in a satisfactory manner, though it is sometimes sent here from the Continent during the autumn months thickly set with flower-buds, the plants in many cases being not more than 18 inches high. *Xanthoceras sorbifolia* is especially interesting, as being, I think, with the exception of *Cupressus Lawsoniana*, the first hardy shrub of which a coloured plate was given in THE GARDEN. This was as long ago as December 18, 1875, at which time, in speaking of the then new shrub, mention is made of the fact that "it flowers when quite small, and it is probable that it might be grown in pots for the market." Now, after all these years have elapsed, we see it flowered profusely in pots.

PHILLYREA VILMORINIANA is another subject that flowers well in this way. It is an ever-green shrub with dark green leathery leaves, while the flowers, which are small and white, are arranged in dense axillary clusters along a foot or more of the shoots, even into the old wood, so that when fully expanded they form quite a wreath

of blossom, and in this state somewhat resemble those of the South African Winter Sweet (*Toxicophlea spectabilis*). As a rule the flowers are not borne at the extreme points of the shoots, but usually commence 6 inches or thereabouts from the upper part. The blossoms are so deliciously fragrant, that even when they are later on produced out of doors their scent during sunshine is perceptible for some distance.

CHIONANTHUS VIRGINICA.—This, which is known as the Fringe Tree of North America, is a most uncommon, though beautiful flowering shrub, which will bloom freely under glass. Given a fairly moist soil it forms a free-growing bush with ornamental foliage, while the blossoms, which are borne in clusters, are remarkable by reason of their long narrow ribbon-like petals which hang down for some distance and suggest the popular name of

the Fringe Tree. When flowered in pots these long drooping florets add greatly to the grace and beauty of the specimen.

CLETHRA ALNIFOLIA, which in the open ground does not flower naturally till summer is well advanced, is another distinct shrub, though less showy than the preceding. This ericaceous plant, which was shown in a coloured plate in *THE GARDEN*, Vol. XIX., is a free branching bush with erect spikes of white blossoms that possess a distinct, but pleasing perfume. This needs a fairly moist soil for its successful culture, and it prefers a certain amount of peat or decayed leaf-mould.

SPIRÆA CONFUSA.—This is, I think, destined to become more popular than any of the preceding, and it really is a most beautiful shrub, and can be forced without difficulty. The blossoms, which are freely borne in medium-sized clusters, are of the purest white. This has been to a very limited extent employed for forcing for some years, but it has not as yet become so well known as it should be. Whatever be the correct name of the *Spiræa* grown as *S. confusa* (for by some it is regarded as synonymous with *S. media*, which, in its turn, has been looked upon as a form of *S. chamædrifolia*), there can be no doubt as to its value as a beautiful flowering shrub. T.

Bamboos and the frost.—May I offer a few remarks in reply to your correspondents Mr. A. Young and "A. H." The plants in my border are only partially sheltered by a bank and shrubs. Metake, where most exposed, suffered to some extent. "A. H." is under the impression that all the plants were put out last summer. If he will refer to my letter he will see that *nigra* only was planted out in the summer, and this has stood far better than either *mitis* or *Henonis*. I am grateful for the kind hints as to the treatment of the disfigured plants. *Flexuosa* and *Scriptoria* I hope to plant out this spring. *Viridis glaucescens*, treated as a greenhouse pot plant and used for the decoration of the room is, I think, one of the most graceful and distinct of the Bamboos. The friend to whom I referred as living on the Oxfordshire Hills tells me that his Bamboos have safely weathered the hard winter.—F. C., *Reading*.

Early flowering shrubs.—Thanks to the cold, cheerless weather of which we have had such a large amount this season, the few very early flowering shrubs that we possess have remained in beauty much longer than is usually the case, as with warmer weather and frequent showers the individual blossoms do not retain their freshness for anything near the length of time they have done this year. In the *Forsythia* and *Mezereon* this feature is especially noticeable, both being very beautiful. Of the *Forsythias* many look upon the rambling growing *F. suspensa* as suited only for a wall or for some such a position, but it really forms a charming object when planted in the open ground, and allowed to assume its natural character of a loose, spreading bush. Taking into consideration its thorough hardiness, almost perfect indifference as to soil or situation, combined with extreme freeness of flowering, this *Forsythia* must be included among the most desirable shrubs we possess.—H. P.

Cytisus Andreanus.—This beautiful and distinct Broom, which attracted a considerable amount of attention last spring when first exhibited at one of the Horticultural Society's meetings, may in addition to its other desirable qualities turn out to be a valuable shrub for forcing, for it will flower freely in this way if not exposed to a high temperature. A specimen that had been kept in the greenhouse flowered beautifully during the early part of March, and its richly tinted blossoms are very distinct from anything else then in bloom. It is a variety of the common Broom (*Cytisus* or *Genista scoparius*), but the colour of the flower is totally distinct from that of the type, for instead of the golden yellow of the normal form the two centre petals are of a bright velvety crimson, while the remainder of the bloom is as in the type. It is, of course, thoroughly hardy, and in the open ground is equally as beautiful as when grown under glass. It is cer-

tainly one of the best novelties among hardy shrubs that we have had brought under our notice for the last few years, and no doubt it will rapidly become popular, for it is of easy propagation and culture. I have had no experience of seedlings raised from it, but as the other varieties frequently show a great tendency to revert to the normal form I do not suppose that young plants raised in this way could be relied upon to reproduce the prominent characteristics of their parent. At the same time this makes but little difference, as cuttings strike readily enough, or it may easily be grafted on to seedling stocks of the typical form with which it readily unites, and will no doubt form a lasting union.—T.

THE PLANTING SEASON, 1890-91.

IN Britain the exceptional privilege of planting throughout the winter has been rudely withdrawn this year. For many weeks one could not even lift a young sapling in parts of the south of England favoured in climate. The season has been a very bad one for nurserymen, whose transactions for a long time ceased, so far as planting was concerned. Last year, planting went on all through the winter, as it so often does in England, barring the occasional week or two of frost we usually have. The question now is, Shall we lose a year's planting, or make an effort to save one? The latter is the better plan. Planting is a far more elastic operation than it is generally thought to be. Extensive planters are sometimes compelled to plant when they can, and the result is often happy. At one time everyone planted Evergreens in autumn or winter. Now people who know best plant them in May and June, and get a far better result than they could at any other season. The reason of this is not worth while to discuss—the very important fact is what we have to note. In past days, physiological and many other so-called scientific reasons were given by the "best authorities" to support the usual and the wrong way. That it was the wrong way was slowly, but fully proved by nurserymen obliged to transplant their own stock after the busy season of supplying the public was over. In view of the great importance of Evergreens (both trees and shrubs) in England, it is well to remember that many Evergreens "take" better if moved in May and June than at any other time. The only difficulty is that in bringing Evergreens from a distance we have to run the risk of their roots getting dry on the way—a risk much less likely to occur in winter. In planting or thinning home-grown things, this danger need not occur; but care even then should be taken, and the roots never allowed to get dry. The smaller the plants are, and the less ball, the more they are liable to dry. But the knowledge that the months named above are the best for the planting of Evergreens is as yet confined to the few, and therefore nurserymen have made little provision for sending the shrubs with their roots moist, which they could easily do. That done, extensive planting could be carried out with plants brought from long distances. There are few places, however, where much planting and transplanting of home-grown materials might not be done in May. People plant so thickly, that it is far better to thin out excesses in this way. If we neglect to thin them, the shrubs hurt or in time kill each other. There is no reason, then, why the severe season of 1890-91 should interfere with the planting of Evergreens.

There remains the important question of summer-leaving and hard-wooded trees, as distinguished from resinous and evergreen trees like the Holly. The summer-leaving trees and shrubs (Maple, Plane, Ash, Chestnut, &c., to name a few of the families) are best planted in autumn, winter, or spring; but it is by no means essential to plant them at these times. We have planted many thousand Hazel, Ash, and Spanish Chestnut in April and May without losing any. We wish rabbits were not more destructive of young Ash than late planting need be. Apart from one's own experience, the fact that over a large part of Central Europe planting is only done in spring may also be considered. In Lowland Bavaria and other parts of Germany,

where the ground is frozen hard and the snow lies long, planting is always done in late spring—April to the end of May. As there are far larger and better managed forests in these countries than in England, we have proof of the use of this plan on a large scale. Mere shrubby planting can usually be done with such care that it alone would be little proof of the value of late planting for woodlands. Where very light dry soils occur, like those in parts of Surrey, late planting will not be so safe; but our soils generally have rarely this dry and "burning" nature. They are usually moist enough to make late planting safe. In very cold, stiff soils late planting is not only possible, but sometimes the best way.

In the case of "specimens" frequently moved, as in well-managed nurseries, or taken up with "good balls" in one's own grounds at home, the season is not so important a question; and as the labour of moving these is often heavy, it is best to do it when men can be best spared. But even in moving Hollies with good balls, we find we get a distinct gain in moving them in May—the plants "take" at once, and growth goes on regularly and rapidly, which we do not always find in moving Hollies in mid-winter. These, on the contrary, often remain almost stationary for several years. Specimen summer-leaving trees are moved with perfect success in August, when in full leaf, and also throughout late autumn and winter.

It is thus, we hope, clear that the exceptional winter of 1890-91 need not discourage the planter, whether using his home-raised materials or those bought in. In our gardens and shrubberies the frost will leave many a blank to fill up, and our woods we should never neglect, as if it pays other people, like the Germans and French, to look after them well, it should pay us to do so.

The one thing that should be insisted on in case of buying and bringing young trees from a distance in March, April, or May is that the roots should be kept moist, and care taken to secure this end that would be needless from December to the end of February, when the air is generally moist enough to allow us to take liberties with the plants and roots. We have had much loss from young trees and covert plants, like Broom, being sent long distances without mats or straw round the roots, and being caught on the way by drying March winds. Of feeble plants of Broom and Furze raised on the spot, and even picked up out of the fields where they were "self-sown," we lost none. They were planted at the same season as better-rooted and stronger covert plants that had spent several days on the rail. The success came from the home-raised plants being re-set in the ground the same day they were taken up. The use of old mats, damp straw, &c., carefully put round bundles of covert and forest plants would save them from the effects of sunny days and drying winds when on the "cars" and lying about railway stations.—*Field*.

Viburnum Tinus lucidum.—There are several varieties of the *Laurustinus* differing from each other and from the type in many particulars, one well marked form being the shining-leaved (*lucidum*), which, besides the distinguishing feature from whence the varietal name is derived, has also broader leaves, with larger and more compact heads of whiter flowers than are to be found in the common *Laurustinus*. This variety is the best of them all for flowering under glass during the winter months, at which time some large, well-flowered bushes of the *Laurustinus* are extremely useful where a conservatory has to be kept gay at all seasons. Under glass the flowers of the variety *lucidum* are of the purest white, and may be used in any arrangements of cut flowers, however choice, but it is a pity to employ them in this way, as they retain their freshness for such a long time when allowed to remain on the plant. By some the specimens of this *Laurustinus* required for flowering under glass are planted out during the summer, and by others kept entirely in pots or tubs, but when confined in this way they must be well attended to during the hot weather, as if allowed to suffer from want of water, not only will the foliage



CHRYSANTHEMUMS ELAINE & SOLEIL D'OR

wear an unhappy look, but the display of bloom will be greatly reduced thereby.—T.

THE WEEK'S WORK.

FRUIT HOUSES.

LATE VINERIES.—When the Vines are either started in March or are allowed to start naturally, the young growths are usually much stouter than is the case when forcing is resorted to. They are also disposed to push out more shoots, or far more than are required. Disbudding must, therefore, be freely practised, one or at the most two growths being left at each spur, to be further reduced when those selected are safely brought down to the horizontal position. The shoots of Alicante, Gros Maroc, and other very robust varieties started late are particularly liable to draw out of their sockets, a heavy syringing or the jar of a door sometimes leading to the loss of some of the very best shortly after these have been partially drawn down to the wires; hence the advisability of leaving more shoots than will eventually be required, and also for the exercise of great care in tying down. The longer this operation is deferred, short of allowing the shoots to press against the glass, the less likelihood of losses, the shoots becoming well set by the time the bunches are running out or commencing to flower. If need be, fastening the rods close to the wires may be deferred for a time, dropping them 6 inches or more, giving that much more head-room, and in any case the tying down should be done gradually and when the shoots are perfectly rigid. Being strained somewhat when the shoots are flagging from bright sunshine, subsequent stiffening is liable to draw them out of their sockets (this being a by no means uncommon occurrence), and it is usually those shoots furnished with the finest bunches that are lost. A rather brisk heat and a moist atmosphere ought to be maintained in order to well develop the growths, and especially the bunches, the admittance of much air and the maintenance of low temperatures causing the latter to be short and thick. When the shoots are 4 inches long keep the heat during the night at about 65°, and in the daytime rising from 70° to 80° with air, closing early, so as to run up the heat to 90° or thereabouts, damping down occasionally during the daytime, and syringing overhead freely when the house is closed.

STOPPING YOUNG VINES.—Vines planted last season, and which made good progress, and were duly cut well back last winter, would naturally break and grow strongly this spring. Under fairly good treatment they will have made rapid progress, and in some cases have been already stopped. It is possible to be too hasty in stopping the leaders of vigorous young Vines, an over-anxiety to grow extra stout rods, or it may be a scarcity of head-room being the principal factors in the case. Stout well-ripened rods 2 inches or rather less in diameter are very desirable and something to be proud of, but there is this risk to be run in growing them in one season. If the young leaders are stopped early, or when not more than 5 feet long, and the lateral shoots also kept closely pinched back to the first leaf on each break, there is every likelihood of the back buds, or those formed at the base of each break on a young cane, being forced out, and seeing it is this that is wanted for producing fruiting laterals next season, also for laying the foundation of future spurs, it follows that the rod is spoilt. This is no imaginary evil, as instances of it are common enough, those in charge of them being obliged to lay in fresh rods from near the ground to take the place of the almost naked over-stopped canes. There is much to be said in favour of stopping young leaders when these have made a growth of from 4 feet to 9 feet, according to their vigour, this being the length it is intended to leave them at the winter pruning, but care must be taken not to overdo this stopping, but, on the contrary, those very vigorous should be allowed to extend their laterals considerably. This will not much weaken the rods, and will obviate all risk of the loss of back buds, an additional amount of foliage also improving the root action.

MELONS IN PITS.—Towards the end of April and early in May is a good time to plant Melons in pits heated with hot-water pipes or otherwise. In any case it is advisable to provide bottom heat in the shape of a hotbed of well-prepared stable manure, or this and leaves in mixture, though this can be dispensed with if there are bottom-heat pipes. The plants must in all cases be brought well up to the glass, whether this is done by means of temporary trellising—such, for instance, as wattled hurdles—the haulm being trained over these and the fruit further raised up to the light, or by means of the heating material. When there are bottom-heat pipes only these must not be wholly enclosed by soil, but sufficient soil for the Melons might be enclosed either in large pots, tubs, or boxes, the plan of forming a narrow enclosure along either the front or back by means of loose bricks answering well. Fill these with strong loam with a sprinkling of lime and bone-meal added, and when this is well warmed through put out the Melon plants, two to each light, and make the soil very firm about the roots. Do not stop them till they have nearly crossed the lights, that is to say, have travelled from the front to the back, or *vice versa*, the fruits being obtained as much as possible from the lateral growths, and which ought to be stopped at the joint beyond, where these show. This plan is only occasionally adopted, although it answers well, the more common practice being to fill the pits with well-prepared heating material, or else to renew that which has already done duty in the way of forwarding Potatoes or other early crops. Block this clear of any hot-water pipes there may be in the pits, and make it somewhat firm and of sufficient depth to bring the soil placed on it up to within 9 inches of the glass. The material not being too fresh and hot, about two bushels of loamy soil, nothing being better than a layer of loam obtained from immediately below the turf in an old meadow, should be placed in the centre of each light. When this is well warmed through, and it is seen there is little likelihood of the manure overheating, put out the Melons. Two plants may go to each light, one facing to the back and the other to the front. Plant them rather high, yet in a sloping direction, otherwise the shoots cannot be readily pegged down. Stop them at the second or third joint, and lay in the branches resulting thinly, not stopping them till they have nearly reached the walls, the breaks from these giving fruit in abundance. Before the plants have made much progress, more soil should be added to the first heap, a layer of it to a depth of 6 inches, or rather more, being gradually laid all over the bed. The temperature ought at no time to fall much below 70°, this being increased 5°, or more, with sunshine and air. Give air early, or soon after the sun shines well on the pit, but no cold rushes of air ought to be admitted or the plants be shaded in any way. Close early, or towards three o'clock, syringing the plants and walls freely, and cover with mats in the evening. Never let the soil become very dry.

FORWARDING STRAWBERRIES.—Plants in pots are a great nuisance at times, and especially so during the month of May; yet this is the time when the fruit is much in demand. The shelves in forcing houses will soon become too hot for them, large quantities of fruit being spoilt in some seasons, notably during May, owing to this cause. Melons, Cucumbers, and Vines are all fast covering the roofs, and if Strawberries are near them, the chances are red spider and perhaps green fly will be communicated to the foliage. This difficulty may be obviated by arranging the plants along the light front stages of well-heated houses, the sloping or graduated back stages answering even better. In such positions it is advisable to stand the pots on Moss very thinly, and also to lightly stake or prop up the fruit with the aid of short forked sticks. Strawberries will also fruit well in heated or other pits, but in such positions they must either be planted out or raised well up to the glass, not crowded in any way, given air freely, and after thinning out has taken place, have the reserved fruit well propped up. Those plants on raised open borders, and which are expected to produce ripe fruit

early in June, are apt to flower a little too early, spring frosts spoiling the first or best blooms. Protect these either with temporary frames and lights, hoops and mats, or blinds, and a considerable difference in the period of ripening may be the result. Young plants can be lifted and replanted in frames or pits in succession to Potatoes, and properly looked after will yield several good early dishes of fruit. Surplus plants in pots might also be planted at the foot of a south wall, or even kept in pots in these positions, where, if well supplied with water, early fruit will be forthcoming. PRACTICAL.

PLANT HOUSES.

STOVE PLANTS.—Allamandas will by this time have made good long shoots in many instances. Those in pots will make a far better display when in bloom if the shoots are stopped when they are fairly strong, say when about 3 feet in length. The tops should be taken off as far back as the uppermost fully developed leaves; thus a strong break will be secured, often with four or more shoots. In doing this I prefer to stop all the shoots at once; thus all the strength of the plant is directed towards the young shoots; whereas if the strong ones only are operated upon, the weaker ones rapidly gain strength and the others do not then break away again so freely. By this stopping the time of having a plant in flower can be regulated to a nicety. From ten to twelve weeks should be allowed to do this in an effectual manner. When in the course of a week or two the young shoots again start, then the first shoots may be drawn in to the trellis, but inclined upwards rather than in the opposite direction. They will by that time have become partially hardened with less danger of breaking out at the junction with the old wood. If any young plants are wanted, the tops of these shoots when taken off will strike freely enough in a brisk heat under a bell-glass or in a propagating pit. Bougainvillea glabra can be treated in a similar manner when some shoots are getting extra strong, but in this case it will be as well to only stop the stronger ones, leaving the rest alone, unless all are required in bloom at one time. The weaker ones do not afterwards rob the others so much as in the case of Allamandas. Another plan could be adopted with this plant by tying down the strong shoots to check their growth; this answers very well when building up a young plant into an intended specimen. Climbing Clerodendrons, as *C. Balfourianum*, should, if upon a trellis, be regulated so that the shoots which will now soon be in flower, or at least showing bloom, do not get overcrowded. *C. splendens* for autumn flowering should be encouraged to grow freely, tying in the shoots as they get extra long, taking the precaution in this and in every instance to leave the points at liberty. Bush Clerodendrons should be stopped several times to form a good base, otherwise they make but few shoots, some two or more taking the lead at the expense of the rest. The young shoots of *Stephanotis* as they increase in length should not be allowed to entwine themselves together. For general purposes this useful climber is more advantageously grown upon the roof than upon a trellis, making shorter jointed wood. In the former case the young growths merely require regulating, but in the latter the best plan is to run each one separately up a string towards the light, taking them down just before coming into flower, so that no harm is occasioned to the flowers. Vincas should be continually pinched at the second joint to form bushy plants; if this is not practised, the effect when in flower is not nearly so good, because of their disposition to make a straggling growth. It is not necessary either to have them in flower for some time to come, proving, as they do, of far greater value in the autumn season. *Rondeletias* also require one stopping, more particularly *R. speciosa* major, which is somewhat of a scandent grower. This plant is not so popular among plant growers as it should be, for the simple reason of their not stopping the shoots. For flowering in August they should be stopped at once, and in May for September blooming, *Dipladenias* now growing freely should have every attention paid to them;

the young shoots must not be allowed to entwine themselves around each other. In this respect they should be treated like the *Stephanotis*, keeping at the same time a sharp look-out for mealy bug. Whilst all the other plants previously alluded to in this paper will take a liberal supply of water, the *Dipladenias*, on the other hand, must be attended to in a more careful manner. If once their large, Dahlia-like tubers get unhealthy, trouble will arise, which, as a rule, may be set down to overwatering more than to any other cause. When *Ixoras* are not required in flower till the autumn the plants should be stopped soon and up to the end of May. *Ixora coccinea* is about the only exception to this rule; plants of this variety now making good growth will not flower much too soon. Young plants of all kinds of *Ixora* should have the growths regulated to avoid overcrowding when specimens are desirable. *Anthurium Scherzerianum* now fast developing its spathes will need rather more water. Those which have not been potted this spring should be assisted by a surface dressing of Sphagnum Moss and some lumps of fibrous peat. Take care not to injure the spathes, and when these are fully developed, a more shady position will be preferable.

Every encouragement should now be given to *Eucharis* to make a good growth; the flowers will not now be in such great request, but by aiming at more leaf development another supply may be looked for later in the season. Those potted up entirely afresh earlier in the spring will now be growing away pretty freely; guard, however, against overwatering. If syringed every day, but little water will be required, especially if the pots are plunged. *Pancratiums* and *Hymenocallis* should have a partial rest when they have made a good growth and until flower-spikes appear. If any have recently flowered, the fresh crop of leaves will soon appear; also, these plants ought, on the other hand, to be encouraged to grow. As the *Clivias* go out of flower, they also should have liberal treatment as soon as possible; this is just the time when these plants enjoy a warm growing atmosphere. Where fresh potting is needed it should then be seen to. This work is not necessary every season when good soil and careful treatment are given them. Plants which are getting of extra size may be advantageously divided; in this way the period of flowering may be lengthened in future seasons. Those of only moderate dimensions with but a few growths had better be potted on. A fibrous loam is the staple soil for *Clivias*. I would only use peat when the loam is not first-rate, but would not object to a little lime rubble. *Medinilla magnifica* will now soon be in a forward state of flowering; as an assistance, therefore, it should have more water given it. To a pot-bound specimen some weak liquid manure will be an additional help. Any sponging or cleansing should be seen to before its handsome panicles of flowers approach perfection. The earliest flowering *Gardenias* will by this time have ceased to give a good return. These plants, if in need of pruning, can be operated on at once and also potted. By having two or more batches in various stages this can be effected without any difficulty. Those now pruned and potted will give another crop in the autumn. The *Tabernaemontana* is a pleasing change to the *Gardenia*; it will soon be in good flower and continue to give a supply for some time.

J. HUDSON.

ORCHIDS.

THE cultivator of a full collection of Orchids must have his mind continually occupied with the numerous details of his work, and these details can only be mastered by careful attention to the nature of the plants and the conditions under which they succeed best in our hothouses. We have succeeded in thoroughly establishing many beautiful and distinct species in our gardens, while others have as yet baffled the most skilful cultivators. The plants do well for a few years until their native vigour is exhausted, when they gradually decline, and soon it is a struggle for existence with them. I can record many instances of successful culture, but failures now and again have to be recorded. Take the splendid *Vanda coerulea*, which when well

grown is a most beautiful Orchid. Those who have seen it growing in its native habitat have told me that it likes an open position, on the tops of isolated trees, and that the temperature falls so low at certain seasons, that hoar-frost may be seen on the ground where it grows. Taking the cue from this, I have placed the plants in teak cylinders at the coolest end of the *Cattleya* house, where they get plenty of light and are shaded only from scorching sun. They do well under these conditions for a few years, but after flowering freely each year, they, as a rule, gradually decline. I am now growing a few plants in a similar position in the warmest house, and they are doing much better. The very beautiful *Lælia majalis* requires peculiar treatment, and *L. autumnalis* goes well with it. Placed at some distance from the glass and shaded like other Orchids from the sun, the plants degenerate rapidly, but in a house where they have little shade and a high temperature by day close to the glass, with a lower night temperature in proportion, they maintain their vigour for many years and flower freely. In winter let them have all the light possible and as cool as the New Grenadan Orchids. The very desirable *Oncidium tigrinum* succeeds well with these. The white *Lælia anceps* may be placed under the same category. The ordinary form is so easily grown and flowered with *Cattleya* house treatment, that we did not give the beautiful white varieties so much attention as they ought to have had, and failed to get flowers so freely as from imported plants of the others. Moreover, the imported plants are considerably exhausted by their long land journey and sea voyage; therefore they take a year or two to become thoroughly well established. A batch of plants I purchased about five or six years ago have now become established, and they flower well. I place the plants close to the roof glass in a light position and shade very lightly indeed, only enough to keep the leaves from being scorched in very bright sunshine. They are now starting to grow, and if they are treated as above and well supplied with rain water rather warmer than the maximum temperature of the house, they will nearly all form flowering sheaths. Naturally the white varieties flower as freely as the coloured type. We have also had to learn from experience the best treatment of various distinct *Odontoglossums*. Not the least important of these is the new *O. Harryanum*. I have it nicely in flower at the present time on the north side of a span-roofed *Cattleya* house, and the plants seem to succeed well there for six months in the year. During the six summer months they do well in the cool house. Three other species highly prized by collectors are *O. blandum*, *O. nævium* and the majus form of it, also *O. cirrhosum*. These may be treated exactly like *O. Harryanum*, but not making quite such robust growth they may be placed nearer to the glass. Except that they like a little more heat in winter, all the above species may be treated like *O. crispum*. I have alluded to the much more showy *Miltonia vexillaria* recently, but as the spikes are now pushing up freely, they should receive a final dipping in diluted tobacco water, for if this is done when the flower-buds are half formed, it so seriously injures them sometimes that the flowers do not open well. The pretty *Miltonia Phalænopsis*, which we used to esteem much more highly before the introduction of *M. Roezli*, is now in flower with me. It succeeds well if the pots containing the plants are suspended near the roof glass in teak baskets on the shady side of the *Cattleya* house. The plants should be repotted once a year in spring, disturbing the roots as little as possible. Do not be tempted to break up the plants as long as they do well. In time the bulbs get much crowded, but the plants continue to flower, nevertheless, as long as they are kept free from the small white thrips which attacks the leaves. Tobacco water settles this, as it does all kinds of thrips and red spider. The best treatment is to lay the plants on their sides to drain off the water for an hour or so, then to sponge the leaves over with tepid rain water. Keeping all these plants clean is of so much importance for their healthy development, that a regular system of dipping the leaves is absolutely necessary. The spring-flowering variety of *Angræ-*

cum sesquipedale has just passed out of bloom. This is easily grown after it is fairly established, and as the plants flower regularly and well every year they are much prized. Our plants had not been repotted for three years, and they were all done last week. The roots had taken such firm hold, that the pots had to be broken to pieces carefully with a hammer to get the plants out with as little injury as possible. The plants were transferred to larger pots, which were filled nearly to the surface with loose drainage, a thin layer of live Sphagnum being placed on the surface. *A. leonis* has proved to be a very nice thing, also free-flowering and of healthy growth. It does best in baskets suspended from the roof-glass and should be repotted annually. The plants are now in bloom, and they flower freely every year. I will repot them as soon as they pass out of bloom.

JAS. DOUGLAS.

THE KITCHEN GARDEN.

CARDOONS.—Although Cardoons are not generally grown, yet they are well worthy of more extended culture. To be appreciated they must be grown well, not that any extraordinary attention is necessary, but they must have liberal treatment as regards the soil they have to grow in. Being gross feeders, it is necessary that generous treatment be accorded from the first, for if the plants receive any check they are apt to run prematurely to seed, when, of course, they are useless. As a rule, the plants are raised from seed sown in 3-inch or 4-inch pots. Two or three seeds should be placed in a pot and the seedlings thinned out to one plant as soon as the strongest is perceived. The pots the seed is sown in should be placed on a half spent hotbed. As soon as the plants are large enough, and before there is any chance of their becoming pot-bound, they must be planted out in prepared trenches. On light soils the trenches may be formed as if for Celery, working in plenty of good solid manure. On heavy or retentive soils the trenches should be filled up to the level. The plants should be set out 30 inches apart, and during dry weather water should be liberally applied. On warm soils the seeds may be sown in the open ground. The ground must be prepared, however, as if for plants, taking care to have 5 inches or 6 inches of soil over the manure. The seeds should be placed at intervals of 2 feet, placing two or three together, afterwards thinning out to single plants.

SALSIFY AND SCORZONERA.—These I have placed together, as the treatment is very similar. Sometimes the *Scorzonera* is sown earlier, but there is danger of its running to seed when sown early, when of course the roots would be useless. The best produce is secured on fertile sandy soils which have been deeply worked, but not recently manured, for when such is the case the roots become forked instead of clean and straight. Ground which has been well manured for a previous crop is very suitable, but if not in a fertile condition, dig out a trench 18 inches in depth, and over the bottom place a layer of manure to the depth of 3 inches, afterwards filling up to the surface with the soil taken out. By managing the soil in this manner the feeders of the roots may work into the manure, leaving the main root clean and intact. If more than one row is required these should be 20 inches or 2 feet apart. The seeds should be scattered thinly in drills, taking care in sowing that the seeds are not closer together than 3 inches, for when huddled together the roots remaining would be injured when the surplus is removed. Careless sowing and thinning of the seedlings often cause forked roots. The seedlings should be thinned out to the distance of 9 inches apart. In the hoeing which may take place to destroy weeds take care not to work too deep or too close to the roots for fear of breaking the latter, for if so they will surely fork out. Being such delicious vegetables when properly cooked, and especially so as regards the Salsify, every care should be taken to secure good produce.

CHICORY OR WITLOOF.—This is considered very useful for winter salad, and during a winter like the past was doubly valuable. The first week

in May will be time enough to sow the seed, and it may even be sown throughout the month. The seeds may be sown in a similar manner to the *Sal-safy*. The roots taken up in November and stored in sand are either packed together closely in pots or boxes, and either placed in the Mushroom house or some other dark position to force in a similar manner to *Seakale*. Considering the ease with which it is grown and blanched, *Chicory* or *Wit-loof* is well worthy of attention for producing wholesome material for the salad bowl.

LETTUCE.—Lettuce will be coming on apace now, so means must be taken to give every encouragement. Those plants from the earliest sowings will no doubt have been pricked out ere this into low frames or rough shelters as means of protection until they become established. It is unwise to plant out too early these young and tender Lettuces which have been raised under glass, for being in a tender condition, slugs or even birds will soon commence to prey on them. However, those which have been pricked off previously and have also become sufficiently hardened should be planted out on a warm and well-manured border, and then with timely hoeings as an incentive to

late, and for kitchen use I will have it for a considerable time longer. Y. A.

KITCHEN GARDEN.

VEGETABLE MARROWS.

THERE are very few other vegetables which have the same qualities as the Vegetable Marrow. It is of the easiest culture, very delicate in flavour when properly cooked, and also makes an excellent preserve. As a rule, the fruits are allowed to become too large before they are cut for use; this, besides injuring the plants, prevents others coming on. I find that fruits about 3 inches long are most appreciated on the dining-table. This may seem wasteful to some people, but a supply is easily maintained by having more plants, and when, as in this case, the fruits are not allowed to grow too large before being cut, others are formed in quick succession. In many establishments the Vegetable Marrow is rarely seen on the dining-table, for the simple reason that it is invariably

Potatoes. Other ways of growing Marrows are on a trellis over a pathway (as in the illustration, p. 398), or to cover an outhouse or other building, or against a wall where they will do well provided they get plenty of light.

RAISING THE PLANTS.

Whatever system of culture is adopted, the proper raising of the plants is of the greatest importance, as it is a very unwise proceeding to sow the seeds early if there is not due provision for planting out early and growing on without receiving a check. When the plants are kept starved in pots, they very rarely grow away freely afterwards. For growing on in frames or for planting on slight hotbeds with the protection of hand-lights, the seeds may be sown during April, but, as a rule, the first week in May is soon enough. Where the plants cannot be raised and grown on in pots previous to planting out, seeds may be sown in the position the plants are to remain in. For this purpose a bed should be formed of heating material by either digging out stations 3 feet or 4 feet square and 18 inches in depth, or by forming a longer ridge-shaped bed. The heating materials should be trodden firmly into the space excavated and surfaced with 1 foot in depth of fertile soil. The seeds having been sown two or three in a station, the strongest plants should be afterwards selected, and either covered with a hand-light or cloche. The seedlings as soon as through the surface will only require to have the hand-light ventilated as occasion requires. Plentiful supplies of water throughout the growing season, if the weather should be dry, and the removal of the light as soon as the growths reach the sides will be all the attention necessary.

PLANTING OUT.

For planting in the open air under hand-lights or small frames the second or third week in May will be soon enough. Although the Vegetable Marrow will succeed well in deeply cultivated and well-manured soil, yet in private gardens a more generous course of treatment may well be adopted. Stations should either be formed, as previously stated for the raising of seedlings, on open beds or either long ridges. The space excavated should be filled up firmly with half-spent manure and surfaced with fertile soil. The plants when set out under the hand-lights or small frames will soon commence to grow apace, and as soon as the sides are reached or on the advent of warmer weather the lights could be wholly removed. When growing in frames for the production of early produce, the lights should not be allowed to remain over the plants longer than until warmer weather arrives, as the growth made will probably be more fruitful than if allowed to remain covered. Abundance of water will be necessary, and as far as the growth is concerned this could be pegged out at the first onset. Stopping of the shoots is not necessary, unless one should be growing ahead early in the season at the expense of the smaller growths. I may as well state that a sunny position is of the greatest importance, and if on a bank sloping to the south all the better. Often failures may be traced, and especially in small gardens, to planting in shady positions.

In the neighbourhood of London large quantities are grown in open fields for the market, and even market growers who may have a quantity of frames at disposal plant Vegetable Marrows in them for the production of early



Vegetable Marrow Moore's Vegetable Cream.

free growth, the heads will not be long in turning in. Sowings of any of the Lettuce may now be made on open borders, taking care previously, if the ground should be in a lumpy condition, to apply a dressing of burned garden refuse, which will induce the roots to form thickly. Take care to sow thinly in drills quite 12 inches apart, so that light and air may reach freely around them to induce a sturdy growth. Overcrowding in the seed bed must be strictly guarded against, for when such is allowed to take place the plants draw up and quickly run to seed after being planted out. Dustings of soot and fresh slaked lime along the outer edges of the bed will keep slugs at bay. Take care, however, not to allow either soot or lime to fall over the plants, and especially so when they are reaching a fair size, for fear of the produce tasting when being used for salad.

LATE CELERY.—Where Celery is required for use late in the season the seeds should now be sown in a sheltered corner of rich soil in warm districts. In later districts or on cold soils sow on a gentle hotbed, afterwards hardening off as early as possible. To show the value of late sown Celery I have had it in use for salad up till

sent in too large. Although Vegetable Marrows are often grown on what we may term rubbish heaps or on heaps of vegetable refuse in out-of-the-way corners, better results are always obtained under a more rational system of culture. Very often Marrows are planted on little better than heaps of raw manure. On such material the plants certainly grow very luxuriantly, but the growth is very unfruitful, and the fruits, instead of swelling off, turn yellow and wither up. Early crops may be produced by growing in pits or on half-spent hotbeds. I have cut excellent crops from plants grown on in large pots and trained near the roof of an intermediate house. I mention this as an exceptional case for the production of early fruits. Generally, for early produce, the plants are planted out on hotbeds which had previously been made up for Potatoes and where they succeed admirably. I generally remove a root or two in the centre of each light if the frame had not been previously cleared, as in this way the plants are coming on and doing no harm to the

produce. Elaborately formed beds are not made, as the plants are placed out in the open ground. The plants are put out when all danger of frost is past in single rows about 12 feet apart, leaving a space of about 4 feet or 5 feet between the plants. Each plant is covered with a small hand-light or cloche. Baskets, or rather what are termed sieves, are often placed over the plants as protection until established. The intermediate space is occupied with a light crop until the Marrows require all the room. Lettuce, Cauliflowers, Turnips, and such like are generally the intermediate crops. During dry weather abundance of water is applied, but to conserve the moisture as much as possible, as well as to keep the fruits clean, the surface is littered down with long manure. As regards varieties, Moore's Vegetable Cream, the subject of the illustration, is the best for general use, and to recognise its great merit, the Vegetable Conference of the Royal Horticultural Society held at Chiswick, in 1889, awarded it a special certificate of merit. Hibberd's Prolific is an excellent early-fruited variety, and well adapted for growing in frames. Other good varieties are Long White and the small and free-fruited Pen-y-byd. A. Y. A.

EARLY VEGETABLES.

WITH all due respect to such authorities as "A. D." and "Pisum," I once more assert that market growers are not at a disadvantage as regards earliness of vegetables, notably Peas, "with private gardeners with their walled-in gardens to give needful shelter." If length of haulm, height of stems, and much strong leafage are an advantage, then those in charge of walled-in gardens certainly have the best of it. But it is the crops I am thinking about, and above all things precocity in Peas. As "A. D." points out, when so many are competing, the gain of two or three days makes all the difference in the prices, and if it paid market growers to shelter, stake, and even plant out Peas, one of them that I am well acquainted with would be among the first to do it. Gardeners with their much-coddled, much-staked, and much-drawn up rows of Peas must have shelter to assist them, but if the same varieties were grown in the open fields and not staked at all, they would require no shelter. It is sunshine the farmers—for I am not thinking of the flat, excessively manured fields around Bedford, Hounslow, and other suburban districts, but the fields of Kent, Surrey, Sussex, and Essex, where most of the Peas come from—require, and at critical stages of growth almost pray for. The sunny open positions and comparative poorness of the ground favour a very sturdy growth, and this by no means at the expense of productiveness, "Pisum's" opinion notwithstanding, and there is no necessity to pinch out the points of the haulm to cause them to fill well. Then as regards the dates of picking, it must be remembered that market growers do not waste time and money in picking half-filled pods here and there in order to be able to boast of having picked Peas at a certain early date, but they wait till they can gather a good many sieves of well-filled pods at one time. Comparing the open parts of ordinary kitchen gardens to the open fields is no argument at all. The farmer selects a field sloping south if possible, in order to give his Peas the full benefit of all the sunshine and warmth going, and the gardener if he is wise follows much the same tactics, the sloping sunny south borders naturally promoting earliness. Far too much is made of the shelter afforded by the walls. Doubtless there are thoroughly sheltered nooks where Strawberries, as a case in point, might be conveniently and profitably grown, especially if the early flowers were protected from frosts. For instance, we commenced picking fine fruit of Laxton's Noble from a sunny raised border last year on June 1; but is "A. D." prepared to assert that we were many days earlier than Mr. Laxton at Sandy, a neighbourhood presumably much less favourably located than Somers-

setshire? At the present time our plants of Noble on sheltered borders are apparently not a day earlier than breadths of the same and other varieties in more open quarters, but they will gain ground presently owing to the greater amount of sunshine they will receive. What height the Peas sown or planted now are does not greatly affect the case, for the simple reason that the market growers' plants are always more sturdy than those grown in private gardens. It may, however, serve to elucidate matters somewhat by giving the date I first picked Peas in quantity last season. On referring to my note-book, I find an entry to the effect that two pecks of well-filled pods of Chelsea Gem were gathered on June 3. The plants were raised under glass in boxes of fine soil from which the roots were shaken clear at planting time, and they were located on a south-east border. They experienced the full effects of strong easterly winds, but were never sheltered or staked in any way. Altogether, six pecks of Peas were gathered from those rows of sturdy plants, and it is my belief they would not have done so well had they been more coddled. I ought, perhaps, to add that rather less than one quart of seed was sown, and that the slugs were unusually troublesome last spring. Just the same routine is being followed this spring, and the results I hope to be able to duly chronicle.

The foregoing was in the editor's hands before the remarks by "A. Y. A." and J. Hill were published, and I should like to add a brief reply to what the latter especially has advanced. What "A. Y. A." adds to the discussion partakes somewhat of a negative character, but surely the fact of his Peas coming up more quickly on a south border than in the open does not bear out what "Pisum" has to say concerning the value of walls and other shelter. The shelter had little or nothing to do with it, but the quicker germination was due to the warmth of the soil, raised borders usually being formed of lighter materials than is the case with the open quarters, being also better drained, consequently never so cold. If there is any sunshine going, the south borders get the fullest benefit of it, though much of this is often wasted upon tall, crowded, and over-staked Peas. On turning to p. 66 in THE GARDEN of July 19, 1890, it will be found I have not been quite so inconsistent as Mr. Hill suggests. For instance, I there stated that "early Strawberries have proved to be the most profitable crop that can be grown on a warm border, and instead of wasting valuable ground over Peas, which frequently can be had quite as quickly in a sunny open spot, we much prefer to increase our breadth of Strawberries." If Mr. Hill had read and contrasted impartially and carefully, he would have found but little inconsistency, and it is very certain isolated passages prove nothing. If all private gardens were on a gentle slope towards the south, there would be little or no need to recommend raised borders for anything; but, unfortunately, there are far more on a dead level or with little or no declivity in the right direction, and those in charge of the latter act wisely in utilising raised borders to their fullest extent. W. I.

Tomatoes and moisture.—To a large extent Tomatoes are treated too well in their early stages of growth, and especially those planted in the open ground, as many persons are under the impression that these plants are gross feeders, and must have rich soil with plenty of manure and water. Such is not the case, I find, if abundance of fruit is desired. The manure tends to create a leaf growth, and the plants only set a few fruits. Moisture also in excess has the same tendency. Moisture when indiscriminately applied also tends to disease, it being best to keep the plants on the dry side till the plants have set a good crop of fruit. As the fruits swell liquid manure may be applied; even then the plants do not absorb so much moisture as is often given them. I have often observed how well Tomatoes fruit in 10-inch or 12-inch pots plunged in the ground, much of this, no doubt, owing to their roots being restricted, and not getting too much moisture. I have in wet seasons obtained the best crops in the open from plants grown in this way and against a wall. A good

loam with only sufficient water to keep the plants growing freely will be found to produce better crops, and also check disease. I may add a good mulch of spent Mushroom manure or other thoroughly decayed manure applied in the summer (with some brick tiles, or slates, or even boards to restrict root growth) greatly assists in securing a heavy crop.—G. WYTHES, *Syon House*.

Pickling Onions.—The sorts most suitable for growing for the above-named purpose are the Silver Skinned and The Queen, both of which are handsome in shape and of a pure clear white colour, and of suitable size if not grown on rich open ground. The better way to manage with them is to sow on a plot that has not been dug, but which is firm and poor, as then instead of big bulbs, or such as are considered too large for the pickling jar, they come only a little bigger than marbles. In sowing the seed drills should be drawn about 6 inches apart and the seed scattered therein, but not over-thick, as no thinning then is necessary, and it is always advisable to have the Onions stand rather close in the rows, and not to be disturbed after they are up, which thinning would do. The Queen is likewise a first-rate Onion for sowing towards the end of August to stand the winter, as it forms bulbs some time before any of the others and is soon fit for use. It is also very mild in flavour and good for growing to pull young for those who like Onions mixed in the salad bowl or to eat uncooked.—S. D.

Good King Henry.—Will someone kindly let me know the correct way of cooking Mercury, or Good King Henry? Also the time for cutting, and whether the leaf only is used or the stem and flower?—VEGETARIAN.

* * The leaves are eaten like Spinach, and it has been suggested to use the shoots like Asparagus, as a vegetable blanched by simply earthing them up. We think this an excellent vegetable for England, and deserving to be more generally planted. It is extensively grown by the Lincolnshire farmers, almost every garden having its bed, which, if placed in a warm corner and well manured, yields an abundant supply of delicious shoots a fortnight before Asparagus comes in, and for some weeks afterwards. From a south border cutting generally commences early in April and continues until the end of June. Some people say they like it better than Asparagus. When properly grown, the young shoots should be almost as thick as the little finger, and in gathering they should be cut under the ground in a similar way to those of Asparagus. In preparing it for use, if the outer skin or bark has become tough, strip it off from the bottom upwards, and then wash and tie it up in bunches like Asparagus. It is best boiled in plenty of water. When tender, strain and serve simply or upon toast. Some have melted butter with it, others eat it simply with the gravy and meat. In cultivation, the Mercury will grow anywhere; but, to have it in the best form, good cultivation is necessary. To this end you cannot have the ground too deep nor too rich. Hence we should say trench the ground 2 feet deep, mixing in an abundance of rich manure, and plant as early in the spring as possible. As the plant is a perennial, it is necessary to get an abundant yield of shoots, and to get them as strong as possible—and hence, in time, each plant may be 1 foot or more in diameter. In planting, put the rows 18 inches apart, and the plants 1 foot apart in the row. It is wild in some parts of England.—ED.

Attention to growing crops.—The various crops will now be coming on apace with the advent of more genial weather, so every means must be taken to keep them advancing, and for this, timely hoeings and frequent surface stirrings are the best. It is astonishing how quickly the crops respond to such timely aid, and I am certain that a gain of a week or ten days is secured to the various early crops in coming to maturity. Hoeing not only stimulates growth, but also disturbs the various insect pests which prey upon young growing vegetables. Weeds must also be kept down at any cost, as, besides choking up the growing crops, they so impoverish the soil that the vegetables do not come to that perfection they should do. As soon as the surface is in a fit state for hoeing, the work should

be gone into with a will. Millions of seedlings which are just starting into growth will be destroyed before they are hardly visible to the naked eye. Any perennial rooting weeds should be removed and burned. Groundsel is a terrible pest in the kitchen garden when allowed to gain a footing. Although only an annual, the seeds will remain in the ground for years, and come up fresh as soon as the seeds are turned to the surface. Groundsel should not be allowed to remain on the ground after being cut off, but should be cleared away and burned. If a dry day is selected, and if possible with a hot sun and drying wind, it is astonishing the quantity of ground which may be gone over. When such a day occurs, I invariably get together what men I can, and hoe over the surface whether weeds are visible or not, and I am certain it is the best course to pursue to economise labour. In hoeing for the benefit of the growing crops, do not merely skim over the surface, but work into the soil with a draw hoe suitable for the work in hand. A Dutch hoe is a useful implement in good hands for the destruction of weeds, and also for small seedlings. Slugs must be kept at bay by looking for them in the early morning, whilst the surface is wet with dew. Fresh slaked lime and soot in equal parts are as good as anything for their destruction.—Y.

ROSE GARDEN.

TEA ROSES FOR FORCING.

It is remarkable that among the great number of varieties now cultivated and the continual influx of new kinds that there should be so few really useful Roses for forcing, also that the old sorts should still hold their own against all new comers. Take *Safrano*, for instance. Fine blooms of this most useful Rose may now be seen in all the florists' windows. This is one of the Roses which are extensively grown in France, and large quantities of fine blooms are sent to the English markets, but most of the blooms now seen are of English growth. *Niphetos* is another fine old Rose which has not as yet found a rival, or at least not a formidable one. The new climbing variety is of more vigorous growth, but otherwise identical with the type. *Devoniensis* is rather a bad grower, but when in good condition it is a fine Rose, and the delicate blush-tinted blooms are of fine form and substance. *Souvenir d'un Ami*, another of my earliest acquaintances, is now grown as much or more than ever, and finds a ready sale. The new white variety, *Souvenir de S. A. Prince*, possesses all the good qualities of the parent, and has pure white blooms. The hardy constitution and vigorous habit of growth are its greatest recommendations. This Rose will grow freely under conditions which would be fatal to the more tender sorts. *Catherine Mermet* is undoubtedly one of the finest Roses we have for forcing. The colour, a soft pink, is much appreciated. For a considerable time there has been a good supply of splendid blooms of this Rose in the market. The *Bride*, creamy white, a sport from *C. Mermet*, is equally valuable, but not yet so extensively grown. *Perle des Jardins* is one of the finest yellow Roses, the flowers full and of a rich deep colour. All growers do not succeed with this variety, but where well done it is a profitable Rose for market work. *Sunset*, of similar habit, with a beautiful amber shading, is a grand flower. *Mme. Charles*, somewhat after *Safrano*, but of a deeper shade of colour, is a good free-flowering winter Rose. The young foliage has a rich crimson tint when grown well exposed in a rather lower temperature; the young shoots are very valuable for mixing with blooms. At the present time fine blooms of *Maréchal Niel* are very plentiful. I

hardly need add that this Rose is as popular as ever; in fact I should think that no other flower has had a longer run of popularity. *Madame Lambert*, about which so much was written in *THE GARDEN* some time ago, is the finest red Rose for forcing; later in the season the colour varies from red to a pale bronzy amber, but the early blooms are generally bright red and of fine form. *Reine Marie Henriette* is a very pretty red Rose which I have flowered well, but it is rather uncertain, being much inclined to run away into growth. It requires the same treatment as *Maréchal Niel*, and the lateral shoots of well-matured growths will generally flower well. I find that those which flower from the lateral shoots of the previous growths do best when the wood is well ripened and started again without losing the old foliage. *Sappho* I was a little disappointed with last year, but stronger plants which are now well advanced in bud look very promising, and if it does prove free it will certainly become popular on account of the very pretty shades of colour. *Francisca Kruger* is another which should become popular; the flowers are large and of a peculiar coppery yellow shaded with a reddish tint. Last autumn I had some fine blooms, but I have not yet seen early forced blooms.

To succeed in the forcing of Roses it is essential to have strong healthy plants well established in the pots they are to flower in; provided the wood is well ripened, the younger the plants the better. I have seen plants which were grafted on seedling *Briers* early in the year make fine plants for forcing the following spring, but to do this it is necessary to give them the best treatment. By this time they should be ready for potting on into 6-inch pots, and in growing them on they must have plenty of room. The plants should have their final shift in July. If potted into 8-inch pots and kept indoors for a few weeks, they will make another good growth, and pretty well fill the pots with good fibrous roots, which are so essential for the supply of nourishment to early forced Roses. Later on the plants should be placed out of doors in an exposed position and kept moderately dry at the roots. I like to give them some protection before we get any sharp frosts. In preparing the plants for starting they may have the surface soil removed, and be top-dressed with some good rich loamy compost. Good fibrous loam, with plenty of well rotted manure is the best compost for pot Roses, and the plants should be potted very firmly. It is hardly necessary to give any instructions with regard to insects. I might, however, recommend the use of sulphur before mildew makes its appearance, and under ordinary circumstances this will prevent it making its appearance. Cold draughts with a dry atmosphere will be almost sure to propagate mildew. Of course it does not spread until warmth and moisture are given, but will then soon increase at a great rate. Although the drought has been the primary cause, it is generally attributed to the excess of moisture. With regard to temperature, a moderate heat regularly maintained is much better than giving too much heat, for without a certain amount of light all the artificial heat that can be given will not be of any use. To try to hasten them too much will weaken the plants and produce only inferior blooms. F. H.

Sweet-scented Roses.—Although almost all Roses are sweet-scented, still there are a few so far in advance of all others in this respect as to claim a few words to themselves. It would be very difficult to say which Rose is the sweetest. Some people cannot distinguish the grand fruity perfume found in *Catherine Mermet*. I think it is strongly

suggestive of *Apricot*. *Socrates* is another very fruity-smelling Rose. *La France* has a delicious perfume quite peculiar to itself. Some years ago when a poll was taken upon fragrant Roses this variety was placed at the head of the list. I remember placing it at the head of my return paper, but should hesitate to do so now, as *Socrates*, *Souvenir d'un Ami*, *Catherine Mermet*, and *Comtesse Riza du Parc* all surpass it in my estimation. Many of the old Roses possess grand scent, and as a body are superior to the recently introduced varieties. *Baronne Prevost*, *Abel Grand*, *General Jacqueminot*, *Mme. Clemence Joigneux*, *Senateur Vaisse*, *Mme. Furtado*, *Louis Van Houtte*, *Géant des Batailles*, and *Anna de Diesbach* are a few old Perpetuals that are extra sweet, while *Souvenir de la Malmaison* and *Baronne de Noirmont* are two good *Bourbons*. The old *Cabbage* or *Provence* Rose is too well known as one of the very sweetest to need any special mention here. *Maréchal Niel* is the sweetest of all yellow Roses. Among the newer Roses, *Mme. Renaby*, *The Puritan*, and *Mme. Joseph Godier* are particularly sweet. *Anna Marie de Montravel* and *Gloire des Polyantha*, two miniature Roses, are also very sweet.—A. P. R.

ROSE NOTES.

Now that the frost is quite gone, we can see with far greater certainty how far Roses have been affected by the late severe winter. Too many have written upon this subject rather prematurely, as we cannot decide how far the Roses have been injured until a few bright sunny days have been upon the plants. I am not surprised at "A. H.'s" Roses having come through the winter so satisfactorily, as by his showing they had the great advantage of a naturally dry soil and high position, which tend to ripen the wood more effectually in the autumn. The roots being also much drier, it requires a very severe frost indeed to injure Roses to any appreciable extent. I cannot say our Roses have come through quite as well as we expected. The young plants in one bed have been almost all killed, while some budded on the seedling *Brier* upon the same quarter of ground are almost unharmed. Why are the young plants and those budded not affected in the same way? I should say it is because the buds were sufficiently ripe when inserted in the stocks, and also had all the summer to further mature themselves, and so were in the best possible condition to withstand the frost; whereas, the Tea-scented Roses in particular were growing very late and were then cut back sharply by the first severe frost, and this being so quickly followed by the hard winter did the mischief. Again, the plants and budded stocks, too, that are in an open field facing due north are not injured in the least. These are upon somewhat drier ground, and also on a sharp slope. This goes still further to prove the advantage of a well-drained soil for Roses during winter. In a row of 100 stocks, no more than two or three buds are failures; this is among the Hybrid Perpetuals.

The Tea-scented kinds are almost as great a success. Where failures exist, it is generally some 50 to 200 consecutive buds that are very bad. I have noticed this in other years, and doubtless it was solely because the buds were put in a trifle too late in the season, and so were not able to set securely, or the stock ceased running freely, and so the buds had to be "coaxed" in: this often injures them just sufficiently to prevent a good union. Where some 500 to 700 buds of a sort are required, it is difficult to get them all at once, and so some are inserted a little too late in the season. Independent of these late-budded stocks, I think our Teas are as successful as the Hybrid Perpetuals. A number of Tea-scented Roses planted out for stock about twelve years ago, and upon ground facing due south and backed by a hedge upon a bank are almost destroyed. I cannot account for this in any way, but have noticed during other hard winters that old established plants, as a rule, suffer much more than healthy young ones. Some dwarf Teas that had the soil drawn up to their base—in the same way as Potatoes are earthed up—now promise good growth, although all of the wood above the

soil was quite black. These plants were saved in this simple manner, and all of the eyes beneath the soil kept sound and free from frost.

RIDGEWOOD.

Rose Fortune's Yellow, or Beauty of Glazenwood.—This Rose has very many good qualities to recommend it for private use, and should be grown by everyone who has room for it under glass. It is one of the least fastidious of Roses, of vigorous, or even rampant habit, and gives a profusion of its splendidly coloured copper and red flowers very early in the season with very little forcing, no other Rose coming into bloom so quickly after starting. Though its season is short, it is especially valuable as the harbinger of the great Rose harvest to come, and the hundreds of blooms which a single plant will give during the three weeks or a month of flowering are most acceptable in early spring when flowers, and especially Roses, are scarce. The blooms are somewhat flimsy and soon fade when cut, but coming in such quantities they can be easily replaced, or if cut with short stems when just opening and placed in shallow receptacles, they last for many days, as the petals do not soon drop off. Some of this natural flimsiness may be counteracted by allowing only a moderate number of strong young growths to be formed instead of a thicket of weaker ones, as the flowers from the former are of much greater substance and last longer. The flowers are not strongly scented, but there is a very refreshing scent of Sweet Brier about the leaves and wood when cut or disturbed. The formidable hooked prickles peculiar to this Rose are very strong and sharp, with something of a poisonous nature about them, and scratches by them irritate more than is usual with those from the majority of Roses. The culture under glass is simple, and consists of rather hard pruning directly after flowering, and laying in only the strongest of the shoots made later, giving them every chance of becoming thoroughly ripened throughout their length, the same treatment in fact as is given by the most successful growers under glass to *Maréchal Niel*. Out of doors it must have a sheltered position on a south or west wall, or there is great danger of the precocious young growths being nipped by spring frosts or high winds, and once this is done all chance of a crop is over for the year. Pruning out of doors should consist merely in thinning out the weakest growths and laying in the strongest, for if hard pruned as recommended for those under glass the chances are that the wood would not get ripe enough to flower well in the ensuing year. It seems indifferent to the kind of soil it is grown in, as long as it is fairly good. Our indoor plant is growing on the back wall of a lean-to late Vinery, brought down the roof and along the west end for a few feet. The house was started this year during the first week of March, and on the 24th of the same month the first flowers were cut; and from then for more than a fortnight dozens were cut daily, and even now (April 17) there are still several buds to open. Those who require a large number of one kind of flower at a given time early in the year should certainly not be without this Rose.—J. C. TALLACK.

SHORT NOTES.—ROSES.

Rose Ethel Brownlow.—Of all the recently introduced Tea-scented Roses I think this is one of the very best. It is of splendid habit, and also supplies a colour long wanted. Its colour may be described as being between that of *Catherine Mermet* and *Comtesse de Nadailac*. It varies somewhat in its ground colour, being at times more like *Catherine Mermet* than *Comtesse de Nadailac*, and *vice versa*. It is a grand Rose to stand, both on and off the plant, and is also very delicately scented.—RIDGEWOOD.

Roses Sir Joseph Paxton and Coupe d'Hélic.—These two old Roses are particularly hardy. The front of a good-sized dwelling house is completely covered with about half a dozen of them, and although the position faces due east and has very little shelter on the north side, the plants have come through last winter unharmed. The house stands upon high ground, and so escapes the sharp morning frost that so often catches the young growths in low localities. At pre-

sent they are bursting into growth as freely as ever, and have young shoots some 2 inches to 6 inches long. Unless we have a very sharp late frost they will be in flower early in June as usual, for these two Roses are among the earliest of all. Old-fashioned as these Roses are, they are certainly two of the best climbing varieties, particularly in exposed situations. The trees in question are always full of flower for a month or six weeks every spring. Individually, I am afraid the blooms would be despised by many, but collectively they have a most charming effect.—P.

ROSES ON THEIR OWN ROOTS.

WE believe these have never been fairly tried in our gardens. We are all so much in the hands of the trade that we can only get what they give us, and that is usually what they can get up for sale in the quickest manner. It is in vain to ask in many of the best Rose nurseries for Roses on their own roots. Hence, these not taking the trouble to give the public good samples of such plants, many are deterred from very interesting experiments with the queen of flowers. Some in the trade who sell Roses on their own roots do so in the shape of very small plants, apparently struck in heat from small cuttings. These take years to start. They should be sent out as strong as other Roses. We think it would be well worth rosarians' while to grow a really fine stock of Roses on their own roots. The fatal facility of budding, however, prevents any progress in this way. In the case of new Roses, it is clear we should have to wait much longer to get a strong stock for sale than where we can place all the buds separately on a number of vigorous roots of the Dog Rose. But in the case of old and standard Roses, there should be no difficulty about getting good plants on their own roots.

Why should we seek them? Because we believe they are far better suited for many soils than Roses on the Brier. That loves gross and strong soils, and is never finer than on the deep loams of the midlands. People generally say they cannot grow Roses if their soil is light, sandy, chalky, or with a gravelly bottom. If we put every Rose, no matter what its nature, on one kind of wild Rose, we take away half the advantages which the bold variations of the garden Rose should give us.

Everyone who knows Roses will remember kinds with very vigorous constitutions, whether on their own roots or otherwise. It is reasonable to suppose that many of these will not have the same aversion to light and warm soils that the Dog Rose, on which most garden Roses are grafted, has. The whole of the Teas and various other races of Roses are quite different in habit and origin to the Dog Rose, and yet we condemn all to live or die on this stock. If we wished to grow Roses in any soil supposed to be adverse to them, we should at once discard every Rose grafted on the Brier, and try all we cared for on their own roots, getting them any way we could. People working on light and gravelly soils are far too ready to succumb to what they believe to be the everlasting laws of Rose growth, and so do little or nothing. Among Roses there are many weak as well as stout growers, and they would not, perhaps, all do well on their own roots. But, from observation more than we can give details of here, we believe that a number of the very best kinds could be grown on light soils if people would persevere and make trials of likely kinds, always on their own roots or grafted low on the seedling Brier, so that they may be planted a little below the union of stock and Rose, and so have a chance of getting on their own roots.

Consider the advantage in a winter like the past of Roses on their own roots or budded low. Tea and other not hardy Roses worked on half standards or standards will die by the thousand from the frost of the past winter. Raised up in the air on these ridiculous "mops," they are planted to die when King Frost comes. Roses of the same kind on their own roots or worked very low, so as to be buried in the ground for an inch or two, are, we hope and believe, quite safe. These are signal advantages, but they are not the only ones.

The growth of Roses for shows is one of the causes of Rose growing on own roots being

neglected. Some of the stocks used being very vigorous when worked, give one or two very fine flowers. In the case of new and standard kinds, this is all important for the people who grow Roses to show them. It does not matter how ugly they are, stuck on their dog standards in close masses, so long as the prize is won, or how soon the Rose goes back afterwards, which it generally does. But, happily, most people who grow Roses grow them for their beauty in the garden or the house, and they will do well to be independent of the example or practice of the grower for show, and his ugly serried ranks of sticks and disregard of such things save what give him a bloom like a big Cabbage. The flow of foliage from the base of a Rose on its own roots is a gain in itself, apart from the flowers. The foliage of the Tea Roses is so beautiful in form and colour that it is delightful even in winter, and it is always better to begin with an own-root or dwarf Rose, so as to have whatever foliage there may be arising naturally from the ground.

Very interesting trials might be made of favourite Roses by planting not less than half a dozen of each on the stocks they are usually grown on, and also on their own roots. That would be a truer way to test the matter than single or isolated planting. Only the trial would not be fair in a year, or two even, if the plants on their own roots were not as strong as the grafted ones. The borrowed strength of vigorous Dog Rose stocks carries all before it at first.

It may be that some readers, interested in Rose culture, may be able to throw some light on the subject as to what is found to succeed best in other countries. Recently, from what we have seen in Egypt, both in Alexandria and Cairo, preference is wholly in favour of own-root Roses. The gardeners were busy cutting the stems of Roses into pieces about 6 inches long, and sticking them into the earth for a little more than half their depth, getting in this way nice plants in a year's time. The growth of the kinds noticed was strong and free, showing none of the pinched and fragile habit that many Tea Roses have when growing on the Dog Rose.—Field.

GARDEN FLORA.

PLATE 802.

TWO GOOD CHRYSANTHEMUMS.

(WITH A COLOURED PLATE OF ELAINE AND SOLEIL D'OR.*)

TWENTY years ago he would have been a bold man to have prophesied the popularity of the Chrysanthemum of to-day. Even ten years ago, when I ventured to apply the popular epithet "queen of autumn" to the Chrysanthemum, these flowers were by no means so popular as they undoubtedly are now. For a good deal of the enthusiasm now expended on our favourite flower we must thank our friends on the Continent—M. Lemoine and M. Boucharlat, and, of course, M. Délaux, of Toulouse. But in even an equal degree must we remember the exertions of our friends in America, Mr. John Thorpe, Mr. W. Barr, Dr. Walcott, and Messrs. Pitcher and Manda, each and all of whom have done their best to enhance the charms of the one particular reigning beauty of the waning year. Of the English flowers and historians, and of the now countless cultivators and admirers of this flower we need say but little. The plate is intended to perpetuate the memory of two of the most useful of the older kinds. Elaine is, without

* Drawn for THE GARDEN by H. G. Moon from flowers sent by Mr. F. W. Burbidge, Trinity College Gardens, Dublin. Lithographed and printed by Guillaume Severeys.

doubt, more largely grown to-day than any other white variety. There are now many white kinds far finer in size and form, but, all good points fairly considered, Elaine takes the premier position amongst white decorative Chrysanthemums, pretty much as Black Hamburgh still continues the best of Grapes, and Ne Plus Ultra the best of Peas. Its history is as simple and as unpretending as is that of most other of our finest garden plants, and was kindly communicated to me by its raiser a year or two ago, and, taking it all in all, it is certainly the most popular of all British seedlings.

About seventeen or eighteen years ago, writes Mr. James Downton (gardener to Mr. Saumarez Carey, of The Grange, Guernsey), I sent for a plant of the then new James Salter, a Japanese variety, to grow for conservatory decoration. I flowered it in a house facing south, and having given up raising seed I thought no more about it, until one day my friend Mr. Charles Smith, the raiser of so many fine varieties, came on a visit, and went into the house where he noticed its dry and withered blooms, and it was he who induced me to look at the seed heads, when I therein noticed for the first time some seed. I sowed it (continues Mr. Downton) the same spring, producing Elaine and Fair Maid of Guernsey. The plant of James Salter was the only Japanese variety in the house, all the rest being incurved or reflexed kinds.

So much, then, for the authentic history of Elaine and her sister Fair Maid of Guernsey. Chrysanthemum growers will remember that James Salter was an English seedling, raised by Mr. Alfred Salter in 1869 in the historical Versailles Nursery at Hammer-smith, which was for years previous the home of the Chrysanthemum in London, and the focus whence most of the new kinds, whether native or Continental, were drawn.

Mr. Henry A. Bright, in his delightful "Year in a Lancashire Garden," tells us that The Chrysanthemum has three merits above almost every other flower. It comes in the shortest and darkest days; it blooms abundantly in the smoke of the largest cities; and it lasts longer than any other flower when cut and put into water. If flowers have their virtues, the virtue of the Chrysanthemum is its unselfish kindness.

In our struggles after size and novelty, however, there is not a little danger of our losing sight of some of the brightest and best and hardiest of these flowers, such as those we now figure, and others such as Bob, Julie Lagravère, Fleur de Marie, Emperor of China (Cottage Pink), and St. Michael, all good and free in habit and brilliant in colour.

Soleil d'Or is another good and free-blooming variety, and, like Soleil Levant, it may serve to remind us of the old tasselled yellow, one of the earliest of importations to this country and now rarely seen.

Our method of awarding the best prizes to gigantic blooms of the Chrysanthemum is only one way of encouraging its culture as a garden flower, and I should like to see equally valuable prizes offered for, say, twelve or twenty-four or fifty varieties, each variety to be cut with at least 2 feet of stem, any number of flowers to be allowed. As so shown, natural sprays of flowers with their foliage would form a very beautiful group at our shows, and a very different effect would

be produced compared with the bare blooms on boxes or boards. The single cut-bloom method of exhibiting is really and truly the worst method of showing off beautiful flowers to the best advantage. Even the showing of cut sprays of pompon varieties, three blooms of each, is a puny and miserable way when we can cut long shoots of them bearing from ten to thirty or more flowers each. What is a single bloom of any of the Rundle family as compared with the yard-long wreath of flowers and leaves these and many other kinds of Chrysanthemums naturally produce in graceful profusion? I have no doubt that many besides myself would gladly welcome a new departure at our flower shows in the way of special classes for sprays of Chrysanthemums and for vases of Chrysanthemums as naturally arranged with their own foliage. Those who admire the big blooms can still grow and show them, but what I plead for is the exhibition of

nonettes will view it very differently. I cannot say that I like these coarse pyramidal Mignonettes. The pure white form of Parson's Giant is far more pleasing, because the spikes are so admirably adapted for cutting. For bouquets or vases nothing in Mignonettes can be more pleasing than a handful of the side shoots of this variety, because the flowers really are white, of such moderate size as not to overpower other flowers, and have delicious perfume. What more can we want in Mignonettes? The largest spikes or heads of this new variety were probably some 8 inches round, but relatively short and blunt. A far prettier form, in my estimation, is Golden Queen, which, whilst having flowers of a rich golden yellow, is really a charming acquisition in Mignonettes, yet has not huge spikes, but those of pleasing dimensions. If I could see any gain in having these huge forms of Mignonette, I would cheerfully recognise it; but lacking that gain and realising the beauty of older varieties, I still prefer these.—A. D.

STOVE AND GREENHOUSE.

PLANTS IN SMALL POTS.

I AM induced to pen a few remarks upon this subject, knowing from experience the great



Flower of Chrysanthemum Elaine.

naturally grown wreaths and sprays of these flowers, not to the exclusion of, but in addition to the single big bloom system. Few garden flowers lend themselves to pictorial effect to better purpose than does the Ox-eyed Daisy of China and Japan, and what some of us would like to see is the natural exhibition of the flower as an artist would arrange it in a picture, *i.e.*, in such a way that its natural grace of curve and brilliancy of colour could best be seen.

F. W. BURBIDGE.

Giant Mignonettes.—The largest blooming variety I have yet seen most certainly is that named Snowdrift, alluded to in your report of the recent meeting of the Royal Horticultural Society at the Drill Hall, and shown by Messrs. Cutbush and Son. That the name was a sad misnomer was but too evident, as the spikes had nothing white about them, the general hue of colour making them of a reddish green. The variety is of the giant pyramidal type, and of the kind doubtless a triumph of cultivation. Those who regard these huge-spiked forms with satisfaction will find the variety an acquisition. Those who, like myself, care little for the stump-pointed, broad, red Mig-

value of small plants when well cultivated in pots proportionately small, or, to go further, I might say ridiculously small. There is, I think, a great misapprehension amongst plant cultivators, more particularly the younger ones, that frequent potting is necessary to success in growing the description of plant now under notice. This is not so by any means; nay, in many cases it has the very opposite tendency, being either conducive to a too vigorous growth of abnormal character with a more rapid deterioration by loss of roots, and consequently of foliage in due course, by reason of the amount of soil being in excess of the requirements of the plants, or the mark is missed at the outset by the plants not taking kindly to the soil, especially if any are used as decorative objects too soon after potting. Take, for instance, little plants of Crotons and Dracenas, which in a small state should be furnished with healthy foliage to the rim of the pot. This result can be far better attained and then retained when the plants are not over-potted. One has not to look through very many collections of plants without seeing the evils consequent upon following the opposite course. Take, for instance,

plants of either family just named; they may probably be in 6-inch pots with an amount of bare stem not at all desirable. Such plants cannot be used so effectively for this reason, and from the fact of the size of pot, as those in one size less. A well-grown plant in a 4½-inch or 5-inch pot, with the soil permeated through and through with roots, is in a far better condition for using as a decorative object than in the larger size. Not only is the decrease in size an especial advantage for many vases, and of greater convenience also, but the great point of durability asserts itself in favour of the smaller pot, the roots remaining in far better condition whilst in a cooler atmosphere.

In looking at a collection of plants where a great amount of house furnishing has to be attended to, a close observer will quickly note which plants suffer the most. When plants go wrong from this or any other cause, woe betide them if they are overpotted, taking far longer to bring them round, and this when accomplished cannot be said to be done in a satisfactory manner. As an instance, I would draw attention to Palms. When these are sickly and reducing of the ball has to be resorted to, it takes some considerable time to bring them round. *Areca lutescens* may be fairly quoted as an example. This splendid decorative stove Palm will grow and thrive in pots out of all proportion to the size of the plant itself. When thus treated it may be used very frequently without injury, from the simple fact that the foliage as well as the roots are of a far more enduring character. Take the same Palm in a larger pot; the foliage will perhaps look of a deeper green, telling of more generous treatment at the roots—all well enough so long as it remains in the stove, but when taken out it will suffer all the more quickly. Ferns are other instances. Many varieties which are usually grown in quantity will last much better when pot-bound, and be found when in that condition far safer when in the hands of inexperienced persons. Of these I would only cite the well-known Maiden-hair (*Adiantum cuneatum*). These are never more serviceable than when thoroughly pot-bound, whether for supplying cut fronds or for vase plants. To succeed well with plants in the smallest sized pots, it is necessary always to start under the best possible conditions. In the earlier stages of their separate existence they should not be drawn up too thickly together; a sturdy growth from the commencement should be aimed at without any excess of shading. When well established in the size of pots intended for use, they will, in nearly every instance, take an abundant supply of water. This, however, should not be any extra trouble, for in most cases they may be watered without any close examination. Crotons in this respect when pot-bound resemble Willows more than anything else. A keen eye should be kept upon insect pests, more particularly if they are standing in an exposed position or near hot-water pipes where they are found to dry up unduly fast. Every care should be taken to select good soil suitable to each case. It is a mistake to imagine that because only small plants are the object aimed at that an inferior quality will suffice. Firm potting too is most indispensable, for upon this greatly depends the ultimate results. Liberal feeding with liquid or artificial manures is a great assistance when the plants have thoroughly filled the pots with their roots. In most cases a change from one kind of stimulant to another is an advantage; for Palms, however, I prefer to rely mainly upon Standen's Gardeners' and Amateurs' Friend. This highly concentrated manure is admirably suited to their requirements, but do not use it too

freely; a pinch taken between the thumb and forefinger is sufficient for small-sized pots up to 6 inches diameter. For Crotons, Dracenas, Pandanus, and Caladiums with other plants of like character, I prefer farmyard manure chiefly with some soot added to it.

A selection of the most suitable plants for dinner-table decoration should be made. These can then have some *Selaginella denticulata* pricked in upon the surface; this will give them a finished appearance without the trouble of providing Moss for each occasion. There are several plants which are of great service in the very smallest of pots, when provided with a good amount of roots, both for dinner-table decoration and for covering the soil in large pots. A good stock in 3-inch pots of *Selaginella denticulata*, *S. apoda*, and *S. caesia*, with Maiden-hairs, such as *A. cuneatum*, *A. Pacotti*, *A. farleyense*, and several other well-known Ferns, are all useful in their turn. Of variegated-foliage subjects it always pays to grow a good quantity of *Panicum variegatum*, *Caladium argyrites*, *Fittonia argyroneura* and *F. Pearcei*, with *Cyrtodeira fulgens* or *C. metallica*, and *Sonerila margaritacea* (the spotted leaved form), which when in flower during the winter season is extremely pretty. *Pandanus Veitchi*, too, is a beautiful plant when well developed with narrow arching foliage in a small state. *Isolepis gracilis* and *Ficus repens*, although not, strictly speaking, stove plants, should not be overlooked, nor should a good selection of the choicer kinds of variegated Begonias, especially those which develop well in a small size. Not only will these small plants of various genera be found useful out of the stove, but they will add greatly to its appearance, and give a finish to the arrangements, being of necessity arranged immediately to the front. PLANTSMAN.

Rudgea macrophylla.—From Mrs. Stewart comes a truss of flower of this plant, asking what she shall do with it when past flowering. It was introduced a little more than twenty years ago from Brazil, and is described as growing to about 6 feet in height. I used frequently to see it in collections. The leaves are very large and rich green, and on the points of the shoots is produced a dense globose head of creamy-white flowers. The plant should have the points cut back and be repotted, using rich loam and leaf-mould. It comes from the neighbourhood of Rio Janeiro, and requires the warmth of a stove.—W. H. G.

Manettia micans.—"J. B." sends a branch of this pretty stove climber, saying it has been blooming since the middle of January, but is now over. This is a beautiful plant and I wish it was more often seen. It is a free grower. The ends of the shoots bend over with their heavy load of flowers which are produced singly from the base of the leaves on peduncles, some 3 inches long; they are stout tubes, drawn in at the mouth, and bright orange-scarlet in colour. It is a very neat climbing or trailing plant, suitable for training up rafters, and grows some 20 feet high. It grows well in about equal parts of loam, leaf-mould, and peat made sandy. Messrs. Veitch, of Chelsea, introduced this plant from Peru nearly thirty years ago.—W. H. G.

Amaryllises at Westonbirt.—A lovely sight presents itself now at Westonbirt, the seat of Mr. Robert Staynor Holford (Mr. Chapman, gardener). Two houses, each 50 feet long, one facing the east and the other the west, divided by a central corridor, gave ample means of showing the Amaryllis to the best advantage. In these were arranged some 600 bulbs, the majority of them carrying two spikes on one bulb, all being perfect in shape and colour. I noticed a great improvement on the Empress of India type, one (Princess of Teano) being an exquisite flower, perfect in shape, of a rich crimson colour, and with a broad white stripe up the centre of each petal. A flower

of a very distinct variety named Lobster measured 11 inches in diameter. Countess of Morley, Mrs. Albert Grey, Mrs. Lindsay, Vera Sybil, and a host of others all displayed perfect selection and cultivation. The number that were throwing up spikes in the late vineries would, I am sure, continue the show for some time to come. I noticed that *Spiraea japonica* arranged between the pots prevented them being seen, the dark leaves of the Amaryllis contrasting beautifully with the light green groundwork of the former. Amongst other things to be seen in these well-kept gardens, Fortune's Yellow Rose was flowering profusely, while fine specimens of *Camellia reticulata*, *Hebeclinium ianthinum*, *Clivias*, Indian Azaleas, Himalayan Rhododendrons, a large mass of *Lonicera floribunda*, *Cantua dependens*, Orchids, and other choice spring-flowering plants all helped to make a beautiful display.—VISITOR.

HYBRID RHODODENDRONS.

THE various garden hybrids consist principally of white-flowered kinds, or at all events those in which the flowers are but slightly flushed with pink and blotched with yellow. Of these hybrids some are quite dwarf, while others are apt to run up tall and thin, unless freely stopped during their earlier stages. These last, however, represented by such varieties as *fragrantissimum*, *Forsterianum*, *Sesterianum*, and Lady Alice Fitzwilliam, produce magnificent blooms which are all deliciously scented. The oldest of all these hybrids is *Princess Alice*, a cross between *R. Edgeworthi* and the little *R. ciliatum*. Other varieties are *La Belle*, *exoniense*, *suave*, and *Williamsi*, while the forms raised by Mr. Davies, of Ormskirk, deserve special mention. They are a group of hybrids between *R. Edgeworthi* and *R. multiflorum*, and consist of Countess of Derby, Countess of Sefton, Duchess of Sutherland, Lady Skelmersdale, and Mrs. James Shawe, while the two miniature varieties—*Queen of Dwarfs* and *Pixie Queen*—are also from the same source. Besides these we are indebted to Mr. Davies for the beautiful *R. præcox*, a hybrid between *R. ciliatum* and the European *R. dahuricum*, as well as the bright orange-red *R. Daviesi*, the result of intercrossing the little nodding *R. retusum* with *R. javanicum*. Another pretty little Rhododendron is *Rosy Bell*, with widely expanded bell-shaped blossoms, which are deep reddish-pink in the bud state, but become paler after expansion. Some of the Himalayan species, notably *R. arboreum*, have been employed in conjunction with the hardy species and varieties in raising hybrids that flower earlier and are brighter in colour than those previously grown; in fact, this species has contributed largely towards the many beautiful varieties we now possess.

No mention of greenhouse Rhododendrons would be complete without that section with which Messrs. Veitch have so long identified themselves, viz., the tube-flowered varieties. The earliest kinds were obtained by intercrossing the pretty little white *R. jasminiflorum* with the orange-coloured *R. javanicum*, the result being the pink-flowered *Princess Royal*. Since then other and more newly-introduced species have been employed for hybridising, the result being a long list of most beautiful varieties, on many of which certificates have been worthily bestowed by the Royal Horticultural Society at various times. A great variety in the colour of the blossoms is now to be found amongst them, the tints represented being white, various shades of pink, yellow, buff, orange, and red in many hues. This section of Rhododendrons is at the present day the most popular of any, no doubt owing to the fact that the plants are well suited for small structures, as they will bloom freely confined in pots, and their blooming season is not limited to any particular period of the year, for they grow and flower at all seasons. In this group are some double-flowered forms, which certainly possess the advantage of remaining in beauty much longer than the single kinds.—T.

—Of late years these plants have received much attention, and worthily so, for they are really very useful and deserve a place in all collections. If given the temperature required with due atten-

tion as to moisture they bloom profusely and last many months in flower. There are now so many beautiful colours among the latest acquisitions, that any attempt to individualise special kinds would be out of place. I have had plants in bloom for months and with little trouble. When one lot of flower is over, with good treatment the plants make new growth and quickly set a new lot of bloom, so that with only a moderate quantity of plants there are few months in the year without some flowers. Many persons give these plants ordinary greenhouse culture, and though they live and give a few blooms, they do not make good progress under this treatment; besides, it is impossible to give them the treatment they require in a mixed house of greenhouse plants. The most suitable temperature is what is usually termed an intermediate one, 50° to 55° in winter, or even 60° in mild weather, giving 50° as a night temperature, and, what is most essential to the well-doing of these plants, a moist atmosphere at all seasons. I also find it a good plan when damping the leaves to always syringe upwards, thus thoroughly wetting the underside of the foliage, by this means keeping thrips at bay. They delight in the stages and pots being damped over so as to allow the moisture to ascend, and it is a good plan to place some Moss or small gravel or any other moisture-holding material to prevent dryness and to maintain a healthy growth. These Rhododendrons do not like over-watering at the root, so that in damping over, this must be guarded against and the syringe lightly used. They also dislike a large mass of soil round their roots, so that overpotting must be avoided. They do not like being frequently disturbed, so that when a shift into a larger pot takes place, ample drainage and the best turfy peat with a liberal use of coarse silver sand and some small charcoal should be given, potting firmly and watering sparingly till new growth has commenced. Water impregnated with lime is injurious in the extreme and should be avoided. As the plant increases in size, if growing unshapely the knife may be used a little after blooming in the early part of the year, and the plants kept a little closer, so as to get the wood to break freely. In the hot summer months these plants may be turned out of the house into pits and stood upon a hard coal ash bottom, shutting up in the evening and syringing as advised; they delight in this treatment after growth has been made.—G. WYTHES, *Syon House*.

Hyacinths in glasses.—I should be glad to know from "G.," who wrote in THE GARDEN, April 4, on growing Hyacinths in glasses, what method he adopts to grow them successfully. I have grown them for many years, always with a good many failures, but this year with less success than ever. Out of twelve bulbs only two could be considered good, and they were nothing special. The bulbs grown in pots have been good, and all came from the same shop. I should like to know the best time to start them and the best sorts for glasses.—E. B. BACKHOUSE.

* * The single varieties are more generally used for this purpose, as they produce finer spikes of bloom than the double. The mode of procedure is as follows: Fill the glass so as almost to touch the base of the bulb with clear water (rain-water being decidedly preferable), putting a small piece or two of charcoal into each glass, as this will keep the water pure and give some slight nourishment to the roots. After having filled the glasses they should be placed in a cool dry dark place for a month or more till the roots nearly touch the bottom of the glass, when they may be brought gradually to the light, afterwards giving them plenty of light and air, but avoiding all draughts. Attention is required from time to time to keep a sufficient supply of water in the glass, and in looking over the bulbs while growing to brush off any fungus or decayed skin that may be on the roots or bulbs. The water does not require changing unless it begins to smell offensive, or the roots assume an unhealthy appearance. When of sufficient height, the flowers should be supported by a wire to prevent them overbalancing. In reading the letter it has occurred to me that possibly the water may be

at fault or that too much has been used, so as to quite touch the base of the bulb. If either has been allowed to happen, it would, in my opinion, be a cause of failure. The following are twelve of the best sorts in various colours for culture in glasses. All kinds are not so well adapted to this method as others; this, too, would result in an inferior display, and probably may have had something to do with the failure. The kinds are all singles, viz.: Of reds—Fabiola, pale rose, striped with bright pink; Macaulay, darker shades than the first-named, immense spikes; Norma, delicate waxy pink, very early; Von Schiller, deep salmon-pink, compact spikes. Of whites—Alba maxima, pure white, large bells; Grandeur à Merveille, pale blush, fine spikes; La Grandesse, pure white with extra large bells, one of the best; Mme. Van der Hoop, pure waxy white, handsome spikes, extra. Of blues—Charles Dickens, lilac, shaded light blue, large spikes; Grand Lilas, porcelain-lilac, grand spikes; King of the Blues, beautiful clear dark blue, splendid long spike; Lord Derby, clear azure-blue. These varieties are all such as are grown in quantity for large supplies; they can, therefore, be purchased early in the season, of superior quality and at a cheap rate. No double kinds approach the singles for growing in glasses, nor are the yellow varieties so well suited to that purpose. In selecting the bulbs, those which are proportionately the heaviest should be chosen in preference to large ones, as these do not always give the best results.—G.

Cochliostema Jacobianum.—I am asked by two or three readers of THE GARDEN what to do with this plant. It is a beautiful plant introduced from Ecuador about twenty-five years ago by M. Linden, of Brussels. It grows in a vasiform manner, the leaves sheathing at the base, and reaching some 6 feet or 7 feet across, so that the plant must have room to develop its foliage. The flower-spike springs from the base of the leaves during the spring and early summer months; it is stout, creamy-white, tinged with pink, and furnished with large, mauve-coloured bracts, from which are produced its spikes of bloom, which are blue and violet in colour, the sepals fringed with mauve hairs. There are some varieties superior to others. The plant should be potted in a mixture composed of loam, peat, and leaf-mould made sandy, and should have abundance of water, both to the roots and overhead. It likes ordinary stove heat and must be shaded from the hot sun in summer, or the leaves become yellow and sickly-looking.—W. H. G.

Francisceas.—Just now the various Francisceas are beautifully in flower, and they are available not only for large structures, but also for those of limited extent, as little bushes not more than a foot high yield a profusion of their large and showy blossoms. A very prominent feature possessed by the members of this genus is the great change that takes place in the flowers after expansion, for though when first opened they are of a deep purple colour, this gradually pales till they become almost white, and as they remain fresh some time we get two perfectly distinct colours on the same plant. There are many varieties, but a good form of *F. confertiflora* is equal to any of them, and is besides one of the most vigorous-growing. In common with many beautiful plants of a shrubby nature, both stove and greenhouse, the Francisceas are not grown now nearly so much as formerly, while the botanical authorities merge the entire genus into that of *Brunfelsia*.—T.

Begonia Rex.—Nurserymen's catalogues of a generation ago are often very interesting, not only in showing the great difference in the prices of many plants at that time and to-day, but after this lapse of time we have had ample opportunity of proving whether the early anticipations of many (at that time) newly introduced plants have been fulfilled. This note was suggested by a copy of Messrs. Rollisson's catalogue for 1858 that has just come under my notice, and in which, among other new plants occurs the name of *Begonia Rex*, there described as "one of the most beautiful variegated-leaved plants ever introduced into this country, so much so, that whatsoever encomiums we pass upon it, words must fail to convey an adequate idea of its

beauty and striking character." Since that time this *Begonia* has played a very important part in the production of new varieties, and not only the typical kind, but the best of its progeny can be purchased at a very cheap rate, vastly different from the two guineas charged for it in 1858. In the same catalogue occurs a case exactly the opposite of the *Begonia*, viz., *Cypripedium Fairrieanum* there quoted at three and five guineas each. This is at the present day one of the choicest of the Lady's Slipper Orchids. From its scarceness this *Cypripedium* has not been employed by the hybridist to anything like the extent of some of the others, still one of the most beautiful hybrids we possess. *C. Arthurianum* resulted from the intercrossing of *C. insigne* and *C. Fairrieanum*.—H. P.

CLOTHING BACK WALL OF VINERY.

THE experiment of clothing an old disused flue and back wall of vinery, as noted some time ago in THE GARDEN, has proved a decided success, and a few things that have played a prominent part in the furnishing of the same may be noted. The pigeon-holes between the flow and return flues were filled up with soil and planted with the green and variegated *Tradescantias*, a few wires having been run along the face of the flue to keep them within bounds. From the top front of the flue some galvanised wire was stretched to a point on the back wall, enclosing a space the width of the flue and about 18 inches high. After filling in with a compost consisting chiefly of peat and leaf soil, the surface of the bank thus formed was planted with a variety of subjects to give a wall of foliage with occasional flowers. Noticing the capital trailing qualities of *Smilax*, I planted this along the front edge to hang over and cover the face of the flue, and ultimately to take the place of the *Tradescantia*. The bank itself was at the outset mainly clothed by dibbling in slips of the green and golden *Selaginellas*, with here and there a plant of *Adiantum Capillus-veneris*. I can thoroughly recommend this Fern for such a purpose. It revels in the situation, and spreading in all directions, would soon cover nearly the whole of the bank if it were required to do so. From a batch of seedling *Begonias* I had selected the previous summer some very free-flowering varieties of pendulous habit, and put in the tubers nearly at the top of the bank alternately with corms of *Achimenes longiflora*. To cover the bit of back wall from the top of the galvanised wire I planted *Asparagus tenuissimus* and double Ivy-leaved *Geranium Albert Crousse*, gradually cutting away the latter as the *Asparagus* advanced and furnished the wall. The space thus clothed is, especially during the summer months, a nice feature of the house, as we get a stretch of flower and foliage taking in the sloping bank 10 feet high by 60 feet long. The *Asparagus*, *Smilax*, and Fern furnish in their several ways an abundance of foliage for cutting, while the *Selaginella* and *Tradescantia* also have on several occasions supplied material for filling shallow tins, trays, and bowls. I may add that as the temperature of the house is allowed to drop to within a few degrees of freezing during a spell of cold weather, when the Grapes are cut and the Vines are resting, the subjects chosen were all fairly hardy, to the exclusion of such things as the more delicate Ferns, the fine-leaved *Begonias*, with perhaps occasional plants of *Anthericum*, *Dieffenbachia*, *Fittonia*, *Peperomia*, &c., which otherwise might with advantage have been included to give additional colour and variety to the bank. I do not mean that some of the last named plants should be allowed in such an arrangement to become large and out of proportion to the situation. When there appeared any danger of this they could be cut away and rooted cuttings again substituted.

Claremont.

E. BURRELL.

Gesnera cardinalis.—The rich vermilion-tinted blossoms of this *Gesnera* furnish a very welcome bit of colour in the stove during the early spring months, while a further merit possessed by this plant is that it is of very easy culture. This species does not possess the scaly rhizomes common

to many of the Gesneras, but instead of that it forms a firm solid tuber, which will grow as large as one's fist, though as in the case of the Cyclamen the largest tubers by no means yield the greatest display of blossoms. This Gesnera forms a stout stem from 8 inches to 1 foot high, clothed with bright green leaves, and terminated by a cluster of tubular-shaped blossoms about 3 inches in length. The leaves, stems, and blossoms are all thickly covered with hairs, which in the case of the flowers give to them quite a velvety appearance. Most of the specimens of this Gesnera have now finished blooming, but some have still a few flowers left. It is a plant of very easy culture, which soon after flowering commences to go to rest, when it should be kept somewhat drier than heretofore, and when the flower-stem and leaves have died away altogether scarcely any water should be given. In the autumn the tuber must be shaken completely out of the soil, which will be quite exhausted, and be repotted in a compost consisting of about equal parts of loam and leaf-mould with a liberal amount of sand, and a little well-decayed manure. Then in a gentle heat and a fairly moist soil, the roots will soon be active and the flower-stem quickly make its appearance. This Gesnera is an old plant in gardens, and is often known by the name of *G. macrantha*, which is said to bear a deeper coloured flower, but as usually grown there does not appear to be any difference between them.—H. P.

Streptosolen Jamesoni.—This has been described as a summer-blooming plant, but it may also be had in flower much earlier in the year if facilities exist for its culture, and the plants are grown on for that purpose. It is an old plant in gardens, having been introduced about forty years ago, but it seems to have been lost to cultivation for some time, and for its reintroduction we are, I believe, indebted to M. André, who found it in Ecuador in 1882, and having been successful in importing it, the plant soon became popular. It forms rather a soft-growing, freely-branched shrub with small ovate leaves and broad terminal panicles of blossoms. The flowers, which are each about the size of a shilling, are yellow when first expanded, but they change to a deep orange-red. It grows and flowers well with ordinary treatment in the temperature of a warm greenhouse. This *Streptosolen* is of very easy propagation and culture, for in the spring cuttings will strike root in a few days. Aphides are the principal insect pests which attack the plant, and they can be readily kept in check by gentle fumigation. The *Streptosolen* in question is by some included in the genus *Browallia*, one member of which, *B. elata*, makes a pretty little pot plant for the greenhouse, and flowers during the autumn and winter. For winter blooming the seeds should be sown in pots soon after midsummer and sheltered by a frame. As soon as the young plants are above ground plenty of air must be given, the object being then to encourage as stout and sturdy a growth as possible. As soon as the pots get full of roots a little liquid manure occasionally will be of service, and in order to maintain a succession of blooms throughout the winter, three or four sowings should be made at intervals of about a fortnight.—T.

Jasminum gracillimum.—This Jasmine is one of the most valuable winter-flowering stove plants we possess; indeed when in a flourishing condition it will bloom more or less throughout the year. By stopping when young it can be grown in bush form, but if allowed to assume its natural character it will when growing freely develop a somewhat loose, open style of growth, and is then just the thing for furnishing a pillar in a small or medium-sized stove or for forming a screen therein. Whether as a bush or a half climbing plant this Jasmine is a charming object when the slender gracefully disposed shoots are laden with pure white sweet-scented flowers. Not only are the flowers borne in clusters at the points of the shoots, but minor bunches are produced at nearly every joint for some distance along them, so that a branch of this Jasmine caught at its best forms a perfect wreath. It is of easy culture, requiring but the treatment usually given to the general run of stove

plants, the soil best suited for it being loam lightened by a liberal admixture of sand, leaf-mould, or peat, and well decayed manure, according to the consistency of the loam employed. Cuttings of the young growing shoots strike root readily enough in the spring if kept in a gentle heat, and the roots are also available for its propagation. This last method is not much needed now, but when the plant was yet little known and scarce I grew a great number in this way. A specimen was shaken out of the soil, many of the principal roots taken off, cut up into lengths of 1½ inches or thereabouts, and dibbled into pots of sandy soil prepared as for cuttings of the shoots. These pots were slightly watered and plunged in a gentle bottom-heat in the stove propagating house, when young shoots were quickly pushed up from the buried portions of the roots, and when sufficiently advanced they were potted off. A species of Jasmine a good deal like *J. gracillimum*, and by some regarded as synonymous with it, is *J. pubescens*, a very old plant in gardens, having been introduced considerably over a century ago. It is not such a free-growing subject as *J. gracillimum*, usually forming a spreading growing bush, and the flowers are not borne in such numbers as in the newer kind. Still for all that *J. pubescens* is well worthy of a place, for fragrant flowers are none too plentiful at any season of the year.—ALPHA.

AFTER-TREATMENT OF FORCED PLANTS.

IN too many cases it is the custom to either throw away most plants that have been forced directly their beauty is over, or to subject them to such treatment that they might as well share the fate of their brethren. When plants have been brought on in heat and are kept in a warm greenhouse during their flowering period, it follows as a matter of course if they are turned out of doors and exposed to the keen winds of early spring, that the freshly expanded foliage will be destroyed, and the plants greatly injured thereby. Attention has been directed to this waste by various writers from time to time, more especially with regard to bulbous plants, which are imported principally from Holland at a considerable expense, and after the first flowering are discarded. True, they cannot be expected to attain their previous perfection unless grown especially for the purpose; still, if hardened off gradually and planted out in spring in spots where they can remain undisturbed, most of them will soon recruit their strength, and serve to beautify the places in which they have been planted. In this way Tulips, Hyacinths, Scillas, Crocuses, and other things might be much better employed than by being consigned to the rubbish-heap when their beauty is over, and many a cheerless spot could be beautified at little or no expense. As many bulbs are forced into bloom by Christmas, or, at all events, during the first month of the year, it is necessary, in order to give them a favourable opportunity to recruit themselves, they should be protected till the severe weather is past. A frame where they will have plenty of light is the best for the purpose. Spireas, too, will need time for their tender Fern-like leaves to become hardened before they are planted out, and the plants should be kept watered, otherwise they will soon suffer, while in the case of the Lily of the Valley much the same may be said. Indian Azaleas are frequently returned to a cool greenhouse or frame directly their flowering season is over, regardless of the fact that they have for some time previously been in a much higher temperature.

To the various hardy shrubs the above remarks apply with equal force, as protection from frosts and cutting winds is necessary in order to enable them to recover from the treatment to which they have been subjected. A common error is to allow them to become too dry after flowering. Of course, the more heat the various plants are subjected to to induce them to bloom, so much more care will they need afterwards. For instance, Forsythias, which from their early-flowering qualities require little more than simple protection to have them in bloom

early, suffer very little if put out in a sheltered spot. T.

Clematis montana.—This is a fine subject for pots, well-established plants producing their pretty star-like flowers in great profusion. The plants only require the warmth of an ordinary greenhouse to have them in flower in March, and when grown on a rather tall, slender trellis or trained round sticks, they are very effective for the conservatory. I have seen old plants in 8-inch pots, trained on a pyramidal trellis, covered with pure white flowers, and nothing could be more beautiful. *C. indivisa* may be considered more desirable for greenhouse culture, but it is more difficult to manage, and does not always flower so freely; yet it is one of the finest plants for pillars or the roof of a cool conservatory we have, and should be well cared for. It is very subject to mildew, and if this is not kept in check, it will quite spoil the fine rich, deep evergreen foliage.—F. H.

ORCHIDS.

ORCHIDS FOR BUTTON-HOLES.

THAT Orchids are suitable for button-holes no one will deny, but why an Orchid flower must needs always be worn in conjunction with Maiden-hair Fern (p. 345), or with Fern of any kind, is a point I and others do not so readily concede. There is nothing rational, nothing original in this usage of feathery cryptogamic vegetation with flowers of any kind, but to use Fern fronds with the flowers of Orchids seems to me a barbarism worthy of the dark ages of floral decoration. This indiscriminate use of Fern fronds—Maiden-hair Fern in particular—with flowers of all kinds is one of the hard-to-kill-out remnants or traditions of an ignorant and unthoughtful past. It is one of the fetishes of floral decorations, but one that is becoming repugnant to thoughtful and intelligent amateurs and gardeners of the highest, *i.e.*, most thoughtful, type everywhere.

There is a very arbitrary ring in what "J. H." writes on p. 345. Speaking mainly of Orchids for button-holes he says: "As foliage additions there is nothing I consider equal to Maiden-hair Fern (*A. cuneatum*) when it is grown hard, *i.e.*, fully exposed to light and air." Is it not in the first place illogical to insist upon any one class of leafage as being essential to set off the beauty of these flowers? Even if any one class is necessary, and I will, of course, admit at once that green leaves are necessary (although it is a fact that red or brown or russet-tinted foliage is beautiful also as used with these flowers), then without the slightest hesitation I say that there is a wealth of greenery far better suited for association with Orchid flowers than are Ferns, no matter of what type or character the latter may be. Maiden-hair Fern is a remnant of the old days when "hothouse flowers" only were in vogue, and I may go further and say that more perishable material than said Maiden-hair Fern it would be hard to find as associated with Orchids, or, in fact, with any other long-enduring flowers. Even though submerged in water for hours before it is used, the hard fronds frequently shrivel in button-hole or in bouquet, or as used in wreaths long before the flowers do. I, of course, admit that there are flowers with which Maiden-hair does look well as long as it continues fresh and green, but, on the other hand, I distinctly deny that Maiden-hair, or indeed any other Ferns, yields the best foliage to use with the flowers of plants which naturally have straight-veined leaves. Orchids, Irids, Lilies, and the gorgeous Amaryllids, for example, all families having waxy and often massive flowers (even if small ones), look but little short of ridiculous when associated with the fronds of feathery Ferns. If feathery sprays of greenery

ever do suit these flowers, is not the spray of the now numerous decorative kinds of Asparagus, as green, as fresh, as feathery, and a great deal more long enduring than Maiden-hair Fern fronds, more suitable? I know ladies that would hesitate to take an Orchid flower backed up by Fern fronds of any kind. I know that Maiden-hair Fern is still desired by many, but it is equally true that the finest of bouquets, button-holes, and wreaths, indeed of floral decorations generally, are made entirely without its ephemeral and often totally unsuitable aid. Of itself, and as rightly grown and employed, it is a delightful and beautiful thing, but as a garniture for all sorts and conditions of flowers, it is inappropriate and wrong.

But what is to be done? one may ask. What leafage or greenery shall we use with our Orchids, seeing that their own leaves, which are naturally most appropriate, cannot, as a rule, be employed? The fact is there is now in most gardens a wealth of foliage which can be used with Orchid flowers, and which will also be far more acceptable, as well as more serviceable, than the Maiden-hair and other Fern fronds so highly, and as I think very wrongly, lauded by "J. H." on p. 345. For choice spikes or sprays, or even single flowers of Orchids, we may use the several kinds of Asparagus, the Cape species, *A. plumosus*, *A. plumosus nanus*, *A. decumbens*, and other sorts now cultivated in most good gardens. *Ruscus racemosus* also yields glossy green leafage that blends beautifully in form as well as in colour with many Orchid flowers. Then there is the so-called "Boston Smilax" (*Myrsiphyllum asparagoides*) exquisitely appropriate for arrangement with these lovely flowers. Almost any grassy leaves go well with Orchids, and for posy bouquets of them I have used with effect the leaves of *Curculigo recurvata*, *Ruscus androgynus*, and I am often asked as a favour to supply the daintily crinkled Grass-like foliage of *Panicum plicatum* or its allies. Even Palm leaves go effectively with Orchids, especially with long spikes of such kinds as *Cymbidium Lowianum*, *Odontoglossum Alexandrie*, and other species.

I am not at all surprised at the small glasses formerly in use for coat bouquets going out of fashion; they were cumbersome and bad, and so, of course, neglect could not fail to overtake them. To-day we make a button-hole in three minutes; a Rose bud and its own leaf, a bit of Erica, an Orchid flower and a grassy leaf, or a morsel of Asparagus [or Boston Smilax, or a side shoot and a leaf or two of the Alexandrian Laurel, but we use no glass bottles. A morsel of moist green Sphagnum or Hypnum Moss is bound around the flower and leaf-stalks, and these are covered with a bit of oiled silk, black or olive-green, and the thing is done. But what is more, button-hole flowers thus made frequently endure fresh for several days. This is a great drawback from a florist's point of view perhaps, but it is a good point with the enormous class of wearers of such ornaments who like to give them away to those to whom a choice flower is a gift to be fully appreciated and prized. We make a great many floral sprays, coat flowers, bouquets, and posies during the course of a year, and it may interest "J. H." to hear that into but very few do we introduce Ferns of any kind, as we grow abundant supplies of other more appropriate leafage especially for such. Whenever a request comes for choice flowers "to be accompanied by Maiden-hair Fern" we know what it means, and send the gaudiest and most common flowers we have, and the result is generally satisfactory

to ourselves and to those who enjoy the flowers.

There are artistic people to-day who are as careful of the flowers and leafage they use for decoration as they are of their wines or their horses or their pictures, and they are as anxious that flowers and their accompanying leafage should be as appropriate and as right as their dress or their furniture. These people would not put a dainty Chippendale chair or mirror along with the massive oak of Elizabethan times, nor would they for one moment tolerate such an ill-starred union as that of Orchids as "arranged" along with Maiden-hair Fern when far better and more appropriate foliage is so readily obtainable. VERONICA.

MASDEVALLIA CHIMÆRA.

I OBSERVE these plants are now flowering in many Orchid collections round London, and I think a few words respecting them will not be out of place. Masdevallias are all alpine plants, some of them growing as high as 13,000 feet elevation above sea level in the Andes of Peru, but the plants of the Chimæroid group are found at about half that altitude, and therefore whilst they will thrive well in the cool *Odontoglossum* house through the summer months, it is well to



Masdevallia Chimæra.

treat them somewhat more kindly through the dull cold months of winter. The thermometer should be kept at about 50° or 55° for these plants; more they do not require, and I do not think those who subject them to more heat have their plants so robust and vigorous as those who keep them to about the temperature given. On a former occasion I stated they thrive under the same conditions as *Veitchiana* and some of that set of plants, but I find that the plants do suffer to some extent by getting their leaves damaged at the ends. Masdevallias of this section, it will be well to bear in mind, send their flower-stems downwards from the base of the plant; therefore they are best grown in wooden baskets with open bottoms. Repotting, or rebasketing rather, should have been done before now, the best time being during the months of December and January. The drainage must be ample and the soil scant. Some advocate no drainage, but with this I cannot agree, for plants that require a great amount of water are best always well drained. The soil should consist of good peat fibre and Sphagnum Moss, and nothing old or sour should remain long about them. They require to be

kept damp all the year round. During the summer time they should be kept very wet, and a nice moist atmosphere should be maintained. If grown in a north house, which I maintain is the best aspect for Masdevallias, the plants should be hung up near the roof glass, for they like light, although not sunshine. Keep a sharp look out that no thrips settle upon them, otherwise the plants will be subject to the black spots on the under side of the leaves, which give them such a bad appearance in many collections. The following are a few of the best of this set, and all are deserving attention at the hands of growers of Orchids:—

M. CHIMÆRA.—A plant of variable colours, but in all cases producing a wonderful flower, the tails with which the sepals are furnished often measuring 18 inches from tip to tip. The flower, as shown in the illustration, is triangular, the sepals alone showing any signs of beauty, the ground colour of which is pale yellow, thickly spotted and transversely barred with deep blackish purple, the whole inner surface being hairy; the tails, however, are not hairy and of a deep purple, measuring some 18 inches from tip to tip. It is flowering now, each bloom lasting about two weeks. If the spike is not cut the point will develop a fresh flower, so that the plant continues to bloom for a considerable time. It has been known just twenty years, having been found by Roezli in the neighbourhood of Antioquia.

M. BELLA.—This is found in the same district as the last named, and they are frequently found growing together. *M. bella* was, however, not found for three or four years afterwards; the flowers are distinguished by having the upper petal triangular, and the lower edge of the lateral ones is square, and the tails are not so long as those of *Chimæra*; the ground colour is yellow, densely spotted and blotched in an irregular manner with reddish brown. The tails are about 3 inches long, and wholly reddish brown; lip large, shell-shaped, white. It usually blooms through the autumn and winter.

M. CHIMÆRA BACKHOUSIANA has flowers larger than those of the typical plant and the tails somewhat shorter; the colour is pale yellow, with numerous bright reddish brown spots; lip long and narrow.

M. CHIMÆRA ROEZLI.—The ground colour of this variety is pale creamy yellow, closely marked with transverse lines of reddish brown, the inner surface being pubescent; lip rosy pink.

M. CHIMÆRA WALLISI, another form, has large triangular flowers, with a ground colour of creamy white, over which are thickly scattered spots of dull purple; tails reddish; lip white.

M. CHIMÆRA WINNIANA.—A variety having very slender tails, with very closely set transverse spots and streaks of blackish purple; the hairy surface, too, is very dense, whilst the upper sepal is banded with yellow, on which appear some small spots of purple.

M. NYCTERINA.—A species that was introduced with *M. Chimæra*; in fact they were found growing together, and it was distributed in Europe for *Chimæra*. It has much smaller flowers, which are about 6 inches across, yellowish buff, spotted with reddish brown, and clothed with short white hairs; the tails purplish brown.

The above are the principal of the *Chimæra* set of these plants, which, although destitute of the gay colours of *Veitchiana*, *Harryana*, and *rosea*, are yet pretty and very quaint, whilst they possess, for such small growing plants, flowers of remarkable size. W. H. GOWER.

Odontoglossum polyxanthum (*Thos. Nelson*).—It is not often one sees such a fine variety of this plant. The flowers each measure nearly 5 inches across, the ground colour being rich golden yellow heavily blotched and spotted with bright cinnamon; lip also of the same colour with a narrow marginal border of white. This is its usual season of blooming. I have never seen such a fine variety before,

and you should carefully preserve it. This species we do not appear to get overstocked with, as it is said to be rare in its native country. Some twenty-five years or thereabouts have elapsed since it was first found in the mountains of Ecuador. It has never been introduced in any quantity.—W. H. G.

SHORT NOTES.—ORCHIDS.

Cypripedium caudatum Warszewiczii.—This pretty Orchid has been flowering at Messrs. Pitcher and Manda's nursery at Hextable for upwards of two months. It is a very fine variety named after its discoverer, who, it is said, found it growing upon high trees on the mountains in Central America.

Dendrobium Brymerianum.—From Mrs. Carrol comes a very fine and large flower of this singular Burmese species. I have observed that this Orchid is flowering more freely this spring than I have hitherto seen it. I had also heard that the long-bulbed variety was the best, but I could not believe the bulbs would attain a height of 3 feet. Mrs. Carrol's flower, I presume, is also from a similar plant.—W. H. G.

Cypripedium Druryi.—What a lovely and distinct variety this is! The dorsal sepal is of a soft yellow with a broad middle band of blackish-chocolate, hairy on the exterior surface. The petals are rich golden yellow with a similar broad band, lip pale yellow. It is a charming flower, and lasts a long time in full beauty. I cannot but think that more species of the Slipper family yet remain in the hilly country where this plant was found (Travancore).—W. G.

Cattleya Trianae Gabrieliana.—This is a beautiful variety, now flowering in the collection of Mr. John Gabriel, Palace Road, Roupell Park, Stratham. The flowers, each measuring almost 7 inches across, have broad petals, which, together with the sepals, are white tinged with flesh colour; lip large, but not spread open, as is usually the case with large-lipped varieties. The whole front of the lip is of a deep amethyst-purple. The usual yellow colour is quite absent in the throat. It is a very fine and beautiful variety.

FLOWER GARDEN.

ANNUALS.

COTTAGERS are always fond of annuals, and they have every reason to be so, because for a few pence they can make their gardens gay and pretty with them in summer. As a rule, annuals are no great favourites with gardeners in large places. This is not surprising, for the whole tribe must be considered more or less troublesome—that is to say, they give more trouble than other things in proportion to their short duration. But there is something in the very shortness of their life which makes them interesting. Their fragile nature and their transient beauty make them all the dearer to those who like a touch of sentiment in their gardens. Biennials are more troublesome, as they require a longer time to come to maturity; but who could part with the large wealth of beauty in the summer-time derived from the tall stately Foxgloves, the great pyramids of our Brompton Stocks, our Wallflowers, and the handsome flowers which Canterbury Bells produce in such profusion?

If it were not for annuals, what would become of the catalogues which inundate our tables, and give so much additional work to the postman at this time of the year? It is amusing to note the variety in seedsmen's catalogues—some so plain and simple and ungarnished with decoration; others blazing with gold and varied colours outside, and within full of illustrations; some perfectly gorgeous in their bright array; others giving a very faithful picture of the plant which may be procured from a little packet of seed. That little packet of seed, how tiny it is sometimes! I have been sent for more than once "just to see how much seed there is in this packet," and the gardener opens the paper carefully and empties it on the palm of his hand. Perhaps, after all, the result is disappointment. You must expect that occasionally with seeds. Nevertheless, they are interesting, and when the packets come from the seedsman in early spring, there is the anticipation of the future flower already, for-

getful of the many risks that the tiny seed has to undergo from weather, slugs, and other hardships before it can become a plant.

There are some annuals which we scarcely regard as such, though they live but one year. They are an absolute necessity to any corner dignified with the name of a garden, and sometimes it is delightful to see what odd corners are turned into gardens by those who have to live in populous places. A short journey on the Metropolitan Railway or on the North London bears witness to the extraordinary love for gardening which seems to prevail everywhere. In any odd corner of a garden you will generally see the Sweet Pea or the Nasturtium. Perhaps the latter is rather more common, as it certainly makes much more show with leaf and flower than the Sweet Pea; but the latter is more interesting, and its delicious scent cannot be excelled by any other flower. In large gardens the Sweet Pea hedge is one of the specially delightful things which ample room enables a gardener to have without crowding out other flowers. The white Sweet Pea is certainly a most beautiful and a most useful flower, and it comes so true from seed that we can make sure of having it. Its first cousin the White Everlasting Pea is a very great addition to our summer climbers, but though the Everlasting has the advantage in its durable nature, the annual White Sweet Pea will always be preferred on account of its delicious fragrance. We can see in Sweet Peas, as much as in anything, the great progress which has been made in cultivation in late years. A few years ago Sweet Pea was Sweet Pea pure and simple—many coloured, indeed, and as sweet as it is now, but undoubtedly we have made some advance in hybridising Sweet Peas. This plant is now found worthy of a first-class certificate from time to time from the Royal Horticultural Society. Orange Prince and Primrose and Splendour have been thus dignified. But in the making up of large bouquets and for church vases the pure white and cardinal, with its bright crimson flowers, are invaluable. Sweet and pretty and easily grown and covered with a profusion of flowers, which will go on for a very long time, if only the early pods are removed, few things can be more useful than our modern Sweet Peas.

Then for trailing over a tub garden, what can be better than Nasturtiums? The Canary Creeper allowed to grow at its own sweet will, throwing its pretty graceful sprigs of flowers in all directions, made the Agapanthus tubs look extremely bright and gay in my garden last autumn. I was recommended to grow Agapanthus in this way by a writer in THE GARDEN, and it has been a perfect success, but the Canary Creeper added very much to the effect with its yellow flowers. In the same way the common Nasturtium decorated other tubs, though not nearly so gracefully as the Canary Creeper. Still, if care is taken to mix the tall crimson with the tall yellow they form a pretty contrast, and they come quite true from seed.

Mignonette is delightful at all times and places, and has also been much improved both in size and scent of late years. It does not seem to be an easy plant to force, but when it is understood, it is wonderful what quantities of plants, the same size and excellence, can be produced in pots and sent to our flower markets, where they find a ready sale.

I find Asters are among the annuals which must never be left out when ordering spring seeds. It is somewhat difficult to choose amongst the many varieties, but a long stem is a great advantage for the purpose of gathering, and a kind called Queen of the Market excels in that particular. In autumn these annuals are certainly most useful both for outdoor and indoor decoration, but they do not seem to belong to the class usually designated by the term annuals. We mean by this generally those old inhabitants of our own cottage gardens which are favourites everywhere, but too often not to be found. There are distinctly in this class the Convolvulus, both major and minor. These are both of them lovely flowers; the first under the name of Morning Glory, which is specially suitable to it, suggests that it is the early riser who gets the best chance of seeing it in its full beauty. The rich

dark blue of the other, common annual as it is, can scarcely be surpassed by any other plant in our gardens. The blue of the Cornflower comes next to it, but that is an annual which finds its way in quantities to Covent Garden Market, where our old familiar friends the Convolvulus are never seen, because of their very short existence in flower. Under the name of annuals we class Clarkias, Marigolds, Calliopsis, Linum rubrum, Gilia tricolor, Virginia Stock, Malope grandiflora, Eschscholtzia (a name apparently invented purposely to puzzle would-be prize-winners of a spelling bee), Larkspur, Nemophila, and other things of a like sort familiar to us from childhood, but, alas! excluded as a rule from the large and stately gardens of the present day. Never mind; they still find a home, aye, and a great deal of loving care in the snug little gardens which surround our tiny cottage homes in the country.

Salpiglossis has of late found a place where other annuals are scarcely known, and it is well worthy of the distinction. The flowers are beautifully marked, and present an immense variety of colours. Amongst recent introductions *Mina lobata* is one of the most beautiful as a hardy autumn climber. Its mode of inflorescence is strikingly pretty, and the two colours on the same sprig are both curious and attractive. This climber did well with me against a south wall, and produced a quantity of flowers which lasted on till late autumn. It is something in the style of *Eccremocarpus scaber*, but decidedly prettier even than that favourite climber.

Some annuals are much better for being sown the previous autumn; they then flower earlier and stronger. *Limnanthes Douglasii* is a good instance of this; if sown in autumn it will flower freely in April, and be useful to the most venturesome bees which dare to come forth from their hives so early in the year. A pretty contrast with this *Limnanthes* can be formed by *Silene pendula*, which is equally hardy and will stand the coldest winter. Moreover, neither of these annuals is specially attractive to slugs, an attraction which is often a great difficulty in keeping small growing annuals through the winter. The beautiful blue *Nemophila*, for instance, which is exceedingly pretty while it lasts, seems to be so attractive to slugs, that it is scarcely possible to keep it through the long dark days. When a frost breaks up with a mild damp wind from the south, the slugs come out in marching order and make straight for the plants they like best, amongst which must, unfortunately, be classed the pretty blue *Nemophila*. It would be well if we had a list for the inexperienced of those annuals which are safe from the depredations of slugs and of those which are specially liable to their attacks. Amongst the things which are safe from slugs may, happily, be placed *Convolvulus minor* and both the above-named annuals, *Limnanthes* and *Silene*. *Saponaria calabrica* is prettier than *Silene*, and in a mild climate with a light soil it will make rapid strides with the first fine weather of spring, and if planted thickly in a round bed it will form later on a mound of pink blossoms not less than 2 feet in depth.

Phlox Drummondii, though not a universal favourite, makes a bright and pretty bed in autumn, but its foliage rather detracts from its beauty. It never looks luxuriant. An annual which cottagers who are fond of exhibiting in their local shows think more of than any is *Balsam*. The poor seldom succeed in growing this really well; Balsams require so much trouble and care, but a plant ever so poor seems to be a great delight to the cottager, who prizes it probably more than anything else he grows. Balsams can be made very beautiful when highly cultivated, but when we take into consideration their utter uselessness for gathering and their very delicate nature, the judgment on them in public opinion seems to be, as the French express it, *le jeu ne vaut pas la chandelle*.

A GLOUCESTERSHIRE PARSON.

Muscari azureum.—Certainly this is a lovely little spring-flowering bulb, but it appears that it is somewhat delicate and peculiar as to soil and situation. I shall send out this season two new

forms, coming from remote northern stations and very likely to throw the Cilician typical plant into the shade. One of the new-comers has the individual bells much larger and more deeply cut, gaining thus a peculiar shape and looking very fresh; the other form has larger spikelets of a much brighter shining colour. Both are more robust, quite weather-proof, but flower a fortnight later than the type.—MAX LEICHTLIN, *Baden-Baden*.

NOTES ON HARDY PLANTS.

Helleborus argutifolius = *corsicus* is a most lovely object when covered with rime. To look round the garden when the foliage and branches of shrubs and plants are bedecked with pure crystallised masses of frost is very interesting, and thus one may take some little pleasure out of frosty fogs. Nothing looked so distinct and beautiful as the big crenate leaves of this Hellebore when bedecked with crystals of frost. For all that it is hoped there will be no more rime this spring.

Ranunculus montanus.—Something has been said lately about this lovely alpine. How surely (if slowly) the real gems get their meed of praise. But what about coarse varieties or the true plant assuming a coarse and strong habit? I do not believe in the latter, but are there not two plants of the same name of Willd. and Lin.? Then there is a variety of the true *montanus* of Willd. called *tenuifolius* (De C.); this is also a pretty plant. I have met twice with a plant called *R. alpinus*, and one correspondent makes it synonymous with *montanus*. I take his plant to be *tenuifolius*, a variety of *montanus* (Willd.), but I cannot find any authority for the name *alpinus*. Should there be one I should be grateful for the information.

Ourisia coccinea.—I believe it is true that this is a shy bloomer in most gardens. The reason is not apparent; still I have formed an opinion as to the cause, and for what it is worth I give it together with the grounds on which I base it. In mild winters the plant is evergreen, and it flowers better after such than when the winter is cold. The plant makes free growth until the early frosts; if the leading or strong points of the surface stems are damaged, flowers are very few and very late the following season. It is a question of maturing and preserving the foliage of the plant at the points. I think so because I kept some pot plants in good leaf all the winter last year and year before, and they flowered well. I have also come to think that we may have grown the plant in places too shaded, and so had growth too soft. If the plant has moisture enough it may be given full exposure to sunshine; in fact it should be treated as a bog plant.

Ranunculi.—As I have said before, nearly all the species produce finer flowers treated on the single crown system. Not that I am advocating the practice, though it is the best for some kinds and worth all the trouble. I merely mention it again now, as pointing to the fact I wish to arrive at and for explaining my observations. The tuberous kinds fail if not regularly divided. So do the half tuberous and rosy rooted species as represented by *amplexicaulis* and *aconitifolius*. These develop a proportionately great quantity of roots and root-stock. The latter decays naturally, and so dense are the fleshy roots, that scarcely any soil remains interspersed with roots of full grown specimens. From that stage deterioration begins. Speaking definitely about the double form of *aconitifolius*, with me it is better divided every third year, at which age the plants are distinctly better than when older, when the fibre gets less and the fleshier parts are beset with black decay. After penning the above, with regard to *R. alpinus*, I have just heard the following opinion as to this pretty alpine, viz., it most nearly approaches *carpathicus*, and that it is grown at Kew under the name of *uniflorus*.

Primula Reidi.—With regard to this beautiful and distinct species, there can, I think, be no doubt as to its perfect hardiness. In the past winter some small pots of first year seedlings have stood out of doors without any protection whatever; they had been overlooked and were not even plunged, as it had been intended they should. Moreover, the

pots were split, and the morsel of soil they had held had fallen away from the little silvery roots, exposing them to very trying winds and frosts since the end of the long storm. Surely this is a test severe enough, and I question if all the European species would have endured so much.

Jeffersonia diphylla is an interesting plant; from the day the swelling crowns show above the surface, their peculiar grey-green gradually assumes a glaucous hue suffused with pink, and when once the leaves begin to divide from one another they rapidly open out their two lobes, the big pure white flowers developing apace. It is one of the things you should place on the rockery among the gems. It loves a rich deep moist loam for its extraordinary quantity of fibrous roots, and though it is in no sense a fickle plant that cannot well be divided, it would be better to leave it alone for several years. *J. triphylla* is of more slender habit, and in early spring it sends forth delicate coloured leaves, and for a time, until they get bigger, they remain posed on their thin stalks like a pair of little bronzy pink sea-shells, the two outer leaflets enfolding the middle leaflet. Nothing could be harder than these little herbaceous species of *Berberidaceæ*, delicate as they seem.

Woodville, Kirkstall.

J. Wood.

BOG GARDENS AND BOG PLANTS.

Bog gardens are far from common. In many places they are inadmissible and would look quite out of place. There are, however, places where the most charming bog gardens could be made such as beside a little stream from which a streamlet could be diverted and carried over the ground, or through numerous intricate and small channels. Even an artificial bog can be made without its artificiality being very palpable. A bog garden can be made by forming a basin a foot or more in depth and of any desired size with bricks, concrete or cement. It should be made water-tight and have two outlets, one at the bottom at the lowest point provided with a plug and another in the side at about 6 inches high to carry off the surplus water. Several inches of stone should be laid in the bottom and then the whole filled up with peaty soil. The surface should be diversified, which can be done by making hillocks of soil, and also by partially imbedding large stones, which will serve at least two useful purposes. They may be so arranged as to form a series of stepping-stones over the surface of the bog, and there are some plants that will flourish better if planted close against them. The situation should be open and exposed, and if possible water should be laid on so that it can be turned on at the highest point and gradually flow through the bog. The merest trickling stream of a few gallons a day will suffice, but if the bog cannot be supplied with water in this way, it can be given by hand. Those country seats that happen to have a natural bog have one of the finest opportunities for growing therein some of the loveliest bog plants that come to us from other temperate regions.

Among our own native bog plants are found some of the loveliest members of the British flora. There are few prettier or more interesting sights than the waving masses of Cotton Grass, which in June sheets over our bogs with a mantle as pure and white as snow. The broad masses of Bog Asphodel are almost as pretty when in flower. Again, a close inspection of the same bog reveals one of the marvels of plant life, the fly-devouring Sundew (*Drosera rotundifolia*), a plant that is interesting and pretty as well, and where the Sundew thrives are to be found two of the frailest and loveliest gems of native flowers—the Bog Pimpernel (*Anagallis tenella*) and the trailing Ivy-leaved Harebell (*Campanula hederacea*). Over the verdant Sphagnum Moss these plants creep, rooting as they grow. Then in the same bog where these plants grow are two of the prettiest of British Orchids—the Butterfly Orchis (*Habenaria*) and the Spotted Hand Orchis (*O. maculata*), the first-named kind having a fragrance as delicate and sweet as that of a Vanda. Unfortunately, the area of British bogs is diminishing by land draining, &c., and the disappearance means the loss to our flora of some of Nature's

choicest gems. It would be well, therefore, to perpetuate them, and it can be done with a few square yards of bog. Those above enumerated are pretty generally distributed, but in bogs of our own creating we may grow side by side the plants from the boggy highlands as well as those from the lowlands. The plants that have been alluded to are the more prominent features of acres of bog upon Ashdown Forest, in Sussex. But upon the moist mountain-sides of Westmoreland there flourishes in countless thousands one of the prettiest members of the Primrose family, the Bird's-eye Primrose (*Primula farinosa*). Any attempt to cultivate this in beds or borders will be a failure but in the bog the plant will thrive admirably. *Viola palustris* (the Bog Violet) is a small, but pretty flower of a pale lilac colour, quite unlike those of Violets generally. The pretty *Parnassia palustris*, too, is another of the gems of British bogs with large white flowers. The Butterwort (*Pinguicula vulgaris*) is a very interesting bog plant. The Irish kind, *P. grandiflora*, is very fine, with large purplish blue flowers. The Buttercup family gives much that is beautiful for the bog garden. There is *Caltha palustris* in its single and double forms, one of the brightest and most effective plants that come early in the year. The great Spearwort (*Ranunculus lingua*) is a native of our ditches, but far from being a common plant. It grows a yard high, flowers in July, and has bright yellow flowers. It should find a place in the bog. Again, in the drier parts of the bog, or in moist grassy spots, we should plant the Globe Flowers (*Trollius*). *T. europæus* is a native of our hill pastures, and beside it *T. dahuricus* and *T. asiaticus* might be grown. *Menyanthes trifoliata* (the Bog Bean) is a pretty native plant, large, robust, and effective in foliage or flower. The leaves are like those of a giant Trefoil and the flowers are most beautiful. They are borne upon spikes early in the year. The buds are rose-tinted, like Apple blossom, but the flowers when fully open are quaintly beautiful, the petals being fringed with hairs. Another native Orchid for the bog is the Marsh Orchis (*O. latifolia*), of which there are some very fine forms in cultivation.

The above selection of mainly British plants, if all gathered together in one bog, would give us much that is beautiful, but besides these there are other plants from the bogs of other countries. The *Sarracenias* and *Darlingtonias* of California have succeeded and proved hardy in some few places where they have been tried. Whether they have withstood the past winter I do not know, but two years ago, in Mr. Godman's interesting garden at South Lodge, Horsham, I saw *Sarracenia purpurea* and *Darlingtonia californica* growing freely in boggy ground. The plants had been out several years, and had not been protected. The tuft of *Sarracenia* was then nearly feet 2 across, healthier and larger than any specimens grown under glass in pots and pans. *Senecio pulcher* will grow in the herbaceous border, but it is a bog plant, and was never grown more freely or flowered so finely as by Mr. George Paul in bogs in his nurseries at High Beech and Broxbourne. The new *Spiræa astilboides* succeeds well when so grown, whilst *S. palmata* and its varieties thrive best under such conditions. The Lady's Slipper family of Orchids gives us a charming hardy member for the bog in *Cypripedium spectabile*, and from the same North American home comes the Wood Lily (*Trillium grandiflorum*), a most beautiful plant in leaf and flower. The Spider-wort (*Tradescantia virginica*) is now to be had in many fine forms, and although it grows in the garden border, it is freer, longer lasting, and more beautiful in the bog. *Orontium aquaticum*, the Golden Club of North America, will thrive in the wettest part of the bog. *Gentiana bavarica* is also valuable for the bog garden. Mention of the *Gentian* recalls to mind rambles I have made over bogs and wet heathland on Ashdown Forest in search of *Gentiana Pneumonanthe*, and found it not, although some years ago it used to be common there. It flowers in August, is of a deep blue colour with greenish stripes, and would be an addition to the bog garden.

It is hardly necessary to mention any more things, as with the above we have enough materials, together with the necessary means of culture, for making a charming feature on a small or large scale. Many of the things could be grown on a few yards of bog, whilst in natural boggy ground we should be justified in extending the feature, and the bog might merge into a bold, proper planting of Ferns, native and exotic, hardy, moisture-loving species, such as Lastreas, and the Royal Fern of our own country, or the bold American Feather Fern (*Struthiopteris*). A word of caution is necessary. There are some pretty plants which love bogs, but prove veritable weeds. Some of the *Carexes*, for example, are most elegant, but all of them must be rigidly excluded, and also the moisture-loving Grasses, or they will quickly overrun the bog and entirely monopolise it. *Hydrocotyle vulgaris*, the Marsh Penny-wort, a common native

weeks and more. Earlier than the Polyanthus section, they are hardly less worthy of extensive cultivation for spring gardening. In this latter section, at Munstead, Miss Jekyll is without doubt far ahead of anyone else both in reds and yellows, and not less in cultivation, and the "rivers" of Polyanthuses at Munstead in May are a sight once seen not easily forgotten, and should certainly emulate others to follow in the same line. In my little experience the coloured Primroses are rather easier of cultivation than the Polyanthus section, the latter sometimes "going off" or rather not "coming on" after division in late spring, which is the only reliable method of working up a stock of fine colours, whether yellows or reds. Seed I find can never be depended on to come true, and division is the only method of getting a stock of various shades of one colour, and so being able to grow great breadths, which is the way Primroses and Polyanthuses show

blossom. All the kinds we have been treated in exactly the same way. Abercorn Gem was in flower when covered up by snow last November, and both it and Skylark have had buds or blossoms ever since. Skylark is prettier now than it will be later on, as there are only a few faint specks of blue upon the edges of its creamy white or pale yellow petals, whilst later on the blue will be deeper and in greater quantity. Abercorn Gem is at all times pretty in form and colour. It is faithfully shown in a coloured plate which appeared in *THE GARDEN* of April 30, 1887. Its habit is very tufted; it blooms most profusely and rarely produces seed, so does not exhaust itself in that way.—A. H.

WINTERING ALPINES.

MR. EWBANK is mistaken in thinking that I do not adopt the plan of putting glass over some of my alpine in winter, as he has never seen my rockeries at that season. Even with that protection there is a large number of alpine which he can grow by which I am quite beaten. The necessity for protecting certain plants overhead during our violent alternations of wet and cold was first pointed out to me by the late Miss Owen, who taught me a great deal in gardening, and I have adopted the plan of overhead sheets of glass for at least ten years. Some time after I had done so Mr. Ewbank tried to persuade me to use metal holdfasts for the glasses. These, I told him, were impossibilities on rockeries, which are nearly all stone, as mine are. I keep the glasses in their place by weights laid upon them. Still the habit of keeping glasses on any plant during its flowering time is unsatisfactory, and, if necessary, perhaps it is better to keep plants which want it in frames and pots, and mass them all together when in flower for a display in February and March, and remove the lights during the day when the weather is anything but atrocious, keeping them tilted at night. I have tried this plan successfully this year. But there are many things which rockeries could not do without which want the protection of glass in winter—at any rate, in the atmospheric and climatic conditions of this garden. These plants must be found out by experience. Here they are chiefly Himalayan, such as *Androsace sarmentosa* and *lanuginosa* and *Hypericum reptans*; Anatolian, such as *Onosma tauricum* and *Omphalodes Luciliae*; Spanish, such as *Saxifraga Wilkommiana*, *Draba Mawi*, and *Lychnis Lagascae*; but one cannot generalise about plants much. One or two general remarks I can make that here alpine Primroses fail entirely, the half dozen kinds which usually do well out of doors having this year had their flowers shrivelled and stunted, except in frames. Mr. Ewbank mentions several plants which I should never dream of protecting in winter, e.g., three or four encrusted *Saxifrages*—*valdensis*, *mutata*, *caesia*, and the garden hybrid called *Boydii*—which here flower freely all through February and March without the least injury, and are doing so still. North American alpine also would resent a glass shade, for of all nationalities they suffer least from violent alternations, being accustomed in their own country to variations of 60° in temperature within a few hours, even when in flower. *Lewisia rediviva*, for instance, cares nothing for cold in winter, though I find it too short lived a plant to indulge myself with, and it is one of the few alpine which will not ripen seed. Grown on an exposed sunny slope in decayed Pine needles, it used here to produce twelve or fifteen flowers in a bunch, all of which could be covered with one hand. To conclude, I consider glass covers too great a disfigurement to rockeries, unless they can be all removed by the middle of March, and I have lost nearly all my *Androsaces* by removing them at that time in this exceptional year.—C. WOLLEY DOD, *Edge Hall, Malpas*.

—The question as to wintering alpine is often asked, and, profiting by the experiences of the past winter, I would answer, winter them where they ought to be—on the rockery. I believe that a large number of alpine are annually killed under glass, where they are kept half starved in pots and where they are subject to more and greater variations of temperature than if planted out on the rockery. The past winter has proved this in a very striking manner. Many spe-



The Vegetable Marrow trained on a trellis over a pathway. (See p. 387.)

marsh plant, is another plant that must be excluded, and if it should be accidentally brought in with other plants it must be exterminated, for if it remains, many choice plants will be overrun and choked. There are quite enough beautiful subjects for the bog without having recourse to those that are weedy.

A. H.

Primroses.—The lovely forms of coloured Primroses obtainable from seed have been from time to time mentioned in your columns, and I venture to send you a few blooms from my stock which I have been working up for the past three years. They are grown in a broad breadth in partial shade under trees, and are now and have been, notwithstanding the cold spring, a gorgeous mass of colour for the last two

to advantage. Primrose and Polyanthus growers are, I know, striving to raise a "true blue," and some, I believe, have done so, but to my mind with the grand shades of reds, purples, yellows, and whites obtainable, a blue Primrose, though most curious, is somewhat misplaced. In some seedlings just flowering I have some purples nearly approaching to blue. Raising a stock of fine Primroses or Polyanthuses being so easy and done at so slight an expense, is particularly suitable for amateurs. A few shillings for a packet or two of seed, then selection and division, and a batch of seedlings raised each year from your own selected seed.—M. C., *Loxwood*.

Tufted Pansies Skylark and Abercorn Gem.—These are the only two kinds in our collection that have any flowers, and they are already masses of

cies of Primulas, Gentians, and Androsaces have been lost in pots in a frame, while duplicates planted out are not only alive, but in a very flourishing condition, and flowering with remarkable freedom. *Primula biflora* I have always failed with in pots, and as a last resource I planted one in a very exposed position. It is now in perfect health and showing flower. Other instances could be noted if necessary to show that no amount of coddling will ensure success in growing these rare alpine. Plant them out, and in very few cases will it be found necessary to trouble about glass coverings, hoops, and such like.—K.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 21.

WITH the additional interest imparted by the exhibits of the Auricula Society, this was a meeting of a most comprehensive kind. The productions placed before the committees on this occasion were not so numerous as at the previous meeting; in fact if many more collections had been sent there would not have been room to receive them, taking into account the large amount of space occupied by the Auriculas and allied products. Amongst other good things there were several choice Orchids from Sir Trevor Lawrence, Bart., M.P., and others from Messrs. Sander and Co., St. Albans.

Orchid Committee.

First-class certificates were awarded to the following:—

ODONTOGLOSSUM PESCATOREI PRINCE OF ORANGE.—This is a lovely and decidedly distinct variety of great merit. Its specific name does not altogether convey an idea of its true character; it may be fairly considered a natural hybrid between *O. Pescatorei* × *O. triumphans*, both of these species having been found growing in close proximity to each other. The ground colour of the flowers is that of *O. triumphans* (a rich golden colour), with chocolate spots and markings, the formation of the flowers being similar to that of *O. Pescatorei*. The plant shown had one good spike of nine blooms. From Sir Trevor Lawrence.

ONCIDIUM LARKINIANUM.—This is undoubtedly one of the finest and most meritorious *Oncidium*s seen for a long time. It was carrying one superb spike (branched) with about thirty-six flowers. Some idea of this variety may be had when it is stated that it appears to be intermediate between *O. Marshallianum* and *O. curtum*, having a lip similar to *O. tigrinum*, but of a deeper shade of colour, being in this instance a rich yellow. The sepals and petals are of a shade of pale brown, barred and fringed with yellow. Shown by Mr. John Larkin, Watford.

Sir Trevor Lawrence also exhibited two other fine forms of *Odontoglossum*s in *O. excellens* and *O. Pescatorei* var., both being in the way of, but quite distinct from the certificated plant; in both instances the ground colour was a shade of yellow. The first named had a branched spike. Messrs. Sander and Co. again sent a choice collection of *Odontoglossum*s and *Lælia*s with other good things. Amongst the *Odontoglossum*s must be noted *O. Alexandræ* in excellent variety, embracing those with pure light self-coloured sepals and petals, and others with well marked ones. *O. Pescatorei* was in excellent condition; so also were *O. Halli*, *O. Andersonianum*, and *O. Ruckerianum*, the last a fine variety. Of *Lælia*s there were some good forms of *L. purpurata* with pure white sepals and petals, as well as those of a delicate blush colour. *Cattleyas* were represented by *C. Mendeli* in good variety, and *C. citrina* with fine blooms rich in colour. Of *Dendrobium*s, *D. Brymerianum* was the most conspicuous. The plant shown had about forty blooms upon it. Another good *Dendrobe* was *D. Schrederianum*, with a rich orange-coloured lip, the other portions of the flower a pale yellow. *Trichopilia suavis* was present in

well-bloomed masses, the markings of the flowers being deep in colour. Of *Odontoglossum* Edwardi there were four plants with strong spikes of bloom upon them; these were very striking by reason of their rich purple shade. A plant of *Angræcum sesquipedale* was bearing one very fine flower of pure colour (silver-gilt medal). Other Orchid exhibits consisted of a pale-coloured variety of *Lælia* from Messrs. Laing and Sons, Forest Hill, named *L. purpurata Schrederiana*; cut blooms of *Phalænopsis grandiflora* from Sir Trevor Lawrence; *Cattleya Lawrenceana*, an excellent form with rich coloured lip, from Colonel R. T. Clarke, Welton Place; and a spike of *Vanda tricolor* from Messrs. De Rothschild, Gunnersbury House, Acton.

Floral Committee.

Awards of merit were given to the following:—

AZALEA PHARAILDE MATHILDE.—A fine, semi-double variety of good constitution, having large white blossoms, blotched and spotted with pale pink.

AZALEA PRINCESS CLEMENTINE.—Another promising kind, with waxy white flowers of good substance, freely produced upon small plants, each flower being spotted with pale lemon colour upon the upper segments.

AZALEA M. LABROUSSE.—An excellent addition to the self-coloured varieties, the colour being a rich deep red, the blooms of fine form and large size. These three new Azaleas were sent by Mr. Chas. Turner, Royal Nurseries, Slough.

PRIMROSE MARY ERSKINE.—This is a most beautiful addition to the blue shades of this popular flower. This variety has medium-sized blooms, freely produced, of a pale lavender colour, with a clear yellow eye.

PRIMROSE COVENANTER.—Another excellent variety, with blossoms of a deep rich purple shade and a large deep yellow eye—a novel and distinct colour. Both were sent by Mr. G. F. Wilson, Heatherbank, Weybridge.

A botanical certificate was awarded to Messrs. Veitch and Sons for a very distinct new species of *Rhododendron* from Hong Kong named *R. Championæ*. The flowers are creamy white, with a yellow blotch upon the upper portion of each flower, the foliage being hirsute. This should prove a valuable kind to the hybridiser. Messrs. Barr and Son sent the best collection of Daffodils yet seen during this season both as regards variety and quality. Several varieties have been previously alluded to in former exhibits. The following were very fine and distinct, viz., *Leedsii amabilis*, pure white perianth with long lemon crown; *Incomparabilis Stella*, pure white, and yellow crown; *Her Majesty*, a clear, light self yellow; *Mrs. A. F. Barron*, perianth yellow, cup margined bright orange-scarlet; *Incomparabilis Titan*, yellow and orange; *Incomparabilis C. J. Backhouse*, yellow perianth, long cup of rich orange-scarlet; *Leedsii Minnie Hume*, nearly a self-coloured white; *Sir Watkin*, bicolor *Horsfieldi*, *Leedsii Madge Matthew*, large white perianth, elegant white cup; *Princess Mary*, creamy white with suffused orange-scarlet cup; *Orphée*, primrose, cup edged orange-scarlet; and *Leedsii superbus*, a splendid white self-coloured kind. *Anemone fulgens*, single and double, were also shown here (silver Flora medal). A very fine and distinct Daffodil of the trumpet section, named *Cressida*, was shown by the Rev. W. Wilks. It had a pale lemon perianth with golden yellow cup, finely fringed, and of extra size. Messrs. Ryder and Son, Sale, Manchester, sent a collection of some forty pans of *Primula Sieboldi* in great variety. These had small Ferns interspersed among them, and were most profusely flowered, having been brought on in gentle heat for the occasion. The best kinds were *Blushing Bride*, fine blush, fringed; *Miss Kelley*, rosy pink, white centre; *Harry Leigh*, lilac, white eye; *Mrs. Ryder*, white, shading to blush; *Distinction*, white and rose, large flowers; *Ruby Queen*, ruby-red, one of the best; *Bruce Findlay*, rich lilac; *Brilliant*, rich rosy-crimson; *Mrs. F. S. Woodward*, white and pale blue; *Mrs. Geggie*, clear rosy-pink (silver Banksian medal). Messrs. Paul and Son had a comprehensive collec-

tion of early-flowering herbaceous and other hardy plants. Tufted Pansies were prominent in this collection. They consisted of *Skylark*, a light variety with pale blue edging; *lutea pallida*, a small free yellow; *Mrs. Fulton*, *Trentham Purple*, *Queen of Spring*, yellow. *Primula rosea*, *P. altaica*, and *P. denticulata* were very well represented. *Aubrietia tauricola*, a rich coloured variety, very compact in habit; *Alyssum podolicum*, an early variety; *Adonis vernalis*, and *Erica herbacea* were also noteworthy. For the bog garden there were good things, such as *Caltha palustris* fl.-pl. and *C. monstrosa* fl.-pl., two fine forms of the Marsh Marigold. *Sarracenia purpurea* was represented by a good panful, which after such a winter as the past was uninjured and already in active growth. *Onoclea sensibilis* was also well shown. The golden Valerian and the variegated Crown Imperial were both in good condition, also some fine plants of *Saxifraga marginata* (bronze Banksian medal). Mr. Phippen, Reading, showed three baskets filled with Primroses in all the shades usually grown (bronze Banksian medal). Sir J. T. D. Llewellyn sent from his garden at Penllergare, Swansea, an extensive variety of Himalayan *Rhododendrons* (species and hybrids); these were cut from the open air. The plants have not been at all injured by the past winter, but the buds had suffered somewhat from severe frosts in March and April. Mr. Charles Turner had other good Azaleas besides those alluded to above. *Vervaeana*, a mottled, semi-double after *Criterion*, and *Ami du Cœur*, with undulated margin to its deep red double blossoms, were promising kinds. Two well bloomed plants of *Iris fimbriata*, that had commenced to flower in January and had only been given greenhouse treatment, came from Mr. Mellis, Sewardstone Lodge, Chingford. Two other good Primroses were sent by Mr. G. F. Wilson; these were *Elizabeth Brodie*, purple, and *John Gibson*, a deep lavender. For Messrs. Barr and Son's prizes for Daffodils there was a good competition, the first prize being deservedly awarded to Mr. H. J. Adams, Roseneath, Enfield. This was a most comprehensive exhibit of the best kinds. Besides others previously alluded to here were to be seen *Incomparabilis Gwyther*, large yellow perianth, cup suffused orange; *Barri conspicuus*, yellow perianth, and cup edged bright orange-scarlet; and *Ajax maximus*, a rich golden yellow self. The second prize was awarded to the Rev. Eugene Bourne; the third to the Rev. G. P. Hayden; and the fourth to Miss B. Doyne, Gorey, Ireland.

Fruit Committee.

A cultural commendation was given to Mr. G. Wythes, Syon Gardens, for a basket of early forced Black Hamburg and Foster's Seedling Grapes, both in admirable condition as regards bunches, berries, and colour. A vote of thanks was given to the same exhibitor for a box of Strawberries of a dwarf-growing form of the well-known Keen's Seedling, which he finds good for forcing. Mr. Gilbert sent from Burghley Gardens two varieties of Tomatoes, to which a cultural commendation was awarded. The sorts were Improved *Criterion* and a variety named *Wynne's Early Forcing*, both being well coloured and of good size. Some diseased Vines were placed before the committee, but were ultimately forwarded to the scientific committee for more minute investigation. Messrs. Cheal and Sons, Crawley, sent a remarkably well kept selection of Apples and Pears in large variety, particularly of the former. These fruits had been frozen during the severe frost, but by being kept closely covered up and allowed to thaw gradually, no harm had been done. The best of the Apples were *Claygate Pearmain* (fine flavour), *Lady Heniker*, *Royal Russet*, *Ottershaw Pippin*, *Beauty of Kent*, *Winter Queening* (fine), *Ross Nonpareil*, *Hormead's Pearmain*, *Kentish Fillbasket*, *Wellington*, *Prince Albert*, *Alfriston*, *Reinette du Canada*, and *Golden Reinette*. The best of the Pears were *Duchesse de Nemours*, *Duchesse de Mouchy*, *Uvedale's St. Germain*, and *Directeur Alphonse* (silver Banksian medal).

A lecture in the afternoon was given by Mr. J. O'Brien upon the culture of Cape bulbs. This

was practical and to the point, being a subject to which Mr. O'Brien has devoted much attention and time.

ROYAL BOTANIC.

APRIL 22.

SECOND SPRING EXHIBITION.

THERE was a very gay display at this meeting on Wednesday last. Spring flowers both from the open air and from under glass were staged in great profusion. The groups not for competition, chiefly from the trade, constituted a most important feature. In some few classes there were no exhibitors, but the great majority were very well filled.

In the competitive classes one of the finest exhibits were the pot Roses, for nine of which Messrs. Paul and Son, Cheshunt, were awarded the first prize; these were quite equal to what are often seen at the May shows, the plants being profusely flowered and the blooms of excellent quality. Mr. Rumsey, nurseryman, Waltham Cross, was second with smaller plants. Azaleas were staged in better order than upon the last occasion. In the trade class Mr. Charles Turner, Slough, was easily first for six excellent plants of medium size, the best being Mrs. Turner, Apollo, Mme. A. Hardy, Reine du Pays Bas, and Irma (extra fine). In the amateurs' class Mr. B. Noakes, Hope Cottage, Highgate, was first with six plants in good condition, Charmer, Stella, and Roi d'Hollande being the best. Miss Scott, The Holme, Regent's Park, was a very close second. Dame Melanie and Duchesse A. de Nassau were both fine.

Mr. Ware, of Tottenham, showed an extensive collection of hardy herbaceous plants and was awarded the first prize in that class. These included several hardy Orchids, chiefly *Cypripediums*, as *C. Calceolus*, *C. pubescens*, *C. montanum*, and *C. arietinum*. *Ophrys lutea sicula* was also shown. Other good things included *Sisyrinchium grandiflorum*, *Doronicums* in variety, *Puschkinia libanotica compacta*, &c. Messrs. Paul and Son were placed second with an excellent collection of hardy things, most of which were noticed in the R.H.S.'s report; others included choice Daffodils and *Iris reticulata*. The latter firm were the only competitors in the class for alpinists, most of which were shown the previous day, *Anemone blanda* and *Saxifraga muscoides purpurea* being added. Mr. Douglas was a good first for *Polyanthuses*, showing strong plants of the larger varieties.

For twelve *Amaryllises*, Messrs. Paul & Son were first with a fine race of seedlings of their own raising, one of the finest being Wm. Coomber, with flowers of extra size, deep red, with light stripes and veins. These plants were robust, with broad foliage, and in comparatively small pots. Mr. Douglas, Great Gearies, Ilford, was a very good second with plants of dwarf growth. To Mr. H. H. Gibbs, St. Dunstan's, Regent's Park, was awarded the third prize for some good plants rather over-potted. With nine *Pelargoniums*, Mr. Phillips, Langley Broom, Slough, was first. These were in excellent condition for so early in the season, the best being Rosetta, rosy purple, very fine; Duchess of Fife, G. Sheppard, Lady Isabel, and Fairy Queen. The same exhibitor was first for nine *Cinerarias* with extra-sized plants in good colours; too much tying had, however, been resorted to. Sir C. Piggott, Bt., Wexham Park, Slough, was second with a good set of plants. For twelve *Primula Sieboldi* Messrs. Ryder and Son were first, showing chiefly the kinds described in the report of the floral committee on April 21. With twelve well-grown and fresh plants of *Dielytra spectabilis*, Mr. Scott won the first prize, and Mr. W. J. Twigg, Croxted House, Dulwich, occupied the same position with a similar number of *Spirea japonica* well grown. In the class for twelve *Auriculas* Mr. Douglas was first. Mr. C. Turner was a good second. The last named turned the tables upon his opponent for twelve alpine varieties. For twelve pots *Mignonette*, Mr. Morle, Regent Street, was first with extraordinary plants of the Machet type; the second and third were very close, and might to all appearance have been cast in the same mould.

A large silver medal was awarded to Messrs. B. S. Williams and Son for a fine group of choice flowering plants and Orchids. The best of the former were *Glonera jasminiflora*, *Erica Cavendishi*, *Rhododendron Williamsi*, R. Countess of Haddington, *Boronias* and *Clivias*. Of the latter there were some good forms of *Odontogloss*, *O. triumphans* in particular being first-rate. *O. Pescatorei* was also shown in good form. *Oncidium Papilio majus* (seldom seen) and *Chysis bractescens* were staged, also some capital varieties of *Cypripediums*. A fine variety of *Amaryllis* was included, named Maiden's Blush, crimson ground, freely striped and veined with white. To Messrs. H. Low and Co. was awarded a silver medal for a showy bank of Orchids composed chiefly of *Dendrobiums* and *Phalaenopsis*. Of the former there were several strong plants of *D. thyrsiflorum* profusely flowered, some of the spikes of extra size; one plant in particular was a marked improvement upon the usual form, being far richer in colouring; the spikes were long, and the individual flowers larger also. *D. Devonianum* was well flowered, and several small but good pieces of *D. lituiflorum marmoratum* were staged. *Phalaenopsis grandiflora* was also present in good numbers, there being several capital spikes. To Mr. H. B. May, Edmonton, was also awarded a silver medal for a fine collection of useful decorative and ornamental Ferns and other foliage plants. Among these were *Pteris serrulata densa*, a new and elegant variety of the crested forms, pale green in colour and Moss-like in its crests; *Leucostegia immersa*, with a pale bronzy tint; *Davallia elegans* and *D. bullata* in baskets; *Didymochlæna truncatula*, a distinct and bold-looking Fern; *Lomaria discolor bipinnata*, *Adiantum farleyense*, and other good kinds were shown. *Dracenas* and *Aralias* were represented by the best varieties. To Messrs. J. Laing and Sons was also awarded a silver medal for a miscellaneous collection of decorative flowering and foliage plants. Amongst these were *Clivia Lady Wolverton*, a new and excellent variety, bright orange with paler centre, large truss; *Rhododendron Countess of Haddington*, *Lelia purpurata Schrodleriana*, and *Erica Cavendishi*. Three new *Caladiums* were also staged—C. James Laing, a bronzy-red variety, C. Aurore Boreale, and C. Gabrielle Lemoine. To Messrs. Cutbush and Son was awarded a silver medal for a group of *Azalea mollis* and varieties of *A. indica*, with *Erica Cavendishi* and *E. Devoniana*, and other early-flowering plants. Mr. Pumsey, Waltham Cross, was awarded a silver medal for a collection of Tea-scented and other Roses in pots, and two boxes of cut blooms of Teas and Hybrid Perpetuals, which were much admired. The best of these were The Bride, Merveille de Lyon, Mme. Hoste, Jean Ducher, Niphetos, a distinct-looking sport from that well-known variety *Maréchal Niel*, *Souvenir d'Elise Vardon*, Mme. de Watteville, and Mme. Lambard (extra).

A large bronze medal went to Messrs. Ryder and Son for an additional group of *Primula Sieboldi* in pans, as shown the previous day at the Royal Horticultural Society's meeting. To Messrs. Barr and Son a large bronze medal was also awarded for a collection of cut Daffodils; besides varieties previously noted, the following were in good form: Thomas Moore, Queen Bess, John Bain, Maurice Vilmorin, Barri conspicuus, and odorus; several of the well-known larger kinds were well represented. To Mr. Thos. Ware, Tottenham, another large bronze medal was awarded for Daffodils; these included additional varieties in Mme. de Graaf (very fine, straw-white perianth, orange cup), *Triandrus albus*, *Bulbocodium*, *citrinus*, *Nelsoni major*, &c. A bronze medal was also awarded to Mr. Charles Turner for an extensive collection of the best kinds of alpine and show *Auriculas* and *Primulas*, as well as for well-flowered Azaleas, chiefly new varieties, some of which were certificated; others included Mons. Labrousse, *Pharailde Mathilde*, and *Germania*; these were small decorative plants. To Mr. Douglas was awarded a large bronze medal for a most extensive and choice collection of *Auriculas* and several well-grown varieties and species of *Primulas*. A large bronze medal also went to Messrs. Hayes, Lower Edmonton, for a group of new early forcing *Pelargoniums*, exceedingly well grown and

flowered; the best amongst these were *fimbriata alba*, a fine white, large truss, and good habit, free; Duchess of Fife, rosy pink; Empress of India, salmon-pink, smooth edge. A grand specimen of *Rhododendron Countess of Haddington* some 4 feet through and 6 feet in height, profusely flowered, came from Mr. Ford. This was a truly noble plant of this fine variety. A bronze medal was awarded to it. Other exhibits consisted of a collection of cut blooms of *Anemone fulgens* from Mr. T. H. Burroughes, Ketton, Rutland, to which a cultural certificate was awarded.

A full prize list will be found in our advertising columns.

NATIONAL AURICULA AND PRIMULA SOCIETY.

THE genus *Primula* was in strong force on this occasion, and the exhibition all round was remarkably good considering the unfavourable season. No one expected to see so many plants staged, and some of them in such remarkably fine condition. That the growers had many difficulties to contend with is well known, but constant attention and enthusiasm do much when necessity arises. It is so with the *Auricula* grower this year, and the number of exhibitors scarcely fell below last year. True, the Rev. F. D. Horner could not exhibit, for his flowers were not sufficiently advanced, but the absence of this renowned cultivator was compensated for to a great extent by the superb quality of some of the specimens that came from Reading. The leading class was for twelve *Auriculas*, distinct, and the first prize was taken by Mr. T. E. Henwood, Hamilton Road, Reading, the treasurer of the society, who staged a dozen superbly grown and finely flowered plants, the varieties consisting of Lancashire Hero, a grey edge, shown on this occasion as a green; Abbé Liszt, a very fine and striking variety of remarkable quality; and the Rev. F. D. Horner, with eleven fine pips; of grey edges, George Lightbody, with six pips finely finished; and Lancashire Hero; of white edges, Acme, Reliance, Mrs. Dodwell, and George Rudd; of selfs, Mrs. Potts, Heroine, and Black Bess. Mr. J. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, was placed second; Mr. A. J. Sanders, gardener to Viscountess Chewton, Brockham Lodge, being third. In his twelve the Rev. F. D. Horner (green edge) and Black Bess (self) were good. Mr. P. J. Worsley, Rodney Lodge, Clifton, Bristol, was fourth, having selfs Mrs. Potts and Black Bess in fine condition. In the class for six plants Mr. Henwood was also first with very fine specimens, having green edge the Rev. F. D. Horner, with eight very fine pips; grey edges Lancashire Hero and George Rudd; white edge Mrs. Dodwell; and self Mrs. Potts. Mr. Douglas again came second. Mr. A. J. Sanders was third, and Mr. P. J. Worsley fourth. Another Reading grower came to the fore with four varieties in Mr. G. W. Wheelwright, Oxford Road, Reading, who had in fine condition the Rev. F. D. Horner, George Rudd, Mrs. Dodwell and Mrs. Potts; second, Mr. W. Smith, The Links, Bishop's Stortford; Mr. William Badcock, Oxford Road, Reading, was third. Mr. Wheelwright was also first with two plants, showing green edge the Rev. F. D. Horner, and grey edge George Rudd, both in fine condition. Mr. C. Phillips, Hamilton Road, Reading, was second, Mr. Badcock coming third. In the classes for single specimens some good things were staged. The Rev. F. D. Horner carried off the first, second, and third prizes as the best green edge; it was also fifth and sixth, Abbé Liszt taking the fourth prize. Of grey edges, George Lightbody, shown by the Rev. R. L. Flood, The Rectory, Merrow, was first; and William Brockbank, rarely seen in such good condition, and shown by Mr. Wheelwright, was second; George Lightbody taking third and fourth prizes also. Mr. Henwood's John Simonite was the best white edge; Acme came second and fourth, and Conservative third. In the class for selfs, Mr. Barlow's beautiful variety Mrs. Potts was first, second, and third, Black Bess being fourth. Mr. Badcock, of Reading, staged a fine blue self named Blue Beauty of a very promising character. The best collection of fifty

Auriculas came from Mr. Douglas. Mr. Charles Turner was second. This class adds some extent to the show, but it invariably contains specimens inferior to those seen in the foregoing classes.

The alpine made a brave display, and those who complain of the sameness in character and formality of the show varieties turn with satisfaction to the brilliant and diversified alpine. The best twelve plants came from Mr. Charles Turner, Royal Nursery, Slough, who had a very fine lot of superbly grown and bloomed plants. The varieties were Harry Turner, Roland, Magnet, Sunrise, John Bright, T. E. Henwood, F. Knighton, Mungo McGeorge, Peter Flower, Phoebe, and Sensation. Mr. J. Douglas came second with some admirable specimens. With six varieties, Mr. T. E. Henwood was first with grand plants of Love Bird, Charles Turner, Mrs. Martin, Mary Frances, Defiance, and a seedling; second, Mr. C. Turner. Mr. George Wheelwright was third with capital specimens also. The best four came from Mr. Wheelwright, who had Hotspur, Pallas, Garnet, and Defiance; Mr. T. E. Henwood being second, Mr. W. L. Walker, also of Reading, third. In the class for single specimens of golden-centred alpine Auriculas, Mr. C. Turner was first with H. M. Pollett, Mr. T. E. Henwood second with Florie Henwood, Mr. A. J. Sanders third with Diadem, and Mr. Wheelwright fourth with Sunrise. In the class for white centres, Mr. C. Turner was first with Maud Fellowes, and second with Countess; Mr. T. E. Henwood third with Paragon, and Mr. J. J. Keen, Southampton, fourth with Edith.

Gold-laced Polyanthus were shown in much better character than during the past few years. Mr. J. Douglas was first with well grown and bloomed plants of Cheshire Favourite, Exile, William IV., George IV., Lancer, and a seedling red ground. Second, Mr. J. Weston, gardener to Mr. D. Martineau, Clapham Park. Mr. R. Dean was third. Mr. J. Douglas also had the best three plants. Mr. A. J. Sanders was second, Mr. Weston coming third. The best single specimen was George IV., from Mr. J. Douglas. For twelve fancy Auriculas, Mr. J. Douglas was first and Mr. R. Dean second. Under this head can be grown anything that does not come into any of the divisions of the show Auricula. Among seedlings of the latter will come some edged flowers having a golden instead of a dark ground, and such types Mr. Douglas had in good character. Mr. R. Dean had some double and semi-double varieties and others of a mixed character. Fancy Polyanthus were less attractive than usual, owing to the lateness of the season and the difficulty of getting the plants into bloom. Mr. J. Douglas was placed first and Mr. R. Dean second. In the class for hardy Primroses the positions of these two exhibitors were reversed, Mr. R. Dean showing a bright and effective lot, but wanting time in which to develop. In the open ground they are nearly a month later than usual in blooming. Mr. J. Douglas was second, and Mr. O. T. Hodges, Lachine, Chislehurst, third. Messrs. Paul and Son, Old Nurseries, Cheshunt, were first for baskets of double Primroses; Mr. R. Dean was second, having the old velvet crimson and the blush. None of the doubles scarcely were well advanced in bloom, owing to the coldness of the weather. A very fine and interesting group of twelve species came from Mr. J. Douglas, and was awarded the first prize. It contained japonica, Auricula, cashmeriana, floribunda, verticillata, obconica, intermedia, Nelsoni, marginata, obtusifolia, nivea, and rosea. Sir J. T. Llewelyn, Bart., Penllergare, Swansea, was second with a very good collection also. With six specimens, Mr. O. T. Hodges was first with denticulata, very fine; viscosa and its variety, purpurea, nivea, hirsuta, and marginata; second, the Guildford Hardy Plant Company, who set theirs up tastefully in a Moss-covered box. Noticeable in this collection was Balfouriana, with large, bright, claret-coloured flowers. Mr. R. Dean was third, having a finely-formed P. obconica and a pretty lilac-coloured form named Peyritschii. Messrs. Paul and Son were first, and Mr. R. Dean second, for baskets of Primroses.

Certificates of merit were given to the following

new Auriculas: Mrs. Henwood, green edged, raised by Mr. Samuel Barlow, Manchester, a very finely-fringed variety of robust growth; exhibited by Mr. T. E. Henwood, of Reading. Certificates of merit were also awarded to the following alpine: Mrs. Walker, maroon, shaded with salmon-red, raised and exhibited by Mr. T. E. Henwood, of Reading; John Bright (Turner), dark ground, shaded with delicate orange-salmon, very fine, and Primrose Queen (Turner), dark ground, with rose shading paling to silvery-grey—both exhibited by Mr. Turner; Mrs. Douglas (Henwood), cream centre, with maroon ground, and edged with rose shading to silvery-pink—a very pretty and pleasing variety; and Mrs. Harry Turner (Turner), cream centre, black ground, shaded with delicate mauve.

The Auricula selected for the premier prize was grey-edge George Lightbody, shown by Mr. T. E. Henwood in his first prize collection of twelve varieties.

OBITUARY.

WILLIAM BARRON.

WE are very sorry to have to announce, at the advanced age of eighty-five, the death on the 8th of April of Mr. William Barron, of Borrowash, whose name was so well known among gardening people. He was born on the 7th of September, 1805, at Eccles, in Berwickshire, and having early shown a love for gardening, he went as an apprentice in the gardens of Lady Boswell, Blackadder. He afterwards went to the Botanic Gardens, Edinburgh, under Mr. William McNab. Here he remained for two years, and wishing to know something of Pine growing he was sent to Syon House. He was then appointed in 1830 to lay out the grounds at Elvaston Castle, Derbyshire, for Charles, the fourth Earl of Harrington, with whom he remained for over twenty years. During this period he began and completed one of the most curious gardens in Great Britain. All the finest specimens of Coniferae, including many large old Yews, that could be obtained were brought to and planted at Elvaston. Shortly after the death of the fourth earl, Mr. Barron published a work under the title of "The British Winter Garden." Mr. Barron would not allow a second edition to be published until he had thoroughly revised the work, but unfortunately he was never able to do this. He was known not only as a landscape gardener, but as an authority on Conifers. Soon after the death of the fifth Earl of Harrington in 1862, Mr. Barron's nursery at Elvaston having largely increased, he bought about 40 acres at Borrowash, within a mile of Elvaston, and to this he gradually transferred his stock. His son having now joined him, he in 1865 resigned his appointment at Elvaston and went to reside at Borrowash. One of his greatest feats in tree moving was when he successfully removed the Buckland Yew, over 1000 years old. The last work he took any active part in was laying out the Abbey Park, Leicester. He was summoned as the first witness before the Royal Commission on Forestry in 1887. Up to the time of his death his faculties were unimpaired, with the exception of his wonderful memory, which somewhat failed him after a severe illness he had in the spring of 1890. He was one of the pioneers of the temperance cause at a time when it was more difficult to inculcate its doctrines than at the present day.

Mr. John Dykes.—Mr. John Dykes, nurseryman, expired at his residence, Dundonald Road, Kilmarnock, on Friday morning last, aged 80 years. He had been for a considerable time in infirm health. The deceased had for upwards of fifty years carried on his business as the successor of Dykes and Gentles. He was one of the most pro-

minent authorities on agriculture in the west of Scotland, and was appointed a member of the committee of the agricultural section of the International Exhibition at Glasgow.

W. M'CORQUODALE.

MANY of our readers, not only in this country, but in widely different parts of the world, will learn with deep regret of the death on the 17th April, at the age of eighty-one, of Mr. William M'Corquodale, forester to the Earl of Mansfield. He was a man who enjoyed the love and esteem of all who had the good fortune to be acquainted with him. As a forester he had acquired a European reputation. Until last spring Mr. M'Corquodale was in the enjoyment of excellent health, but at that time he suffered from the epidemic of influenza, and although he was able to resume his duties, he was never so robust as formerly, and towards the latter part of September he was entirely confined to the house as an acute sufferer with little hope of recovery. Mr. M'Corquodale was born in Argyleshire, and received part of his training at Stonefield. In 1838 he entered the service of the Earl of Mansfield, and for many years has been the acknowledged father of forestry in Britain. In May, 1880, he completed his fiftieth year as a practical forester, and on October 5 following, at the annual dinner of the Scottish Arboricultural Society, of which he was one of the original members and staunchest friends, he was the recipient of a valuable testimonial, consisting of a handsome gold watch and a purse of 100 sovereigns, with a brooch for Mrs. M'Corquodale. During the long period he has been connected with Lord Mansfield's estates he has planted and reared many thousands of acres of woodlands with the greatest success, thus not only enhancing the beauty of the landscape in what were formerly desolate portions of the county, but adding immensely to the value of the property. Oak, Larch, and Scotch Fir were the varieties which he most largely cultivated, but all other species and varieties of British timber have found a home under his care on the Scone estates. Still, it is as the pioneer planter of the newer Coniferae on an extensive scale, as a regular forest crop, that Mr. M'Corquodale's name will be best known to future generations. When he first took charge of Scone woods, the taste for planting ornamental Conifers was just developing, fostered by the splendid introductions of Douglas (himself a native of Scone) and others from the north-western seaboard of America. Of these noble trees, Mr. M'Corquodale had the greatest faith in Abies Douglasi, which he regarded not only as a beautiful ornamental tree, but as a valuable timber tree as well. He commenced in 1857 by planting 13 acres of poor moorish soil with Douglas Fir, and he was so well pleased with the result, that in 1860 he planted several acres on Taymount Estate, alongside the Highland Railway between Stanley and Murthly, with Douglas Fir as a permanent crop. This is now a pure Douglas Fir plantation, and from its singular beauty readily attracts the attention of observant travellers. The success which so far crowned his efforts led him to extend his experiments at Lynedoch, Logiealmond, and Scone, with the most gratifying results.

He, happily, lived to see his early beliefs justified by results. These experiments brought him into notice not only all over Britain, but in various parts of Europe. From his extensive experience, Mr. M'Corquodale was frequently invited to act as a wood valuator and surveyor, and, through the kind indulgence of his noble employer, he was privileged to inspect and report upon the woods of a very large number of estates in Scotland and England, his opinions and recommendations being held in the highest estimation by landlords and others. Many of his most valuable contributions to forest literature appear in the "Transactions of the Scottish Arboricultural Society," from whose annual meetings he was only once or twice absent since the formation of the society in 1854, and in which he held various important offices. He is survived by a widow and a family of grown-up sons and daughters, for all of whom there will be widespread sympathy.—*Perthshire Constitutional*.

WOODS AND FORESTS.

CULTURE OF THE LARCH.

THE common Larch (*Larix europæa*) is indigenous to Central Europe, as well as portions of Northern Asia, and is said to have been introduced into England about the year 1629. No other tree that has been introduced into this country has proved so valuable as the Larch, its timber being so useful at all stages of its growth. In the cultivation of this tree in this country the most important point is the proper selection of seed. To using inferior seed the produce of trees in the decline of life, as well as such as are affected by disease, may be traced the first step in the production of a weak degenerate progeny. Although diseased trees often produce considerable quantities of cones, yet these are generally of a small size, and the seed inferior in quality. Trees that have been allowed plenty of space for their full and healthy development, and that are of a sound constitution, are the best and produce by far the finest and most equal sample of sound seed. I have sown both kinds as an experiment under the same conditions in the same seed-bed, and although the seed from the former class of trees had not lost its vitality, yet the plants produced were weakly and much smaller. Although the cones attain their full size in autumn, they should be allowed to remain on the trees during winter to be thoroughly ripened by the frost. Under these circumstances it will be seen that the selection of plump well-filled seed from healthy trees is a matter of paramount importance in the successful culture of the tree. In spring, where the tree reproduces itself naturally the seeds are extracted by the alternate heat of the sun and showers of rain. As there is a considerable difference in the size and quality of the seeds, and as all are scattered in an irregular manner, some of the plants as soon as they appear above ground are small and weakly, while others are strong and robust.

Under cultivation the cones very frequently are not allowed proper time to ripen their seed previous to being collected, as I have known them to be gathered, the seed extracted by artificial heat, and delivered to the nurserymen in December. I maintain that half-ripe cones gathered in autumn, and often from inferior, diseased trees, produce an inferior sample of seed; consequently, the progeny is weak and wanting in that stamina which is so necessary for the healthy development of the tree. But the evil does not stop here. When the seeds are sown, all that germinate—small and great alike—are coaxed and nursed into plants for the market. Under such a system of management we need not be surprised that the Larch is on the decline. When the constitution of the trees is impaired from infancy, they are the less able to resist and combat disease in after life, this in a great measure accounting for their dying off suddenly at different stages of their growth. Much has been written of late regarding the Larch disease, but the testimony brought to bear on the subject is of a very conflicting nature. Some tell us to use only those trees raised from seed collected in this country, and that trees raised from foreign Tyrolean seed are the chief cause of the many failures which occur here and there in different parts of the country. Nurserymen, as a rule, do not like Tyrolean Larch; they say the trees are too tender for our climate and are liable to suffer from spring frosts, and that trees raised from home-saved seed do not start to grow so early in spring as the former, and consequently are in a great measure exempt from such injury. This is perfectly correct. Trees raised from properly matured foreign seed commence to grow earlier in spring than such as are raised from home-saved seed. As a further proof of this, I may state that home-saved seed requires to be sown much thicker than foreign seed in order to raise a similar number of plants on the same space of ground. This shows clearly that there is a weakness in home-saved seed as compared with foreign, and this can only be attributed to the degeneracy of the tree and carelessness in the selection of cones.

The Larch is liable to contract different forms of

disease, some of which are brought about by unsuitable soil, others by adverse climatic influences, and others by constitutional weakness. Much confusion has been caused by writers on the subject speaking of them all as simply the Larch disease, without giving any definite explanation as to the cause of the different forms. The most critical period for the Larch is spring and autumn, and when the trees get over these periods scathless they are then safe; on the other hand, should the foliage get seared by late spring or early autumn frosts, the natural flow of the sap is suddenly arrested and small blisters are formed on the stem of the tree. This is the first stage of the disease called ulceration or blotch. In Ireland, where the climate is more genial and the frost less intense and of shorter duration than in Great Britain, such a thing as ulceration in the Larch is unknown. I spent some twenty years in that country planting and renovating plantations, and I never met with a single case where the Larch was affected with that disease. Poor, thin soil resting upon a hard impervious subsoil, dry, hard gravel, loose sand and shingle, and stiff adhesive clay all produce heart-rot and pumping. The Larch disease proper is, however, very different in its origin and mode of attack from any of the former, and is caused by a fungus which occasionally attacks weakly plants in the seed-bed, when they soon become shrivelled up and die off in large quantities. Sometimes young plants affected with this fungoid disease are removed from the nursery and planted in the forest, where they often grow for a series of years, but die off suddenly without any apparent cause. The Larch requires plenty of space; therefore cultivators should pay particular attention to early and judicious thinning.

J. B. WEBSTER.

Thinning plantations.—This should in all cases be proportioned to the exposure, and should be lightest upon the margins which are in the direction of the prevailing winds of the district. Where the thinning has been hitherto neglected, it should be gradual and extended over several years, otherwise the sudden exposure may cause permanent injury. The less the crowns are isolated until the trees have attained their height, the better for the future crop, as by too much opening out, the growth in height is suddenly arrested. Besides, at this stage of their growth the small diameter of the bole in proportion to its height renders the tree the more liable to grow crooked.

Alnus cordifolia.—For ornamental planting the heart-leaved Alder is a more desirable tree than our native Alder (*Alnus glutinosa*). The fruiting catkins are much larger than those of the last-named species, and the longer and more showy greenish yellow male catkins, developed in great profusion even at the beginning of February, impart a distinct and striking aspect to the tree, which is, moreover, one of the quickest growers of all the Alders. For planting by water or in damp situations, the heart-leaved Alder is one of the best of deciduous trees, being quite as hardy as the common Alder itself; it is a native of Southern Italy and Corsica.

Seasoning timber.—Trees, immediately after they are felled, unless they have been previously killed, contain a great deal of moisture, and are, therefore, unfit for use until they undergo a seasoning process. This is simply the evaporation of the water, which if allowed to remain in the tree would ferment and decay, and if dried out too rapidly would leave the timber brittle, because the gum and other matters in the wood would evaporate with the water, instead of gradually assimilating with the fibres, and tending to bind them together, as is the case where the drying is properly conducted. How to accomplish this is the principal thing, and there are many means of doing so. Some people say placing timber in a running stream for a time before stacking helps seasoning and renders it less liable to decay. But it is not always convenient nor is the timber as good as if seasoned in other ways. Some say leave timber in the bulk some time before cutting it into planks. There is great danger in doing this, for if there are any cracks

through the bark to allow the moisture to lodge in, decay is certain. The best way is to cut the timber into planks at once after felling, and place it in a store or shed with good ventilation, but no violent draughts of air and no moisture. The floor should be perfectly dry and the roof lofty. In stacking the timber it is well, when convenient, to stand the planks on end, the root end upward, and well raised from the ground. In all cases, each plank or board should be separated from the next one by laths, to allow the air to circulate freely between them. After being in this position for four or five months it is well to reverse them, and brush off with a hard brush any moisture or mildew that may appear. Timber seasoned in this manner proves the toughest and most durable. In seasoning, hard woods take about one year to the inch, and soft woods much less.

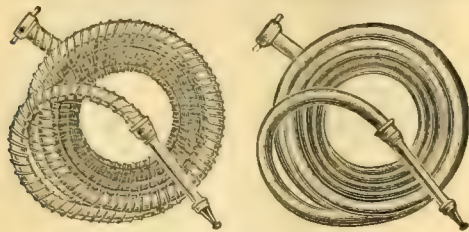
The Weeping Mountain Ash has probably received as much attention as any weeping tree, on account of its distinct and curious habit. A careful examination of its mode of growth cannot fail to excite wonder. If worked 2 feet or 3 feet from the ground and allowed to grow wild, it soon becomes as odd a piece of framework as it is possible to imagine. Grafted 6 feet to 8 feet high, it becomes a very desirable lawn tree, and in the autumn, laden with large clusters of bright red fruit, it produces a brilliant effect.

Picea orientalis.—For dry spots with a poor gravelly subsoil, where the common Norway Spruce refuses to grow, or only drags on a miserable existence, and generally soon becomes infested with red spider and looks very wretched, the Oriental Spruce can be strongly recommended. It is true it is not a remarkably fast grower, but it forms a neat, compact pyramid of vivid green, and produces its pretty small cones in profusion. As a single specimen on a lawn where larger-growing trees would be out of place, it cannot fail to win the admiration of lovers of trees.

Filling up holes in tree stems.—Far too frequently it happens that in old specimen hardwooded trees the trunks are rendered unsightly by holes caused either by natural decay of the wood or an accident, and when such trees are growing in conspicuous positions and the wounds near the ground level, they become most unsightly, and steps should at once be taken to set matters right, either by removing the trees or filling up such holes in the stems. Apart altogether from being unsightly, such holes exercise a powerful influence in causing rottenness throughout the whole stem in which they occur by forming as it were inlets for water. To fill up such holes is easy enough, and after repeated experiments I find the following method of doing so to answer better than any other previously tried. Scrape out and remove every particle of damp decaying matter from the hole, fill it with dry broken brick-bats, cement the surface evenly over with the bark, and paint it as nearly as possible the colour of the bark. Several diseased holes so treated on old Oak trees I lately saw could now hardly be noticed, and I have every reason to believe that from the number of years since the experiment was tried and the present healthy appearance of the trees, the filling up of such holes has had a wonderful effect in staying and arresting disease and rot. The experiment is both cheap and simple, so let everyone who has an eyesore of an Oak with a holed stem set about filling this up at once with old brick-bats and cementing the surface with concrete. Nailing a piece of zinc over the hole has been tried, but, however carefully this may be done, dampness is sure to set in and ruin the stem. Clefts between upright-growing branches, that are but harbours for rain water, may be treated similar to the Oaks above described, and the surface of the concrete tarred over. The tar has a wonderful effect in keeping out damp and preserving amputated limbs and smaller branches from contracting rot.

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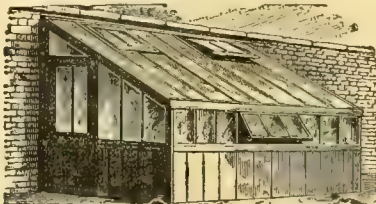
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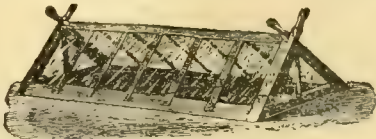
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No. 1015. SATURDAY, May 2, 1891. Vol. XXXIX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

KITCHEN GARDEN.

MAIN-CROP PEAS.

A SUCCESSION of Peas throughout the summer months and even until the approach of autumn is of the greatest importance, but yet in many gardens this succession is not maintained, and after the first flush of earlies and what I may term second earlies, good Peas are conspicuous by their absence. Considering the importance of the Pea crop, every care should be taken to maintain the supply. Good culture must prevail throughout, and the selection, or rather preparation of a suitable plot of ground is of primary importance. Peas will not succeed on poor ground or when phosphates and potash are not present, and it is often to the absence of these that failures in the Pea crop may be traced. Failures with Peas generally occur in old gardens which are very rich in humus, but deficient of the above-mentioned properties or even lime. In many gardens, and especially in country gardens, it is the rule to manure the kitchen garden with what one may term trimmings, decaying leaves, and general pleasure-ground refuse. Anything worse could hardly be applied. Such material is the better for being burned in a smother, and the ash remaining returned to the soil. Of late years in some gardens the Peas have suffered very much from a disease which attacks the haulm before the crop comes to maturity, and I am under the impression that in the majority of cases the disease could be traced to the use of such material as I have mentioned. To such soils a good dressing of fresh slaked lime would be of the greatest benefit, also dressings of wood ashes and well-burned garden refuse. Failing this, potash could be applied in the form of kainit (sulphate of potash) or muriate of potash. Superphosphate of lime is also an excellent addition even on limestone soils. Farmyard manure whenever it can be had is very suitable for Peas. Peas succeed best on soil that has been deeply worked and well enriched. On poor and badly worked soils the crop quickly succumbs during a dry time, and even when kept well watered. As a rule the rows of main-crop Peas are sown too close together. With the earliest crops the lines can well be closer together, but with the later crops the rows should be as far apart as is consistent with the ground at disposal.

It is a good plan to have the rows as far apart as will allow of dwarfed crops of other vegetables being placed between. This system will allow of the full light and sunshine reaching the bottom of the haulm, that is if the rows run from north to south, as they should do. With the rows placed at a distance apart the Peas commence to form nearer the ground than they otherwise would do, and the haulm does not draw up. Mildew, again, is not so liable to attack the haulm. In some seasons mildew is more prevalent than in others, and it attacks those Peas the quickest which are being grown on poor and badly worked soils. On light soils especially it is much the best system to prepare trenches for sowing the seed. The trenches should be taken out 15 inches wide and 1 foot in depth, placing over the bottom a layer of good manure, and filling up with soil to within 3 inches of the top.

The seeds should be scattered thinly over the trenches and covered over with 2 inches of soil. Crowded sowing must be avoided, and if the Peas are scattered so that they lie 2 inches apart over the trench it will be much better for the future of the crop. The advantage of sowing in trenches on light soils will be seen during a dry time, as the trench will allow of water being more easily applied. On heavy soils it is not necessary to form trenches, for if the soil has been deeply worked it will suffice. A good wide drill should be taken out, so that the seeds can lie evenly over the bottom. Drawing drills with a corner of a hoe is an evil to be avoided, for when such is adopted the seeds trickle down along the bottom, and the young plants are very crowded when they appear. To show the advantage of thin sowing our most prominent exhibitors allow the seeds to be quite 3 inches apart in the rows, with advantage to the future crop.

With the appearance of the young Peas enemies appear also. During a wet time slugs are often very troublesome, but dustings of soot and lime will ward these off. Sparrows are also very troublesome. Running thread from end to end along the rows baffles them considerably, but where they are very troublesome wire Pea guards are the best. In country districts, and especially near woods, we have to contend with worse enemies, such as wood pigeons and jackdaws. Where there are only sparrows to contend against, these leave the Peas alone after they have grown an inch or two, but not so the pigeons and jackdaws, as these keep on feeding off the Peas until they are 18 inches or more in height. In the case of the jackdaws, if one is shot and hung up near the rows, it generally scares the others away. The staking of the Peas must have attention, for when they once commence to fall over they do not afterwards take kindly to the sticks. The young Peas also come on a good deal better when they have something to cling to. Where sticks are difficult to procure, the galvanised Pea hurdles may be used; but after considerable experience of them in a large way, I much prefer sticks. During a dry time, and especially on light soils, watering must have attention, not in daily dribbles, but in thorough weekly soakings. Being sown in trenches, the water which is applied reaches direct to the roots. When the precaution is not taken to sow in trenches, the rows should be well earthed up previous to staking; not, however, by drawing the soil close on to the Peas, but wide enough to form a trench. Mulching is of the greatest assistance on the approach of a dry time, and whatever material is used should be placed along each side of the row to quite 30 inches. For the production of Peas for exhibition, the plants must have generous treatment from the first. For the production of fine pods, topping the haulm after five or six pods show must be adopted, so as to ensure fine produce. In gathering the pods for exhibition great care is necessary not to disturb the "bloom" on the pods. When required to be carried some distance, the bloom is the least displaced by placing the pods in layers between common Nettle leaves, which preserve the "bloom." For Cucumbers when required for exhibition, or even such fruit as Plums, leaves of the common Nettle are the best packing material.

A. Y. A.

Cucumber Lockie's Perfection.—When I first grew this novelty it did not appear so robust and generally serviceable as the old Telegraph, but this season I have already had good reason to think differently. Under exactly similar treatment

it was the first to produce fruit fit to eat, and the plants are equally as vigorous and prolific. As far as appearance goes, Telegraph, compared with Lockie's Perfection, is simply nowhere, the latter being, perhaps, the handsomest Cucumber in cultivation. The fruits are of medium length, perfectly formed, and of a rich green colour. Exhibitors ought to make a note of this, and it is not yet too late to give it a trial this season, especially seeing that healthy young plants usually produce the most perfect fruit.—I.

SEAKALE IN SEAWEED.

THE note of your correspondent "M.S." (p. 377) reminds me of what so many cultivators seem wholly to forget, that the Seakale is not only a native plant, but may still be found in masses on the east coast near Dovercourt, and doubtless many other places. I have gathered it there myself excellently blanched under the sand on the beach, and have also used seaweed for its culture and blanching. The difficulty inland with existing railway rates is to obtain seaweed, unless at prices absolutely prohibitory; otherwise there are few better manures for Seakale, Asparagus, most of the Brassica tribe, and Celery than seaweed in various stages of decomposition and degrees of admixture with farmyard or other manures. The effects of seaweed on flavour and crispness as a blanching agent are also held to be superior to the usual plan of blanching under pots. It has, however, some drawbacks. If the crowns are overlaid with seaweed, the Kale may get broken down by the weight or defiled by its decomposition. It is possible to overheat it when piled together in masses, and the result is anything but sweet or pleasing either to smell or touch. One great merit of pots in the forcing of Seakale is that they virtually insulate the produce from the surrounding medium. And though, of course, this insulation cannot be perfect, it at least suffices to protect the Kale from all excess of mechanical pressure and from direct contact with the gross manures or gases that proceed from heating materials. The exclusion of gases, however, is only partial, and hence not a few connoisseurs in the eating of Seakale condemn nearly all forced samples as tasting of the heating force, whatever that may have been. Partly to get rid of these foreign flavours and partly for other reasons the common mode of forcing under pots has been abandoned, and that of covering the crowns with soil, sand, and seaweed been substituted in its stead. Mr. Carmichael, when gardener to the Prince of Wales at Sandringham, grew Seakale extensively on a hybrid system combining the merits of the direct covering of the crowns with earth, and stimulating them gently with fermenting manures. The crowns were planted in rows in clumps of two or three plants at a distance of, I think, 4 feet or more apart. They were covered with soil to a depth of a foot or 18 inches, and the trench thus formed between the lines of crowns filled in with hot manure, sufficient to exclude frost being also thrown over this. The heat thus thrown into the roots started the Kale, which came of snow-like whiteness and glass-like crispness. As the season advanced less hot manure was needed, and several of the last cuttings needed none, a timely covering of soil sufficing to produce any quantity of Kale sweet as a nut and white as snow.

It is hardly too late to try this mode of growing and blanching late crops. And yet one note of warning and of caution must be given to novices and amateurs. It is this: that it seems beyond the wit or power of man to blanch Seakale white after the tips of the shoots or buds have become tipped with purple. Hence the vital importance to success of covering the buds early whilst they are yet perfectly dormant, else streaks of colour or dashes of strong flavour will spoil the most skilful efforts to grow perfect Kale afterwards.—D. T. F.

Under this heading (p. 377) appeared a notice of Seakale, but instead of being grown in seaweed, it seems that the Kale was only blanched or grown under it, and no doubt where seaweed

can be readily procured it is a most useful article for the purpose, as the saline matter it contains agrees with Seakale and is not relished by slugs, which are sometimes a trouble in gardens. I remember being taken to task by a correspondent for recommending straw as a covering for late Seakale, but for all that, and at the risk of bringing on myself similar comments, I again say that I do not think there is anything better, save and excepting seaweed, as it is clean, light, and does not contaminate or impart any taste to the heads. I make this statement with the greatest confidence, as I have used it for years, and have at this moment every row and bed so covered, and the Kale I get from under it is always first class, as it comes slowly, is short and thick, and beautifully blanched. To get heads a little earlier I sometimes use 6-inch drain pipes that are a foot long, and fill them up with leaf-mould, as they draw the sun and so warm the soil, but earth and ashes are objectionable, as they discolour the Kale and are difficult to get out from the axils of the leaves or leaf-stalks, even though much water be used.—S. D.

Onions.—This season there is great scarcity of young Onions in the open ground, those which were sown during early autumn having been much injured by the severity of the weather. I find, however, that where the crops were transplanted during autumn when they were young and growing, they have suffered comparatively little. March was the most trying month for all crops in the ground in Scotch gardens—indeed, there was little wintry weather experienced till that time; the Onion crop then suffered somewhat. The plants which are transplanted during autumn and have a good hold of the ground before winter arrives attain to a larger size and are not so liable to run to seed as those which remain untouched till spring and are then transplanted. Dustings of fine ashes along the rows prevent the frost from throwing them out of the ground, and dustings of soot during the growing season (when weather is showery) encourage vigorous growth and ward off vermin from the roots. Where there is a large stock of old Onions left and to spare, they may be planted thickly and young growth is soon active. This will supply tender and mild produce till the crop of spring-sown is ready for use. Though I expect to have old Onions in good condition till June, those old bulbs planted early in March will be most useful and greatly valued.—M. T., *Stirlingshire*.

SHORT NOTES.—KITCHEN.

Broccoli.—The past season has been most trying for the Broccoli crop, and where frost has not destroyed the plants they will be much valued. It would be of much advantage to cultivators if some detailed account of the Broccoli crop were given, stating the numbers per cent. of kinds which have survived the winter and on what soils they grew. I notice that there has been little damage to the crop where the soil is dry and not rich. The hardest late Broccoli growing beside many other kinds is Cattell's Eclipse, an old favourite and thoroughly self-protecting.—M. T.

Protecting early Potatoes.—Potatoes which were planted early, so as to secure produce for early digging, will, if they appear above the soil much before the 10th of May, require some protection in case of injury from frost. Although planted early, the young tops are considerably later than usual in appearing above ground; however, when they do appear, a little dry soil drawn over the tops over-night is often the means of saving the crop. A little light litter, evergreen boughs, and even hoops and mats placed over the rows may all be adopted with considerable benefit to the crop. It does not do to neglect such precautions, for when once the tops are cut off, the produce besides being late is very small.—Y.

Celery.—The most useful kind of Celery, and the one which stood the winter best, is Major Clarke's Red, a favourite old sort. Were I confined to grow one kind it would be this. I expect to have a good supply up to May or June from plants grown in shallow ridges, moderately manured, four rows in each ridge. No protection of any kind was given and the loss has been small. The latest crop (now in use) was sown early in April under a hand-light and grown in the usual

way; mulching was used liberally after the first and only watering. The white kinds did not do so well as the reds last season, being liable to damp off. I believe in planting the crop nearly on a level with the surrounding ground, thus allowing the roots to run into a good depth of soil and rendering them less subject to the ravages of damp.—M. T., *Stirlingshire*.

ROSE GARDEN.

ROSES ON THEIR OWN ROOTS.

PROBABLY no one will question the truth of the statement (*THE GARDEN*, April 25, p. 390) that Roses on their own roots "have never been fairly tried in our gardens," because it is only in comparatively recent years that we have thought of or in a small way attempted to grow them in this manner. Most of us are agreed upon the one best stock for dwarf Roses, and why should we not give up foster roses, since we now know that all, or nearly all of the best Roses succeed upon their own roots?

The great American growers report most favourably upon own-root Roses, and in the extent to which they cultivate them they are far ahead of home growers. However, the trade growers at home are not likely to hurriedly give up their old practices, although doubtless ere long some of the more enterprising of them will be prepared to meet modern demands in this respect. After all, the trade are not solely to blame. Rose purchasers will insist upon having young strong plants at the lowest possible price, and the nurseryman endeavours to produce them as quickly and cheaply as possible. Those who have tried to raise own-root Roses for themselves soon find out that from a nurseryman's standpoint it would not be a profitable occupation if plants must be sold at the price and of the strength they now are, because if a cutting strikes ever so easily, a longer time must elapse before the plant is fit to send out than is the case when a bud is inserted in a stock well provided with roots which force it into vigorous growth. Certain it is that the maximum of good and the minimum of evil result from the practice of budding at the present day, that is, when dwarf stocks are used and budded low, because if the point of union be buried an inch or two at planting time, the buried portions of the Rose shoots are almost sure to put forth roots. The only trouble is an occasional sucker from the foster roots, which, of course, would be got rid of if we only grew own-root plants. Moreover, if all are condemned to live or die upon one common stock, it must in fairness be admitted that that stock is not very particular in its likes and dislikes. It may be found alike upon the clay banks of North Sussex, the chalky banks of Kent, and here in Suffolk some of the finest bushes are upon sandy roadside slopes where Brake flourishes. And to its suitability for varied soils must we in a great measure attribute the successful present day state of Rose cultivation and popularity.

It will be a long time, if indeed we ever give up budding Roses low upon Brier stocks, because it is certain all Roses will not do upon their own roots. When The Bride first came out, I planted in heavy loam twelve own-root plants which had been sent from America, and they never did much good, although now we regard this kind as one of the best Tea Roses. Still, however, such vigorous growers as Marie Van Houtte, Anna Olivier, and others are perfectly satisfactory. Provided we can get a kind to grow strongly on its own roots, there is no doubt in the end that that would be the best way of

growing it. Many years must elapse before we can know which is the longest liver, although, of course, we should be inclined to regard the own-root plant as surest and safest.

Its chances of suffering from climatal vicissitudes are almost remote, for if killed to the ground, or even an inch or two below, like a herbaceous plant, it would probably come up again. Future Rose growing will probably be a compromise between the two methods. Roses on their own roots will be grown extensively, but budding will continue, because there is no surer, safer way of quickly obtaining a stock of some good new kind. I think all Rose lovers must confess to a desire to quickly possess any novelty of known unquestionable merit, and the patience of some would not be equal to waiting for plants from cuttings, nor could the many be so soon supplied. Once purchase a plant, whether budded or grafted, it is a simple matter to do what some do now, and hundreds will in the near future proceed to make cuttings when there is wood fit for the purpose.

A. H.

ROSES ON IRON PILLARS.

I HAVE seen several articles in your paper lately referring to the planting of Roses on iron and wire, &c. I have no pretensions to argue with any of your correspondents, who, no doubt, know better than I do, but I should like to give you my experience so far as my own garden is concerned. I have Roses planted against stone, brick, wood, iron, wire, and in the open, and I can detect no difference anywhere; no, not even in a bed of Tea Roses I had covered. Wherever planted the effect has been just the same. They have lived in all aspects against stone, brick, iron, and wire. They have died to the ground in every position, and they have died altogether wherever planted. Those that have suffered the most are the Teas; the hardest and those which are not affected at all are the Moss Roses, and I have some very delicate ones, if such a thing exists. For instance, on an iron trellis I have a Moss Rose and a Cheshunt Hybrid side by side. The former is alive to the tips; the latter is dead to the ground. On another I have an Isabella Sprunt, a Mrs. John Laing, and a Moss. The first is dead to the ground, Mrs. John Laing has suffered but little, and the Moss not at all, and it is the same all over the place, protected or unprotected, in the open and against walls, pillars, and posts, wire or iron standards.

I have dozens of cordon fruit trees on wire and iron standards, and not one has suffered. With this result before my eyes, I cannot blame the iron more than anything else, and I have, therefore, looked elsewhere for the cause of the havoc done by the past severe winter, and the conclusion that I have come to is this: that the damage was done not so much by the intense cold, but by a fall of snow and a quick thaw between two intense frosts of long duration. If you remember, we had a severe frost, then a fall of snow followed by a quick thaw, and subsequently several weeks of great cold. What happened? All the Rose trees were damp in patches with melted snow and drizzle; then came the intense frost and burnt these patches as though they had been in the fire, destroying the bark, the pith, and the sap ducts. The Moss Roses were saved by their mossy, thorny stems. Some Roses, or branches of Roses, escaped by reason of their position or the angle at which they grew; this I advance because in some cases I find the old wood dead and the young wood alive, and *vice versa*.

My bed of Tea Roses was covered with straw and Bracken, but the snow penetrated and trickled down the stems, and the frost was acute enough to freeze the moisture through the covering. They were all dead to the root, but, thanks to a thick layer of cocoa-nut fibre, no further.

So I do not intend to condemn my iron, but I do intend to pile up a foot of cocoa-nut fibre round the bases of my Rose trees next winter, if I am alive.

J. WHITWORTH SHAW.

ORCHARD AND FRUIT GARDEN.

NOTES ON PLUMS.

VERY rarely are the trees generally so well furnished with flower buds, and to all appearance the earliest to open are setting well. Personally, I would have preferred fewer flowers, these being stronger and more likely to be followed by fruit. Everything depends upon the weather experienced, not merely while the flowers are open, but during the next few weeks. What appears a good set may yet be completely marred by a spell of cold ungenial weather, but in the absence of severe frosts and with genial showery weather, rather than a continuation of easterly winds and bright sunshine, the crops should be enormous. With me Plums succeed admirably on a south-east wall, and from the trees on this site I obtain the earliest and surest supplies of fruit. The first to flower was a strong tree of Dry's Seedling, a good set promising, and that too in spite of the slowness of the flowering period—Plum trees never, to my knowledge, remaining so long in a gay state.

DRY'S SEEDLING, though but little grown, is one of the most productive kitchen Plums in cultivation. It is of very sturdy growth, the foliage being correspondingly strong, and a complete failure has not occurred for the past five years. The fruit, which ripens by the middle of August, is large, round, of a dark red colour, and fairly good in quality.

VICTORIA, growing alongside it, is fully ten days later both in flowering and ripening, and, all things considered, perhaps the most generally serviceable Plum in cultivation. In all probability there are as many trees of Victoria grown in this country as any other four varieties that can be named. No mistake can hardly be made with it, while, though classed as a kitchen variety, the fruit, if the trees are not over-cropped, is quite good enough for dessert. So freely does the fruit usually set, that it is advisable to commence thinning out when it is no larger than Peas, the final thinning being delayed till the Plums are large enough for pies. An excellent companion for the Victoria will be found in

THE CZAR, one of the late Mr. Rivers' seedlings, and though classed as a kitchen variety, quite good enough for dessert. It is a moderately strong grower, yet remarkably prolific either in the open as a standard or against a wall. The fruit, which is large, roundish oval in shape, nearly black in colour, ripens early in August, or well in advance of that of Victoria. The Czar is very extensively grown in Lord Sudeley's orchards at Toddington, and is being rapidly increased.

RIVERS' PROLIFIC, a very heavy cropping variety of small size and second-rate quality, is worthy of cultivation on account of its being the earliest to ripen, and as perhaps one of the best for market growers. For wall culture I prefer

THE MOROCCO, a very old variety seldom met with. On quite cool walls it ripens early in August, and seldom fails to bear well. The fruit is medium sized, round, of a dark purple colour, and fit for either dessert or kitchen.

EARLY ORLEANS grown against a west wall rarely fails to bear well, and is quite suitable for dessert, but in less favoured positions must be classed as a cooking variety. It is a good sort for the markets, forming a moderately large, productive tree. The fruit is of medium size, round, with flattened ends, colour dark red, and when well ripened somewhat given to cracking, being fit for use about the middle of August.

MITCHELSON'S scarcely merits wall space, but forms a very profitable standard, and is a reliable bearer. The fruit is moderately large, oval in shape, and dark red in colour; quality second-rate; ripe late in August.

PRINCE OF WALES succeeds well in some localities, and this also is a good market Plum, the same remarks applying to the larger fruited Goliath.

PRINCE ENGLEBERT grown as a standard forms a stiff erect head, and bears very heavy crops of large oval-shaped, purple fruit, which sells well in the markets, but is only fit for cooking. It thrives admirably on our heavy soil.

WHITE MAGNUM BONUM is a very fine variety, succeeding well either as a standard or against cool walls. It is really a cooking variety, but is not to be despised for dessert.

POND'S SEEDLING I care little about. Its great

shire, and from thence largely distributed through the country. The fruit is somewhat small, oval in shape, and of a dirty or greenish yellow colour. It is one of the best for making into preserves.

GISBORNE'S forms a compact head, and produces larger fruit in great abundance. This also was strongly recommended to me by Lord Sudeley's manager at Toddington.

Private gardeners ought always to grow the best of the dessert Plums most extensively, for

the simple reason that they are also, as a rule, by far the best for cooking or making into jam. For instance, any member of the Gage family is most acceptable for dessert, and there is no mistake about the superiority of the preserve that can be made from them. Of these, the earliest to ripen is the

JULY GREEN GAGE, this differing from the ordinary Green Gage in point of earliness only, the former usually being fit for use about the first week in August, or about a fortnight earlier than the latter. Both succeed well against moderately warm walls, and trees against north walls also bear freely, but naturally the fruit is not so good in quality as that grown in more sunny positions.

PURPLE GAGE is of much the same habit of growth, the quality also being first-class. All three are extensively planted as standards, but with us the fruit on trees in the open cracks so early and so badly as to render it next to worthless.

TRANSPARENT GAGE, frequently shown under the name of Green Gage, is quite distinct from it. It is a very excellent variety, and well worthy of a place on a west wall; the fruit, of the same form, but larger than that of the true Green Gage when ripe, this being late in August, is of a clear pale yellow dotted with red, the skin being very transparent.

GUTHRIE'S LATE GREEN is one of the best late Plums in cultivation. It is a good grower and a sure bearer as a wall tree, the fruit being large, of the Gage shape, green in colour, and rich in quality. Ripe late in September and keeps well.

OULLIN'S GOLDEN, an illustration of which accompanies these notes, is also frequently included in the Gage family, and rightly so, I think. It is of strong, yet very fruitful habit, very rarely failing to produce a good crop of moderately larger roundish oval fruit, which when ripe is of a rich golden colour, dotted and blotched with crimson on the exposed side, while the flesh is almost as rich as that of the Green Gage. I have frequently gathered it from a tree on a south-east wall early in the second week in August, and consider it one of the best for the early August shows.

DE MONTFORT is a capital purple companion for



Fruiting branch of Plum Oullin's Golden Gage.

size is its principal recommendation, and being rather late in ripening is another point in its favour.

PERSHORE grown as orchard trees crops enormously, but Gisborne's is an improvement on it. The former is very extensively grown in Worcester-

the latter, though it does not belong to the Gage family and is of somewhat slender growth. Our tree seldom fails to give a good crop of moderately large, oval-shaped fruit of a rich purple colour, and covered with a pale blue bloom. It ripens early in August, hangs well, and is richly flavoured.

JEFFERSON'S, when well grown, is perhaps more attractive in appearance than any other variety yet named, the fruit, ripening late in August, being large, oval in shape, of a rich golden-yellow, with red dots on the exposed side, and of delicious quality. Added to this, the tree, if given the benefit of a wall, any aspect answering well, is of sturdy productive growth, a long succession being had by varying the sites.

KIRKE'S is in every respect an admirable companion for Jefferson's. The fruit is large, dark purple in colour, and of excellent flavour. This succeeds well in the open. The last to be mentioned is

COE'S GOLDEN DROP, and this I hold to be the most valuable Plum in cultivation. Although not often recommended for planting in orchards, I have yet seen it succeed admirably in such positions, and even if the fruit does crack somewhat it can yet be made into a preserve nearly or quite equal to that of the Green Gage. I have trees of it against walls with four different aspects, and from these I usually obtain a supply of fine fruit from the end of August to November, Coe's Golden Drop being one of the best keeping varieties that can be named. The fruit is large, oval in shape, tapering towards the stalk, and when ripe of a bright yellow, with red spots on the exposed side. Room ought to be found for this variety in the smallest of gardens.

Should the present good prospects be realised, there ought to be grand crops of Plums this season and good opportunities afforded of testing and comparing the merits of the different varieties. Only the best should be retained, the inferior sorts being replaced or regrafted with those worth growing. Prunings duly plunged in cool quarters are very late in moving, and it is not yet too late to graft, and in July or August good opportunities of budding stocks ought not to be lost. I. M. H.

Pear blossom.—The majority of the trees, both against walls and in the open, will soon present a very beautiful sight, the contrast of white, or nearly white, flowers with the delicate pale green of the young leaves being very pleasing. Probably the Jargonelle has the most perfect flowers of all the varieties in cultivation, these being extra large, of good substance, pure white in colour, and borne in large trusses. We have a tree against the south-east side of a dwelling-house on which I recently counted upwards of 300 trusses of bloom, and which will be at their best before these remarks appear in print. This Pear is really worth growing on account of its flowers even; these, besides being very effective on the tree, are equally so in memorial wreaths and crosses, and are also particularly attractive on the dining-table. Beurré d'Amanlis also has very handsome flowers, those of Marie Louise, Conseiller de la Cour, Duchesse d'Angoulême, Glou Morceau, Pitmaston Duchess, and other varieties that could be named being only slightly inferior; while the poorest flowers are those of Easter Beurré and Winter Nelis. Even the somewhat inferior flowers look well when freely used on the cloth with Fern fronds or some other greenery to show them off. With such an abundance of Pear blossom, it will do the trees good to thin this out considerably, and those who delight in novelty ought certainly to try what can be done with a few score or even hundreds of trusses. One good-sized pyramid is capable of yielding sufficient trusses for a small table, and yet plenty be left on, a too great profusion of flowers being liable to fall away wholesale and leave but few fruit behind.—I.

Two noble Pear trees.—In the issue of April 18 (p. 363) an interesting account was published of a noble specimen of the Jargonelle Pear flourishing in an area at Merrion Square, Dublin. In the capital of Scotland a similar example de-

serves to be chronicled. In this case there are two Jargonelle Pear trees, planted at the back of the dwelling-house, 31, George Square, Edinburgh, and reaching the full height of the building, viz., four storeys. I have endeavoured to trace their age, with the result that in 1801 the house was occupied by Mr. James Pringle, of Torwoodlee, and the trees were planted by his instructions on or about that date, so they have well nigh completed their century. The present tenant of the house well remembers them carrying enormous crops of from 1500 to 2000 Pears each, but I am afraid from their appearance they have suffered from neglect in not being properly pruned annually, which to some extent will account for the small crops of recent years. However, they have plenty of vitality left, and there is no reason why big crops should not again be gathered; in fact, this year they show a very fair amount of blossom. They are planted in an area, the surface of which is completely covered with Caithness pavement, with the exception of the stone cisterns, about 4 feet by 2 feet, in which they were probably originally placed.—DAVID P. LAIRD, *Edinburgh.*

INDOOR STRAWBERRIES.

ONE hears complaints from many quarters this season as to the crop of the above, and in common with other things they have suffered (especially in the immediate neighbourhood of London) from the effects of the thick and prolonged fog experienced when they were in flower. Later batches seem to be going on satisfactorily. Our earliest batch consisted of equal numbers of La Grosse Sucrée and Vicomtesse Héricart de Thury, and the latter has done the better and is the earlier of the two. I suppose, taking it point for point against all comers, this Strawberry is one of the very best for indoor work. The late Mr. Wildsmith in the admirable notes contributed to THE GARDEN always wrote of it in the highest terms; indeed it seems to have been his favourite variety, and the one on which he mainly relied. It is a variety that never gives one any uneasiness, that is, it invariably throws up plenty of flower, sets well, and swells off its fruit kindly. It also retains its flavour well in a forced state even when produced very early in the season. As mentioned above, the earliest batch of La Grosse Sucrée has not done so well as usual this year. This is a grand Strawberry and deservedly a great favourite with many, but I do not find it as a first early quite so reliable as Vicomtesse Héricart de Thury. The variety Sir Joseph Paxton is probably more in request for forcing than any other, and either in or outdoors this Strawberry is undoubtedly first-rate. The true form of President forces well. It is not, however, an easy matter to get this Strawberry true, and on two occasions I have had a break in the supply by the failure of a bad form of it, which set well, but refused to swell up its fruit and became smothered with mildew, and that, too, when other varieties in the same structure were quite free. Filbert Pine did very well indoors with me last year, and is again being grown. This is a clean-looking fruit of symmetrical shape, excellent flavour, firm in texture, and travels well. I think this, Sir J. Paxton, and Viscomtesse will be the selection for another year. Sorts that find favour in some places where size is the first consideration are James Veitch and Anguste Nicaise, and in a few establishments Black Prince is still extensively grown. Where it does well British Queen is still the queen of Strawberries, but the favoured spots are few and far between, and it is seldom met with in a forced state. Sir Charles Napier still seems a favourite with some growers, but I have not been successful with it, or, indeed, ever seen it so satisfactory as the sorts named at the commencement of these notes. Perhaps some readers who have tried Noble for forcing may give us the result of their experience. If it does well indoors it would form an admirable first early to James Veitch where size only was required. There is no doubt it will become a popular variety for outdoors, and, flavour or no flavour, who, may I ask, having once grown it will have the courage to throw it away until another variety shall

arise containing high quality and earliness? We have taken advantage of a leisure day to cut a supply of sods for layering. If they are cut in turves say 1 foot square and stacked in some corner, layering will be greatly facilitated.

Claremont.

E. BURRELL.

SCORCHING OF FOLIAGE IN FRUIT HOUSES.

THE scorching of the leaves in fruit houses, and particularly in vineries, is often attended with serious results as regards the quality and finish of the fruit. It therefore behoves those who are responsible for the well-being of the occupants to try and combat the evil as much as possible. That the foliage will be scorched in some houses and not in others must be admitted, and this even where the ventilation and other details are carefully carried out. Where such a state of things exists the fault lies with the glass the roof is glazed with. Common glass is too often used, and this, besides being very thin, is full of air bubbles, a condition highly favourable to the injury of the foliage. In the case of one vinery I have to deal with the roof is glazed with such glass, and it was some time before I could discover the real cause, as the ventilation and heating were carefully attended to. A close examination, however, revealed the fact of the presence of numerous air bubbles, some of them very small. Upon each of these being painted over with white-lead and turpentine, injury to the foliage ceased. In some instances these air bubbles had such an influence over the young and tender leaders of extending Vines, that they collapsed. Faulty ventilation, however, is at the root of the majority of evils, and especially where the heating arrangements are not efficiently carried out. Where the temperature is too low during the night and the ventilators kept perfectly close, the sun on reaching the roof raises the temperature considerably, and the moisture condenses on the foliage. On account of the sudden rise in the temperature, if no ventilation had previously been on, the atmosphere will be very close and warm, and the man in charge on entering the houses puts on a quantity of air, which, instead of counteracting the evil, adds to it by causing sudden evaporation, a state of things highly favourable to burning or scalding. Of course, the correct treatment would have been to have had a little ventilation on during the night with a comfortable warmth in the pipes, and then with increased ventilation in the morning or directly before the sun had raised the temperature, scalding would be rarely if ever known. Where the early ventilation has been neglected, air should be put on by degrees, so as to change the temperature as little as possible and gradually evaporate the moisture from the foliage. Following a dull time, a sudden outburst of sun often takes considerable effect upon the foliage on account of the want of stamina. In such cases a slight shade is often of untold benefit, but this is only necessary for a time. A little whitening and water syringed lightly over the glass will break the direct rays of the sun. Melons, Cucumbers, and even Figs are greatly benefited by a slight shade following a dull time, but only for a short time or until the foliage gets injured to the sun. When the foliage has become hardened the less shade the better, and especially in the case of Melons.

A. YOUNG.

Abberley Hall.

SHORT NOTES.—FRUIT.

Vines unhealthy (*A Constant Reader*).—Please send samples of the shoots.

Musk Melon.—Has the Musk Melon been grown and ripened successfully in this country? If so, will some correspondent be good enough to tell me what has been found the most successful mode of culture?—INQUIRER.

Strawberries.—As to the proper time to mulch or to top-dress Strawberries, opinions differ. My opinion is that when any plant is making its growth preparatory to flowering or fruiting, then is the time to supply the roots with good feeding material to meet the requirements of the plants. The best

Strawberry growing I have ever seen has been where the plants have been put out after they have been forced, say in June, and good mulching placed over the roots during September. Those which have fruited in the ground were trimmed and cleaned when fruiting was over and good rich manure placed over the whole surface of the plot. This afforded ample nourishment to the roots as well as good protection to the crowns. I notice in our plots that where a good coating of old Mushroom manure was packed among the plants the foliage is in capital order and no bad effects from frost are visible. I believe in manuring early in autumn.—M. T.

GRAFTING FRUIT TREES.

"OLD though the art of grafting may be, it is yet the best and most expeditious method of raising fruit trees in quantity suitable for orchard planting." This is the dictum of Mr. W. Crump at p. 362, and in the very restricted sense in which he evidently means it to apply, viz., in quantity for orchard planting, he may to a certain extent be right, but not wholly and absolutely right, as a matter of course. Grafting may possibly be a good way to perpetuate the particular varieties of orchard fruits, but its constant use or employment by Mr. Crump or anyone else implies his being satisfied with seedling varieties already in existence. Originally and naturally, all our fruits—good and bad—come into existence from seeds, and all grafting can do is to perpetuate these variations in a more or less—some of us think a less rather than more—effective way. My own argument is, and ever has been, that we can never rightly and fully judge of the effects due to grafting or budding unless we also have own-rooted trees of the same varieties side by side with the "worked" trees. Mr. Crump, guided no doubt by his own experience, prefers budding to grafting for certain subjects, but some of us would like to go a step further, and give a trial to grafted, budded, and own-rooted trees of the self-same varieties side by side. It is an axiom in experimental science that we must begin at the beginning, i.e., try natural results with artificial results. Were it otherwise, we should never be able to know whether nature or art be best for our own particular purposes. Now, Mr. Crump—and I say it most respectfully, for I am convinced that he truthfully records his actual experience—tells us (p. 362) that "budding is preferable for standard orchard trees;" but why is budding preferable? Even if budding is preferable to grafting, as Mr. Crump states—and to save further useless argument I may say at once that I fully grant that it is so—we are still left in doubt, and shall be in doubt until Mr. Crump is in a position to tell us that budding is not only preferable, i.e., more successful than grafting, but that it is also preferable to the same varieties layered or otherwise increased so as to be on their own roots. Mr. Crump boasts of his 200 varieties of Apples which "gives me a free hand for a few experiments with double grafting," but he does not tell us what is equally true, viz., that he has the same opportunity of making "a few experiments with some at least of this enormous number of varieties on their own roots. I am glad to see that the system of grafting which Mr. Crump prefers is "whip-grafting on our young prepared stocks quite close to the ground." Now this is a concession, but "the sticklers for own-root trees" are not accommodated nor satisfied, nor will they be until, as I have before mentioned, grafted and budded and pure own-rooted trees are tested side by side.

One very singular and suggestive feature in Mr. Crump's article, as above cited, is his careful avoidance of information so far as it relates to

the stocks he employs. He tells us of "well-proven suitable stocks for their respective kinds," which is a rhetorical flourish without any true meaning. What are these well-proven suitable stocks? and what are "the respective kinds" or varieties that do best upon them? Will Mr. Crump enlighten us further as to his best stocks for the best varieties of Apples or Plums? What stock, for example, has Mr. Crump proved to be best for Cox's Orange, Ribston, Blenheim, and Warner's King Apples? In a word, can Mr. Crump tell us what is the best stock for any one of the 200 varieties of Apples of which he speaks? Of course, I know he cannot tell us this for all soils and aspects and localities, nor do I believe he can do so for his own garden. I am justified, I think, in saying this, because from what he says towards the close of his article I infer that his stocks are reared on a haphazard plan. Here is what he himself tells us: "I have again and again proved the higher bred the Pippins are that are sown for stock, the larger percentage there are (sic) of weakly constituted plants; consequently, the more unsuitable for general purposes." Exactly so; then why does not Mr. Crump rear Crab stocks instead of sowing Pippin seeds at all? But, really, the words "higher bred" mean nothing when used as descriptive of a stock, unless these words mean inherent weakness, which I deny is always the case. So long indeed as seedling stocks are used, so long will success and failure be the result of mere chance. When we use the Quince stock for Pears, or the Paradise stock for Apples (raised, as they are, from layers or suckers), we are, comparatively speaking, on solid and definite ground; but this grafting of 200 varieties of Apples on seedling stocks is merely playing a game of chance, and that so many kinds succeed in a general way is only a proof that Nature ever tries to remedy our own cultural mistakes, and to overcome the obstacles we too often place in the way of her progress.

That grafting is "the most expeditious method of raising fruit trees in quantity suitable for orchard planting" may possibly now be true, but that it is the only and the best method I totally deny. I know of Ribston Pippin Apples on their own roots to-day which are not grafted nor "trained to wires," and yet they are healthy little trees and "extremely promising they look."

So much for the article on p. 362, which is strong in generalities and weak in reasoning from the particular. Let us look at this question of grafting fruit trees broadly and frankly. Why is it necessary to graft at all? I have yet to learn that, all things considered, the splicing of one variety on to the roots of another is an absolute gain. Things may, as I have conceded, be expeditiously increased in this way, but that they are always bettered by the process I deny. If grafting or budding were a universal benefit or gain, why not graft bush fruits, such as Gooseberries and Currants, or Figs and Vines? Has anyone yet had a better crop of Black Hamburgh Grapes from any other stock than can be had from this Vine on its own roots? If not, where is the advantage of grafting? That grafting does not give additional vigour for years after a tree is beheaded is conceded by Mr. Crump, but some of us go further and say that it may give vigour if rightly applied. That a strong scion on a weak stock does induce a more vigorous growth is a fact now well known, but the converse, a weakly scion on a vigorous stock, is not true; hence, no doubt, Mr. Crump's doubts about the matter. We must be logical about this question, and

the first step to be investigated is the behaviour of any special or particular variety on its own roots before we can say decidedly that grafting or that budding is a better practice. In a word, let our horticultural societies and our nurserymen give us some proof of the correctness of their practice by growing own-rooted and grafted and budded trees of the same varieties side by side. F. W. B.

CHRYSANTHEMUMS.

NEW CONTINENTAL CHRYSANTHEMUMS OF 1891.

WHEN the list of new Continental Chrysanthemums for 1890 was given in THE GARDEN about twelve months since, it will be remembered that the number distributed then was fewer than had been the case for some years previously. No such cause for congratulation, however, can now be found, for upon casting up the varieties mentioned in the foreign catalogues as new seedlings for the ensuing year the total appears to be 284 of all sections. In this number are included the productions of all the eminent raisers, such as Délaux, De Rydellet, Lacroix, Rozain, as well as those of several new comers in the field, whose names are not quite so familiar to English cultivators, although no doubt their flowers will ultimately find a place, even if only a temporary one, in the collections of the English importers and trade growers.

Some of those raisers mentioned last year as not contributing to the list then are in their place again this time, Macary and Lassali in particular, but Dr. Audiguier, Baco, and Pertuzès seem to have stayed their hands for another season, with what result it would be imprudent to predict. The 1891 novelties, of course, comprise varieties of all established sections, but a new race is promised, being the result of carefully hybridising the variety *Malgako*, and with four new flowers as the nucleus of what is to be termed the "Toulouse race," we may expect further complications of classification which will, like the Japanese incurved, Japanese Anemone, Japanese reflexed, be duly treated by the properly constituted authorities. There is not a little speculation as to the form of these promised new-comers, for *Chrysanthemum Malgako* is entirely unknown in this country, and whatever peculiarity of form or habit it may have can only be determined after we have been duly placed in possession of that variety or its new issue.

Another point concerning the novelties for the year is the announcement that a considerable number belong to the large-flowered early-blooming section. Of these, Délaux alone takes credit for distributing 125 varieties, some of which are recommended as beginning to flower so early in the year as the month of June. For purposes of reference, it has been deemed advisable to separate such from the ordinary autumn-blooming varieties and give an independent list of each.

Concerning nomenclature, much might be said; there are, at any rate, the usual complaints to be made of employing old names, of using unintelligible ones, and of giving descriptions of inordinate length. Scarcely a season passes by without good ground for English growers protesting against the vagaries of French raisers in these respects. Under the first heading we can put *Bolide*, *La Mascotte*, *La Neige*, *L'Avenir*, *Le Cid*, *Le Cygne*, *Mars*, and a few others. With regard to the second, it will be interesting to find the English variations of names like *Jaguarita*, *Libellule*, *Reyer*, *Salvayre*, and *Trivier* when they have undergone a few seasons' vicissitudes in the trade catalogues here. So far as mere length is concerned, there are some that are absolutely unequalled; as samples we need but point to *F. Massange de Louvres*, *Mme. la Marquise de Panat*, *M. Max. de la Rocheterie*, *Président de Formigny de la Londe*, &c.

It has hitherto been a not uncommon thing to find a goodly proportion of the new French Chrysanthemums bearing the names of English amateurs or trade customers, but this year the French

have apparently abandoned "Perfidious Albion" to her own seedling raisers, and adopted the more commercial proceeding of naming the new flowers after some of the German, Swiss, and Italian horticulturists most prominently identified with Chrysanthemum cultivation in recent times. The exhibitions in Leipzig and Geneva probably are the principal cause of this, and no doubt the little harmless flattery will be productive of not a little business.

For the first time in our experience it may be noticed that a Belgian nurseryman is acting as an original distributor of new seedlings. M. Chantrier, whose name is closely connected with Chrysanthemum culture in France from an exhibition standpoint, has taken up with seedling growing, and has disposed of his gains to M. Rosseel, of Ghent.

In the annexed list every effort has been made to ensure brevity consistent with accuracy. It is not always easy to cut down a foreign description to just sufficient for English readers. An instance may be cited to show to what lengths a translator may go. One of the new Chrysanthemums has this year thirteen closely printed lines devoted to its description, containing over 100 words of more or less eloquent language, while perhaps ten words at most can be afforded here. The classification in each case is that given by the raiser, and although it is the best that can be given at present, it will, as previously stated, be unsafe for English growers to rely upon what, even in France, is as yet a vexed and unsettled question. New Chrysanthemums can only be properly classed when grown by English cultivators and submitted to some authority, like the floral committees of the Royal Horticultural or National Chrysanthemum Societies, and until the flowers now mentioned have been bloomed in this country, all attempts to do so or reliance upon others is likely to lead to much confusion and disturbance of established principles. Thus it is that for merely reference purposes we give the section as indicated by the raisers, or omit it altogether if they do.

As an indication of the keenness of our Continental brethren in this branch of horticulture, it may be mentioned that a great improvement is gradually taking place in the style of printing, illustrating and editing their catalogues; especially has this been noticeable during the last two or three seasons. The American seedlings and importations into that country from Japan have made quite a stir amongst the French, with the obvious result that all the leading specialists have procured the cream of the American varieties to add to their collections. It is earnestly to be hoped that this influx of new blood will, by dint of careful and intelligent hybridisation, be the means of raising the standard of the Continental Chrysanthemums, than which, perhaps, in the past none have ever held a higher place on the show-boards of this country.

Alexander Vogel (Délaux).—Pompon; white, shaded rose.

Alfred de Musset (Lacroix).—Japanese; soft rose, passing to white, striped violet.

Ami Jules Chretien (Hoste).—Japanese; bright poppy-red, shaded chestnut.

Archimède (Lacroix).—Japanese; colour burnt sienna, shaded golden yellow, reverse yellow.

Auguste Nonin (Lacroix).—Japanese; burnt sienna, striped yellow, reverse lighter.

Baron Lombard de Buffières.—Japanese; rose and white.

Beau Rêve (Délaux).—Japanese single; silvery-white, shaded rose.

Beauté Toulousaine (Lacroix).—Japanese semi-double; dark purple-red, reverse golden.

Bolide (Lacroix).—Japanese; light rose, striped white, tips golden.

Cardinal Foulon (Rozain).—Japanese; rosy-purple.

Carl Kaiser (Délaux).—Japanese; crimson-red, shaded velvet brown, yellow tips, reverse silvery claret.

Clothilde Gange (Délaux).—Japanese Anemone; silvery rose, golden centre.

Commandant Maratignon (Macary).—Japanese; carmine-violet.

Comte de Galbert.—Japanese; coppery golden colour.

Comte F. Lurani (Délaux).—Japanese; rose and white.

Comtesse d'Archiac (Chantrier).—White.

Emelia (Rozain).—Japanese; light red, mingled dark yellow.

Em. Goffin (Délaux).—Japanese; brown-red, striped gold, canary centre, edged red, reverse gold.

Etoile de la Pape.—See Mme. Bié.

Félic Cassagneau (Délaux).—Japanese; bright orange-yellow, striped reddish salmon.

Félic Mourat (Délaux).—Incurved; dark yellow and dark crimson.

Ferdinande Ponci (Délaux).—Japanese incurved; crimson-red, shaded velvet crimson, golden reverse.

F. Massange de Louvres (Délaux).—Japanese; canary-yellow, striped carmine.

Giuliano Guelfi (Délaux).—Japanese; white.

Guy Lussac (Lacroix).—Japanese; violet-rose, striped white.

Général Comte Pajol (Chantrier).—Incurved; dark coppery yellow, golden centre.

Great Eastern (Lacroix).—Japanese; brick-red, striped golden yellow, tips golden.

Henry Barrère (Lassali).—Anemone; yellow, reverse striped blood-red.

Incandescent (Lacroix).—Japanese; coppery-red, lightened flame colour.

Il Trovatore.—Japanese semi-double; soft rose, white reverse.

Jacquita (Lacroix).—Japanese single; soft rose, edged violet.

Jean Macary (Macary).—Incurved; velvety dark crimson, lightened bright flame colour.

Jeanne Lassali (Lassali).—Anemone; rose, centre white.

Jules Roland (Délaux).—Pompon; silvery white, shaded rose.

La Condamine (Lacroix).—Japanese; creamy white, striped rose.

La Mascotte (Lacroix).—Japanese single; creamy white, lightened yellow.

L'Amphitrite (Lacroix).—Japanese; white, edged violet.

La Neige (Lacroix).—Japanese single; white.

La Rosière (Rozain).—Japanese Anemone; bright violet, rose ray florets, silvery rose disc.

L'Avenir (Délaux).—Japanese single; golden yellow, shaded crimson.

La Vive (Chantrier).—Japanese; brick red, orange centre.

Le Cid (Lacroix).—Japanese single; dark red, golden reverse.

Le Cygne (Lacroix).—Japanese Anemone; white, disc white, shaded yellow.

Le Nouvelliste Bordelais (Chantrier).—Japanese; dark lilac.

Le Versseau (Lacroix).—Japanese; rose, striped white, centre claret.

Libellule (Lacroix).—Japanese semi-double; soft rose, lightened white.

Louis Vraz (Rozain).—Japanese; sulphur-white, shaded violet.

Mme. Bié (Rozain).—Japanese (syn. *Etoile de la Pape*); creamy white, passing to pure white.

Mme. Ceuzin-Jacob (Hoste).—Japanese; orange, tipped salmon.

Mme. de Montigny.—Reflexed; rosy lilac, tips buff.

Mme. de Waresquiel.—Chinese; white, mottled lilac.

Mme. Elizabeth Labat (Délaux).—Japanese; white.

Mme. Forget (De Reydellet).—Japanese; white, tinted mauve; centre light rose, tinted pale yellow.

Mme. Giraud de Montfalcon (Rozain).—Japanese; pure violet, tipped yellow.

Mme. Itasse (Lacroix).—Japanese; fine porcelain-white, edged light violet.

Mme. la Marquise de Panat (Lacroix).—Japanese; pure white.

Mme. L. Vouga.—Incurved; rose, tipped salmon.

Mme. Roman (Hoste).—Incurved; milk-white.

Mme. Vallet (Lacroix).—Japanese; light rose, lightened white.

Mlle. Berthe Chantrier (Chantrier).—Cream, reverse rosy white.

Mlle. Camille Dreret (Chantrier).—Pompon; white.

Mlle. C. Borthère (Chantrier).—Gooseberry-red, tinted orange.

Mlle. Holand (De Reydellet).—Japanese; light canary-yellow, passing to white.

Mlle. Igounenc (Lassali).—Anemone; white, shaded carmine-rose; centre same colour, tipped gold.

Mlle. Marie Lagrace (Chantrier).—Chinese; white.

Mlle. Marthe Bocher (Chantrier).—Japanese; velvet red, tipped yellow.

Mlle. Nathalie Brun (Lassali).—Anemone; white, centre golden.

Mlle. Paule Labat (Lassali).—Anemone; white and rose, disc yellow.

Marcel Grilli (Délaux).—Japanese incurved; ochre-yellow, striped crimson, reverse gold.

Marguerite Perrot (De Reydellet).—Japanese incurved; pure white, light yellow centre.

Maria Laglaize (Lassali).—Anemone; white, centre yellow, passing to white.

Marie Crépey (Délaux).—Japanese; violet silvery white, edged violet-rose.

Marquis de Paris (Délaux).—Japanese; sulphur-white, darker centre.

Mars (Lacroix).—Japanese; bright golden yellow, reverse striped chestnut.

Maxime de la Rochetier.—Incurved; bright carmine-lake.

M. Albert Lemaille (De Reydellet).—Japanese; Indian lake-red, yellow tips, dark yellow centre, rather late.

M. Alphonse Seux (De Reydellet).—Incurved; rosy lake, silvery reverse.

M. A. L. Rosseel (De Reydellet).—Japanese; blood-red, reverse old gold, gold centre.

M. Ant. Raymond (Hoste).—Japanese; orange-yellow, pure yellow tips.

M. Auguste Nonin (De Reydellet).—Japanese; white and light mauve.

M. Bouteux (De Reydellet).—Japanese; dark poppy-red, reverse and centre bronze, rather late.

M. Brédemeier (Délaux).—Incurved; amaranth-violet, reverse silver.

M. de Longhi (Délaux).—Incurved; golden yellow, striped crimson-red.

M. Dupanloup (Lacroix).—Japanese Anemone; violet-rose, darker at tips, disc same colour, golden tips.

M. Dupanloup (De Reydellet).—Japanese; purple, light centre, dark tips, spotted white.

M. Emile Lemoine (Hoste).—Purple-violet, reverse and tips white.

M. Etienne Salomon (Hoste).—Japanese; chrome-yellow, white reverse.

M. Eugene Delaire.—Japanese; velvety carmine, tips silvery.

M. E. Vaucher (Hoste).—Japanese; light satiny lilac, tips dark amaranth-violet.

M. Eymard (Rozain).—Japanese; rosy white, passing to pure white.

M. Focquereau-Lenfant (Hoste).—Incurved; flesh white, reverse rose.

M. Fr. Pittet (Hoste).—Japanese; bright red, shaded salmon.

M. Henri Correvon (De Reydellet).—Japanese Anemone; light buff ray florets, centre golden yellow.

M. Henri Courtaing (Macary).—Japanese incurved; dark brick-red, lightened buff, reverse gold.

M. Henri Vanderlinden.—Incurved; silvery white, shaded carmine-rose.

M. Herault (Rozain).—Japanese; silvery rose.

M. H. Fouquer (Hoste).—Japanese; mauve-rose, carmine centre.

M. Hillebrand (Délaux).—Japanese; crimson-red, golden centre, reverse yellow.

M. H. Maubec (Hoste).—Incurved; rose with white reverse.

M. John Wolf.—Incurved; purplish-rose and white.

M. Josseaux (Délaux).—Japanese; carmine-rose, striped white, white centre, golden reverse.

M. Jules Castagnet (Chantrier).—Pompon; old gold.

M. Louis Larcy (De Reydellet).—Japanese; carmine, lighter towards the tips.

M. Max. de la Rochetier (De Reydellet).—Japanese; dark purple-lake, yellow-bronze tips and centre, rather late.

M. Mézard (Lacroix).—Japanese; dark brick-red, reverse old gold.

M. Mulnard (De Reydellet).—Japanese; rose, passing to creamy yellow in centre.

M. Nuz (Délaux).—Japanese; dark crimson-red, reverse old gold.

M. Vachoux-Marchand (Hoste).—Japanese; flesh-white, reverse violet.

M. Vitron (Délaux).—Japanese single; violet-rose, shaded white.

Mrs. Georges Daniels (Rozain).—Japanese; fine rose, hairy petals.

Murillo (Lacroix).—Japanese semi-double; dark purple, reverse dark gold.

Nain Original (Délaux).—Single; canary-yellow and white.

Papa G. Sautel.—Japanese; velvet-carmine, centre darker, reverse and tips silvery.

Paille des Pyrénées (Chantrier).—Japanese; straw-yellow.

Papillon (Lacroix).—Anemone; light chrome.

Ph. Rivoire (Rozain).—Japanese; straw-yellow, passing to creamy white.

Pic Neigeux (Chantrier).—Pompon; dark violet and white.

Président de Formigny de la Londe.—Incurved; coppery gold, centre buff.

Président Louis Lyand.—Reflexed; dark amber-yellow.

Prof. Henri Welter (De Roydellet).—Japanese incurved; dark carmine, reverse paler.

Reyer (Lacroix).—Japanese semi-double; fine amaranth-violet, shaded flame colour.

Rodolpho Ragionieri (Délaux).—Japanese Anemone; silvery white, shaded rose, golden centre.

Rosée Matinale (Lacroix).—Japanese semi-double; soft rose, white reverse.

Salvayre (Lacroix).—Japanese single; amaranth-violet, lightened flame colour, ashy reverse.

Secrétaire A. Colmiche.—Japanese; light canary-yellow, striped rose.

Secrétaire A. L. Rosseel (A. Cendron).—Japanese; white and cream, shaded violet.

Source du Japon (Chantrier).—Old gold, speckled brick-red.

Souvenir de Mme. David Coren.—Incurved; snow-white.

Trivier (Rozain).—Japanese; creamy white, tips and centre sulphur-yellow.

Uranus (Lacroix).—Japanese; pure white.

Ville de Bayonne (Chantrier).—Soft lilac.

Vierge (Lacroix).—Japanese; white, shaded sulphur-yellow; centre light yellow.

Violacea superba (Lacroix).—Japanese single; colour rather lighter than *Erecta superba*.

Visconti Felix (Délaux).—Japanese; crimson-claret and white, striped violet-rose.

W. F. Dixon (Délaux).—Japanese; crimson-red, flamed yellow, yellow tips, reverse golden.

CHRYSTANTH.

TREES AND SHRUBS.

WISTARIA SINENSIS.

ALTHOUGH written many years ago, since which time great numbers of plants have been introduced into this country, Loudon's words, "that this plant may truly be considered the most magnificent of all our hardy climbers," is just as applicable at the present day as it was when the above was written, for it has not been surpassed or even equalled since then. The Chinese Wistaria is so well known, that nothing further need be said as to its general appearance, except that the large massive clusters of lilac-purple blossoms are in colour very distinct from anything else in bloom at that time. It is generally treated as a wall plant, where it will soon cover a considerable space, but it may also with advantage be employed in other ways; for instance, being of such vigorous growth, it will rapidly make its way into a neighbouring tree if opportunity occurs, and in this way some charming and picturesque effects may be produced. Again, it may be used for covering an arbour, screen, or anything in that way, a good instance of which is to be seen at Kew, where there is a large circular arrangement of ironwork completely clothed with this Wistaria, which in spring attracts everyone. True, the blooms are in an exposed position sometimes injured by late spring frosts, but in a general way this seldom happens, and when it does take place we often get a scattered number of flowers later on, while the beautiful pinnate foliage renders it an attractive climber throughout the summer. Though we seldom see any other but the Chinese Wistaria, it is by no means the only member of the genus available, there being among others a pure white counterpart of it, which as far as my experience extends appears to be equally free-flowering with the type, so that a charming effect might be produced by planting the two in close proximity. The double-flowered variety has been frequently figured and the subject of many notes, but it is greatly inferior to the ordinary form, and may be at once passed over. Another species is *W. multijuga*, which has been described as producing racemes of blossom over 2 feet in length. This certainly reads very attractive, and it is by no means a misrepresentation; but as a set off,

the individual flowers are smaller and of a paler tint, while there is also a much greater space between them than in the case of the common kind, to which in ornamental features it is much inferior. The oldest of the Wistarias is the North American *W. frutescens*, which was in-

grown in a more limited space, while the flowers do not expand till those of all the rest are past. In this species the flowers are borne in shorter and denser racemes, which are erect, or partially so. This may be trained to a wall or treated in any way similar to the other kinds, while, being much less vigorous than any of them, it forms a very ornamental specimen if planted in the open ground, trained round a few sticks, and then allowed to grow at will. Another feature possessed by this Wistaria is that the blossoms are pleasantly fragrant. Wistarias, as a rule, do not transplant readily, owing to their stout, deep, descending roots; still, from this very circumstance they are enabled to resist drought, and will consequently succeed better in dry sandy soils than many other classes of plants; but, for all that, they much prefer a good deep loam.

Dirca palustris.—This, the Leather Wood of the United States, is as a flowering shrub far less showy than many of its allies the Daphnes, and in May, with the wealth of blossoms we then possess out of doors, it would be passed over; still, in the beginning of April or even earlier, owing to the few shrubs that are then in bloom, it arrests attention, and is certainly a very interesting little bush. The Leather Wood is seldom seen more than 2 feet to a yard high, and usually forms a much-branched compact specimen. The naked wood is of a distinct yellowish tinge, while the pendulous stamens, which form the most conspicuous feature of the inflorescence, are also of the same hue. The flowers are borne usually in clusters of three or four together before the expansion of the foliage, while the leaves when developed are slightly suffused with yellow. It succeeds best in soil of a peaty nature which is rather moist; still such compost is not absolutely necessary to its well doing, as I have seen it thriving in light sandy loam. It is by no means a novelty, having been introduced from North America about the middle of the last century.—T.

Wellingtonias in 1891.—Lately, during a long walk through Kent, we saw many lanky specimens of the Wellingtonia which showed the work of the hard winter, many of them being much seared and some dead. We cannot say that we saw this with much regret, having for a good many years past advised our readers to have nothing to do with the tree. Remarkable in its own country, it has not any real value for ours. It is rarely beautiful in form in this country, the growth being slow compared with what it is in the Sierras of California. The strong laudation of the tree before it was tested has led to a great deal of wasted effort; never was a tree planted with so much care and at so much cost that were so entirely unworthy, so far as our country is concerned. The means thrown away on this subject would have done something for the trees and landscape of England if spent upon the Scotch Fir and the best of the hardy Pines of Europe, the Austrian, Corsican, and the Riga variety of the Scotch Fir.—Field.

Guelder Roses.—I have somewhere seen it stated that the Guelder Rose will not force or bear



Wistaria (Glycine) sinensis.

troduced during the early part of the last century, but at the present day it is rarely seen, though very desirable, for it does not attain the dimensions of the others and may therefore be

artificial heat, but it depends greatly on the time of starting the plants and how much warmth they are subjected to, as I have never experienced the least difficulty in getting them to flower in March or April if brought on slowly. I always keep them in pots and plunge them in the open as soon as they are turned out of the greenhouse or conservatory, that is, provided the weather is favourable. Why people fail, I think, in flowering Guelder Roses under glass is in lifting plants and starting them at once instead of treating them in the way referred to. If not grown in pots, they ought to be dug up as soon as the leaves fall and be potted at once, so as to give them a fair chance to root before they are called on to start, and then they have strength to push forth their buds. The soil most suitable for growing them in when in pots is a good loam, and when making their young shoots they should have liberal supplies of weak liquid manure. Increase of the Guelder Rose may be effected either by layers or cuttings, and if the latter mode is chosen they should be put in early in autumn. The best wood for forming the cuttings is that made during the summer, and about 8-inch lengths are the best, cut so as to have a bud at bottom and top, and inserted 6 inches or so deep in the ground, as then they are certain to root.—S. D.

RARE TREES AND SHRUBS.

Is it that the climate of England is so much better suited for the growth of a larger number of trees and shrubs than that of most other parts of the British Isles, or that southern nurserymen are more energetic in introducing and getting together a varied stock of such that one meets with so many fine examples of rare trees and shrubs, and that are hardly known, let alone cultivated, beyond a few of the midland counties of England? With no great difficulty I could name dozens of ornamental trees and shrubs that are rarely, if ever, found far from the most southern counties of England and Ireland, and yet that many of such would survive the northern winters, experiments that have been instituted prove pretty conclusively. The dweller in the northern portions of these islands is almost aghast with astonishment when, on paying a visit to the southern counties, he finds such specimens of the various species of *Acacia*, the *Manna Ash* (*Fraxinus ornus*), *Indian Bean* (*Catalpa bignonioides*), *Judas Tree* (*Cercis siliquastrum*), the many fine kinds of *Plums* and *Cherries*, and quite a host of shrubs, to wit, the lovely *Clerodendron trichotomum* and a hundred other equally desirable kinds. A visit to *Coombe Wood* will show many perfectly hardy and little-known trees and shrubs, and such, too, as hold a foremost rank for ornamental appearance.

That Southern England and Ireland are favoured localities can only be admitted to a very small extent; indeed my sojourn in the "Garden of England" brings home to me day by day the fact that the climate is remarkably treacherous and by no means comparable to that generally experienced, say, in *Carnarvonshire*, where in my garden I could and did cultivate certain plants that will not survive the rigour of a southern winter. The maritime districts of the southern counties may not perhaps be so susceptible to the varying changes of climate, but even at *Dover* and *Folkestone* the death rate of some shrubs that are usually styled hardy makes one look about and consider whether after all these districts are so highly favoured in the matter of climate. That many highly desirable trees and shrubs might with perfect safety be planted out in the northern parts of these islands I feel confident, from data collected regarding the survival of isolated specimens at very cold points of *Scotland* in particular, and which were planted by way of testing their hardiness.

A. D. WEBSTER.

Shrubs and the past winter.—Where the planting of evergreen shrubs was done early in the autumn they have apparently sustained no check from the severe weather. It is not so, however, in the case of those which were planted during the winter months. I would advise no one to plant Evergreens of any

class between November and April. Neither would I prune during those months. I always put mulching over the surface of the roots, covering it thinly with soil to prevent evaporation and for appearance sake. I notice that many trees and shrubs generally considered very hardy suffered severely during the early part of March.—M. T., *Stirling*.

The Flowering Currant (*Ribes*).—As an early flowering shrub, the *Ribes* stands unrivalled, as almost before the March winds are over it is ablaze with bloom, and quite lights up that part of the border or garden in which it is planted. On looking at a bush or group of it one cannot help thinking how much higher the value attaching to it would be if it were a stove subject instead of the hardy accommodating plant it is, as the *Ribes* will grow and flourish almost anywhere, and the poorer in reason the soil, the better it flowers. Taking this into consideration, the wonder is that it is not planted more largely, or grown in pots for the embellishment of rooms or greenhouses, as even very small bushes come full of blossom, the lovely racemes of rich colour making a fine show, the scarlet or pink blending beautifully with that of the *Deutzias*. To propagate or increase, there is nothing easier, as slips of the young wood, or cuttings made from the same, and put in any time during the winter, or before growth actually commences, root readily, and at the end of the season, or following summer, make nice bushes either for potting up or planting out in the open.—S. D.

Protection for tender shrubs on walls.

—During the past severe winter, when for seven weeks the open ground was frozen a foot deep, it was interesting to see that where there was a natural growth of old *Heath* the ground was nowhere frozen during the whole of this time. The *Heath* is from about 1 foot to 2 feet high, the lower part being a tangle of its old branches mixed with *Moss*; in many places thin and open, a mere network of bleached stems of half dead *Heath* laid flat by the snow of former years, and too old to make much new top growth. But in all cases the ground beneath was protected from frost. I have in contemplation the building of a sunny wall, a part of which will be planted with tender shrubs and climbers, such as *Myrtle*, *Hydrangea*, *Loquat*, *Mandevilla suaveolens*, *Solanum jasminoides*, *Plumbago capensis*, &c. Protecting with mats or any close covering always seems unsatisfactory, as when uncovered there is much dust and some mildew and an unhappy look generally. I thought, perhaps, the lesson learnt from the *Heath*-clad ground might be well applied to the wall plants, by covering the 2 feet next the ground with a loose bed of dry *Moss* and tall straggling branches of *Heath*, and the upper parts of the wall with old *Pea* sticks, or *Birch* or other spray, so arranged as to form a loose, but firm screen, say 2 feet thick. All gardeners know the value of a couple of thicknesses of fish-net as a protection of wall fruit bloom. In common speech, that may be unscientific, but is much to the point, it "breaks the frost." So I cannot help thinking the coat of loose spray would in the same way protect the tender wall shrubs, at the same time letting in plenty of light and air and mild rain. *Fir* boughs we know are a valuable protection, but perhaps the more light-giving shelter of the opener stuff may be better. Perhaps some good gardeners will kindly say what they think of this proposed plan as compared with any denser and closer means of covering.—G. JEKYLL, *Monstead, Godalming*.

Covering bare spaces under trees.—I drew attention some time back to the value of a combination of *St. John's Wort* and *Daffodils* for this purpose, and the spaces thus clothed are just now looking so bright that I may again refer to the subject, especially as a question was lately raised in *THE GARDEN* as to the best things for such purposes. When the spaces to be operated on are under such trees as the *Lebanon Cedar* and the soil is completely parched to a considerable depth, the task is not an easy one, and the ground after being roughly broken up must be frequently soaked before planting. Once saturated, however, and the *St. John's Wort* thickly studded all over the surface, it is a long time drying out and the plants get well esta-

lished. The same may possibly be said of the *Daffodils*, as they were planted deeply directly after the *Hypericum*. The varieties that do best are the *Tenby* and the old double trumpet; I also tried *Golden Plover*, the *Scotch Garland*, and *incomparabilis sulphureus*, but these are not so satisfactory. Just at present the spaces present a very pleasing appearance, the countless yellow heads waving gracefully in the wind among their own foliage and over the bronzy *Hypericum*. If I was to name one *Daffodil* alone for naturalisation in the open, I think my choice would be *incomparabilis sulphureus*. It has a soft pleasing colour, and is wonderfully strong and free.—E. BURRELL, *Claremont*.

THE WEEK'S WORK.

PLANT HOUSES.

GREENHOUSE AZALEAS.—Those plants which have been forced to obtain a supply of cut bloom will need attention as soon as possible. Plants which have been cut hard in this way require careful handling for a time. The young growth ought to be encouraged as soon as signs of reaction are apparent, for, generally speaking, a little rest will not do any harm after a good crop of flower has been taken from a plant. The *Azalea* will at such times delight in a moist warm atmosphere, such as a vinery coming on, or, better still, in heated pits with a good amount of sunshine, with syringings two or three times daily. Watering at the roots should be proceeded with carefully; too much moisture in that direction will act as a deterrent rather than otherwise. When fresh potting is required it ought to be seen to at once, using good fibrous peat only for the weaker growing varieties, but a little good turfy loam will very well suit the stronger growers in addition to the peat. Guard against over-potting, more particularly with plants for this kind of work. As growth proceeds, the shoots which show a disposition to run away too vigorously at the expense of the rest should be pinched. Plants which have been forced, more particularly for the decoration of conservatories, will continue in a better state of health from year to year than those which are cut severely. Remove all seed vessels and encourage growth so as to obtain an early set for flower; the plants will thus bloom early in a spontaneous manner after a few years of such treatment. A sharp watch must be kept in all instances against the ravages of thrips; these insects increase apace with additional warmth. Fumigation is, I consider, better than syringing with an insecticide for the destruction of this plant pest at this season of the year; there will not be many left alive after three applications, two turns being hardly enough. The main stock of *Indian Azaleas* will now be coming into flower in a natural manner; the season of flowering may be greatly prolonged by keeping the later ones as cool as possible. A north house is often of great service for this kind of work and amply repays for its cost where an extra quantity and a prolonged supply are essential. Such a house never need stand idle; later on it will accommodate *Ferns*, to say nothing of cool *Orchids*. *Azaleas* which are known to be in a good state at the root will, when moving on into the flowering stage, take more water at the root. On no account should they be allowed to get dry enough to suffer in this respect, otherwise the blossoms will open of inferior size and quality. Occasional syringings will also assist the plants just at this time upon warm sunny days. As soon as the plants are expanding their blossoms shading will be a great assistance in prolonging their flowering, and in any special case the plants may be assisted still further in this respect by removing the stigma from each bloom, the loss of which is scarcely observable, and does not detract from the beauty of the flower.

GREENHOUSE RHODODENDRONS.—These, like the *Azaleas*, will soon be in full beauty; they will require much the same treatment at this stage. Being such grand plants when flowered well, they are worthy of every attention which can be bestowed upon them. Like the *Azaleas*, therefore,

they should be treated so as to prolong their flowering to the utmost extent. Those *Rhododendrons*, now so finely represented by the many hybrids of the *javanico-jasminiflorum* race, where in need of potting may very advantageously have that work performed now, or as soon as possible, unless it be in the case of a plant flowering freely for the time being. Such an one should for the present stand over, but others which require fresh potting and are about now showing signs of more active growth than usual may be seen to. Peat of the best quality should be selected for these, and the work ought also to be done in a substantial manner. At the root they require about the same treatment as *Indian Azaleas*, but of the two they had better be grown in rather smaller pots than would be given to the *Azaleas* of the same size. After potting, rather more warmth will encourage fresh root action; a fair amount of light is also preferable to any excess of shading in this case.

EPACRIS.—Those cut back and fresh potted a few weeks back will now be growing away freely; guard, therefore, against the young shoots being drawn up weakly by too much warmth. This warmth, beneficial at the first, should now be withdrawn, and the plants gradually inured to an ordinary greenhouse temperature. All the light possible should be allowed to the same end. Those plants which are extra dense in growth with an abundance of shoots will be all the better for a little tying out. This need not be done with sticks, although that will answer, but a wire of fair size or tarred string could be fixed below the rim of the pot, the shoots then being drawn outwards by means of raffia. Later on when the growths are set these ties will not be required. Soft-wooded *Heaths*, as *E. hyemalis*, where they are now making good growth require about the same treatment as the *Epacris*. I would not, however, hesitate to pinch any extra strong shoots, so as to assist in regulating the growth. Later-flowering soft-wooded *Heaths* and the *Epacrids* should receive the same attention in their turn as to pruning and potting, omitting in the latter case the *E. miniata* varieties which are not yet in full beauty. *Bor-nias* as they go out of flower should be moderately pruned, and then be encouraged to make a fresh growth. So also should the members of the *Cytisus*, *Genista*, and *Coronilla* families; the stronger-growing kinds of these may be pruned pretty freely when it is necessary to keep them within due bounds. The tendency frequently is to grow these plants in a bush state; thus grown they look well when small, and also of a moderate size, but where large plants are wanted, then it is far better to adopt a different method. This can be brought about by encouraging an upright growth, by pinching and pruning to attain the same ends. *Cytisus racemosus*, when seen 5 feet or 6 feet in height by no more than 2 feet in diameter, makes a fine display without occupying any great amount of room. I have found this description of plant to be extremely useful when dealing with the floral decoration of extra large conservatories. This race of plant should be fresh potted when flowering is over and young growth commencing. In warm positions they may by that time be stood out of doors, particularly the variety specially alluded to in the foregoing remarks.

J. HUDSON.

HARDY FRUIT GARDEN.

APRICOTS.—The earliest flowers were much injured by severe weather, copings and blinds failing to exclude the 18° of frost which we experienced when the trees were quite gay with bloom. A few fruit set, and the later flowers, which luckily were more plentiful than usual, have left a good sprinkling of fruit behind them, so that the *Apricot* will be far from proving a failure. On cooler walls and in later districts little harm has been done by the frosts, and there will most probably be good crops of fruit set ere this. Full-sized fruit being so much superior in every way, the thinning out of great clusters ought to commence at once, completing this important operation as the *Apricots* become large enough to use in pies. *Apricots* are apt to form thickets of growth on the young branches

especially, but these should be prevented by timely thinning. Remove all back growths and thin out the rest to about 3 inches apart, stopping those reserved to about 2 inches in length. In this manner a lot of strong fruiting spurs will be had, clusters of flower buds forming round them before the year is out. Lay in young growths wherever good room can be found for them, stopping all other shoots, as previously advised. Red spider puts in an early appearance on that part of the trees sheltered by copings, and it is advisable, therefore, to freely use the engine or syringe and clear water after sunny warm days—always provided there are no signs of frost. The foliage will now offer a considerable amount of protection to the fruit, but all the while cold winds prevail it is advisable to open out the blinds every evening and to keep the fish-nets over any protected with these.

PEACHES AND NECTARINES.—These never flowered more freely nor more strongly, and the fruit is setting very thickly. As a consequence the thinning will have to be commenced early—in fact it may well be started at once, all the fruit badly placed for swelling off being first removed, and many more when all danger from frost may reasonably be thought to have passed away. Quite young trees have flowered abundantly, but only the strongest of them ought to be allowed to swell off any fruit, beyond, perhaps, one or two to test the variety, the aim being to foster an early and strong growth. Red spider is already showing on the leaves of the trees generally, and the engine or syringe ought therefore to be used as soon as the state of the weather permits, but no liquid insecticide should be employed for this or any other insect pest, this being liable to injure the skins of the delicate fruit. A few of the fore-right shoots might either be stopped or removed, but anything like wholesale disbudding ought not yet to be carried out, blister and other ills being liable to decimate the shoots. When disbudding may safely be practised, allow the leading shoots on all the fruiting branches to extend, and also reserve a shoot at the base of each to take the place; next season it may be of that fruiting this year. If possible, reserve a shoot wherever a fruit is left to swell, stopping it at the fourth joint. Disbud young trees freely, only reserving and laying in shoots wherever there is good room to lay them in, remarks which also apply to young *Apricot* trees, only in this case a portion of the shoots should be pinched back instead of being wholly removed. Continue to protect the *Peach* and *Nectarine* trees as much as possible from cold winds, it being these that most probably cause the leaves to blister badly.

PEARS.—There is too much flower on the majority of trees both against walls and in the open. Frost has not apparently injured them in any way, but the flowers would have been stronger and more likely to be followed by fruit if they had been fewer in number. There is not much yet to be done to the old trees beyond protecting from frosts if necessary, but the younger trees ought now to be gone over and a certain amount of stopping and disbudding done. In very many instances this season fruit-buds have developed at the points of leading shoots, and these ought at once to be removed, in order to give the nearest leafy growth a chance of taking a fresh lead. Other ends of shoots produce far more young growths than are needed, and these should be freely thinned out, reserving and stopping those where a fruiting spur is needed at the fourth or fifth joint, and allowing the leader to extend. The latter cannot grow too strongly, and may well be favoured as much as possible. Where caterpillars are troublesome keep a close look out for these and egg-covered leaves, the destruction of the early broods saving much after trouble.

PROTECTED GOOSEBERRIES.—Bushes in structures closely covered with wire or other netting are the most liable to be over-run by caterpillars, this being largely due to the exclusion of insectivorous birds. The difficulty is easily obviated by at once removing any fish-netting there may have been used, while in the case of the galvanised wire netting, and which has to be fixed more permanently,

the better plan is to have movable net-covered shutters at intervals along the ends, fronts, or sides of these structures, these being drawn on one side now, and not returned to their proper places till the fruit commences to ripen. Birds soon find their way into the structures, and do most good probably by destroying the flies which deposit eggs on the leaves, and from which the destructive caterpillars are hatched. It should be remembered there are two distinct forms of the latter pests, one being the larvæ of the magpie moth, and the other those of the *Gooseberry sawfly*, the latter being the smaller and by far the more destructive. The former hibernates in the caterpillar form, emerging from their winter quarters, which may be either above or below ground, in the spring. Removing and burning surface soil and replacing with fresh compost destroy many of the cocoons of the *Gooseberry sawfly*, and otherwise benefit the bushes. Surfacings of either gas-lime or spent tan also prevent the escape of many of the egg-depositing flies at the present time. The latter deposit their eggs on the under side of the *Gooseberry* leaves, caterpillars emerging from these in about nine days. At first they are in a cluster, and if a sharp look out is kept and those leaves with tiny perforated holes all over them—these being made by the caterpillars underneath—are at once carefully picked and all on them crushed, this will save much further trouble. Left alone, the caterpillars soon spread over the bushes and clear them of leaves, spoiling the crops and ruining the bushes. Hellebore powder dusted over the bushes and duly syringed off, *Paris Green*, *Fir-tree oil*, and various other insecticides are effective enough against the caterpillars, but are all more or less objectionable, owing to the possibility of the fruit being rendered unfit for use by them. Syringing the trees with hot water will fetch down most of the caterpillars, and dusting flowers of sulphur freely among the bushes when the dew is on them is a safe and effective remedy. It is almost needless to add that what is here advised concerning protected *Gooseberries* applies with equal force to those not covered in any way, and also to *Red* and *Black Currants* where these are liable to be infested by caterpillars of either kind.

W. I.

ORCHIDS.

WE are now into the season of more rapid growth, and there is not now much danger of *Orchids* receiving injury from too much water if it is used carefully. Indeed, any *Orchids* making their growth at this period should be on the wet rather than the dry side. I never care to see the surface of the compost anything like dry. *Calanthes* are now starting freely into growth. They had their season of rest by being kept quite dry, were reotted in March, and now as the young roots are pushing out freely the plants require a good supply of water with a warm atmosphere. They flower at various seasons from November until March. They increase freely, and the finer hybrids are more desirable plants than the early introductions from which they have been raised. Starting with *C. Veitchi*, still the most popular, we have a pure white form of it, and many other shades of pale rose to deepest rosy red colour. The type of which *C. Regneri* is the specified form is an important addition to these deciduous kinds. When the pots are fairly well filled with roots, weak manure water is excellent to aid in producing large handsome spikes by building up and forming large bulbs. The evergreen species, of which the best known is *C. veratrifolia*, are now throwing up their flower-spikes. The pure white flowers of this species, so freely produced on upright spikes, are charming when then are kept in good condition, but a peculiar yellowish fly is very troublesome to them. It differs from the usual green fly in being more active; when disturbed it runs down the flower-stems and takes shelter in the plant. We got rid of this, but the ordinary species has taken its place. For this I find fumigating with tobacco the best remedy. *C. masuca* is a handsome species when it can be grown well. I have not found it so free in growth as *C. veratrifolia*, but it was one of the parents of the truly hand-

some *C. Dominiana*. This, like *C. masuca*, when it can be kept in a healthy condition, is a beautiful decorative plant. The spikes, like those of *C. veratrifolia*, will last in good condition for at least two months. I have repotted these evergreen species and varieties in years gone by in the winter season, but recently I have made an alteration in this respect and do so in the summer, usually when the flowering season is over. I find the best material for potting them in is the tough fibrous material cut from a moorland pasture where Heath and Bracken grow, mixed with a third part of light fibrous peat, a little leaf mould, coarse white sand, and a small portion of dried cow manure. In potting these Orchids, or any other such as require loam as the staple material, the operation must be performed differently from that of the ordinary species, such as *Cattleyas*, *Lælias*, &c., which have the compost raised considerably above the rims of the pots. Terrestrial Orchids may be treated much in the same way as ordinary plants, that is, finished off to a level surface about an inch below the rims of the pots. *Cymbidium eburneum*, not always seen in such healthy growing condition as it ought to be, may be repotted in the same way and about the same time. Our plants have now finished blooming, and I will repot them at once. *C. Lowianum* may be repotted at any time, the same potting material being required with a great deal more root-room. The *Anguloas* recently repotted are now growing vigorously and pushing out their roots freely. The flowers and growths come together, and in consequence of this much water is required to promote the full development of leaf and flower by the middle of June. The greenish yellow aphid, already alluded to, will find its way to the flowers of the *Anguloas*, and when it gets inside the flowers it is not easily got rid of. I have linked the above Orchids together, as all of them do best in the intermediate house in the part of it least exposed to the sun, with the exception of *Cymbidium Lowianum*, which does well in any part of it. Another intermediate house plant which most cultivators can manage very well for three or four years after it has been imported is *Vanda cœrulea*. I have tried to imitate the natural conditions of the plant as described by travellers who have seen it on isolated trees growing near the top, and in a district where slight frosts occur in the cold season. The plants did well for three or four years in the *Cattleya* house at the cool end, but they at length showed signs of exhaustion. By changing them to the warmest part of the East India house, they have regained their dark green colour and are growing much more freely. Their position in the warmest house is one where many Orchids would not be safe, that is, in the part where two blinds meet together over the roof, and as there is a space of glass at that point always uncovered when the blinds are down, they get the full advantage of light and only partial shade. The best plant of *Vanda cœrulea* I have ever seen was grown for twenty-five years in a Cucumber house, and it produced splendid spikes of flowers annually. I still think they do best in cylinders formed of teak wood, one end of the cylinder being placed in a flower-pot. The plants can do with a good syringing overhead in hot weather. As I write, one of those cold drying east winds, which penetrates into all the houses and necessitates much care in ventilating, is blowing. I find it best to admit but little air and shade in bright sunshine, damping the paths and stages of the houses as it is seen that more moisture is needed in the atmosphere.

J. DOUGLAS.

THE KITCHEN GARDEN.

MAIN-CROP BEET.—The first week in May is the most suitable for sowing the main crop of Beet. Select an open plot of ground which has been deeply worked and in a fertile condition. The soil, however, must not have been very recently manured, this causing the roots to be forked. The seed should be sown thinly in drills 15 inches apart. Where those long tapering roots are required, such as are seen at exhibitions throughout the late summer and autumn months, a different mode of treatment is required. Instead of sowing thinly in drills

in well-worked soils, the seeds are sown in what are termed moulds. These are formed by inserting in the soil a pointed piece of wood the shape of a Beet when fully grown, and are generally about 20 inches in length, the width across the top being 3 inches, and tapering down to a point. The hole formed by this piece of wood is filled up with fine sandy soil perfectly free from stones. About three seeds are sown in each hole, these being thinned out to one, selecting that nearest the centre.

BROCCOLI.—Although there are very few Broccoli about this season, yet it will not do to neglect sowing. To succeed with Broccoli, the plants must be grown as hardy as possible from the sowing of the seed. Select an open spot fully exposed to the sun and as far away from trees and walls as possible, so as to promote a sturdy growth from the time the seed germinates. Sow thinly in drills 15 inches apart, and as soon as the seedlings appear take precautions to guard against the ravages of the Turnip fly. This destructive pest will clear off large patches in the course of twenty-four hours. Timely dustings of soot and lime in the early morning whilst the seedlings are wet with dew will keep them at bay, and early hoeings will soon promote free growth. However beneficial a firm root-run and not very recently manured ground are for planting out Broccoli, yet for the reception of the seed the soil should be fairly rich, so as to promote a quick early growth.

DWARF BEANS.—It is hardly safe to sow in the open unless in very favourable districts much before the second week in May. The seed, especially if a wet time should ensue, lies in the ground too long, and when it does germinate the plants have a very yellow and weakly appearance, and afterwards do not come away at all kindly. For the earliest sowing in the open select a warm sunny border sheltered from cold winds. The soil must also be in a highly fertile condition, having previously been deeply dug and heavily manured. The rows should not be less than 2 feet apart for even the smaller growing varieties, and for such as Canadian Wonder 30 inches is none too much. The seeds must be sown thinly, or placed in threes 3 inches apart. For helping on an early batch a portion should be sown either three seeds in a 4-inch pot, or rather thickly in boxes. Although Beans will transplant out of boxes, yet sowing in pots is the best plan. If pots are placed in a cold frame the young plants will grow freely, and when genial weather arrives be fit for planting out on a warm and well-manured border. Whilst growing in the frame the young plants must not be coddled in the least, or else when planted out they will soon have a starved appearance, and defeat the end in view.

SCARLET RUNNERS.—Much that has been advanced as regards the dwarf Bean is applicable to the Scarlet Runner. It is not wise to sow much before the 10th of May, and in late districts or on cold soils sowing may well be deferred later. The Scarlet Runner is one of the most convenient of kitchen garden crops as regards soil, for it will grow almost anywhere if the soil is in a fertile condition and not too much overshadowed by trees. To secure the best results an open position should be selected. The crop will hold out longer on a heavy soil than on that of a lighter description. The flowers also set better, as during a dry time on a light soil the blooms very often drop off. On hot and shallow soils the best results are obtained by preparing and sowing in trenches. The manure being placed directly under the rows and covered with soil, the roots receive the direct benefit of whatever is applied, and may also be more conveniently watered when necessary. Crowded planting must be carefully avoided. Where a double row of seeds is sown at alternate distances of 9 inches apart, the rows should be quite 6 feet apart; this will allow of a double row of sticks being placed crosswise. This forms a strong and effective mode of staking. With single rows of seed stout stakes should be placed upright. However well adapted for market growers in open fields may be the system of growing without stakes, yet in private gardens, where the most is required off a given space, train-

ing to stakes is the best plan. For this mode of treatment the seeds should be sown in single rows, these being 4 feet apart. The bine will have to be topped occasionally to make the Runners form a bushy habit.

TURNIPS.—Early Turnips growing in frames must have attention both as regards free ventilation and watering when needed. When the lights are kept too close the tops become drawn, and when watering is neglected the roots are tough and hot. On cold and heavy soils seedling Turnips are much more liable to attack than on lighter and warmer ground. A dusting of soot and wood ashes between the rows hoed in will be of great benefit and lessen the evil of bolting. More seed may now be sown according to the demand and requirement. The Snowball type only should now be sown, as being more tender and of much better quality than the earliest class. Select a well worked and well manured site, the soil being brought to a fine tilth. Dressings of wood ashes or burned refuse should when at hand be freely applied. Y.

GARDEN FLORA.

PLATE 803.

LONG-TAILED LADY'S SLIPPERS.

(WITH A COLOURED PLATE OF *CYPRIPEDIUM DOMINIANUM*.)

THE plant here depicted is a garden hybrid of the group known as *Selenipedium*. The plants belonging to this section are all natives of South America. The plant now under consideration was the first hybrid obtained in the *Selenipedium* group, having been raised between *C. caricinum* and *C. caudatum*. It was dedicated to the raiser by Professor Reichenbach some twenty-one years ago. It happily combines the beauties of both its parents, being like the former in shape, whilst in size and the long petals it resembles the latter. The leaves are distichous, broadly elongate, and rich green. The flowers are borne two and three together on a scape and all expand at one time, which is unusual, as in the group to which it belongs one flower generally only opens at a time. The dorsal sepal is buff colour, with deeper yellow veins, the lower sepal of much the same colour, but not so strongly veined. Petals long and narrow, pendent, spirally twisted, some 6 inches or 8 inches in length, pale yellow at the base, passing into dull rose towards the points. Lip reddish brown in front, with darker veins, fading down to yellowish green beneath, the infolded plates at the mouth creamy yellow, spotted profusely with rose. It is a very handsome variety, and although not possessing such bright colours as some, it appears to be gaining many admirers. The following are a few of the long-petalled *Cypripediums*:—

C. CAUDATUM.—This plant is one of the parents of *C. Dominianum*, and it has always been one of the wonders of the garden since its introduction. The first figure of it that I know appeared in 1844 in the "*Icones Plantarum*," tt. 658-59. In this Sir Wm. Hooker says it is from specimens sent home by Mr. Wm. Lobb when collecting for the Messrs. Veitch, of Exeter, in the Andes east of Lima, in the far interior. Living plants at this time were brought by Lobb as far as Jamaica, but they perished while he lay ill of fever. The figure is

* Drawn for THE GARDEN in Baron Schröder's garden at The Dell, Egham, by H. G. Moon. Lithographed and printed by Guillaume Severeys.



CYPRIPEDIUM DOMINIANUM

destitute of foliage, and Sir Wm. Hooker further says all that was known previous to Messrs. Veitch's specimens coming into his hands was an injured flower in the herbarium of Ruiz and Pavon then in his possession, and from which Lindley drew his necessarily imperfect description. Messrs. Veitch say it was introduced from Peru by Mr. Lobb in 1847, since which time it has been a permanent resident in our gardens, and it was first flowered by Mrs. Lawrence in her famous collection of plants in 1849. The plant is now too well known to need much description. It has plain green leaves 1 foot or more long, the scape longer than the leaves, bearing from two to three flowers. The sepals are yellowish, veined with green; the petals lengthened out into tail-like processes, and I have a flower now in my possession which was grown in Mr. White's garden at Arddarroch in which they measure 32 inches in length when dry; when fresh they measured 36 inches.

C. CARICINUM.—This is a small and pretty little species, but now seldom seen in collections. It is here mentioned simply because it is the other parent of *C. Dominicanum*. The leaves are very Sedge-like, as implied by its name; the scape is erect, and it bears from two to six or more flowers; these are medium sized, greenish white, veined with yellow; the petals pendent, spirally twisted, and about 4 inches long; the small oblong lip is greenish yellow, the infolded part ivory-white, having a row of black dots round the inner margin.

C. ALBO-PURPUREUM is an exceedingly handsome hybrid, having *C. Schlimi* and *C. Dominicanum* for parents; the flowers are large, the sepals ivory white tinged with rose and veined yellowish green, the petals some 5 inches or more long, pendent, spirally twisted, rosy-pink, lip large, bright rose colour, the infolded portion creamy-white dotted with rose. It was raised by Mr. Seden in Messrs. Veitch's nursery at Chelsea.

C. GRANDE is another of Mr. Seden's hybrids, and quite a gigantic plant, a cross between *C. Roezli* and *C. caudatum*; it is a very strong grower and the flowers also of great size; the dorsal sepal is yellowish white, tinged with green, and veined with yellowish green; lower sepal larger and with paler veins; petals 1 foot to 16 inches long, ribbon-like, except at the base where they are broad, which is yellow veined with green, the other portion pale rose, spirally twisted; lip much extended, greenish yellow, stained with brown, whitish beneath; the large mouth is furnished with creamy-white infolded lobes, spotted and dotted with rosy crimson. The finest example I have seen of this plant was in the Downside collection of Mr. Lee, the broad leaves being upwards of 2½ feet long, and the stout scape between these 4 feet high.

C. SCHREDEBERGII.—This is another Veitchian hybrid, and perhaps the finest raised by Mr. Seden or anyone else amongst the *Selenipediums*. The flowers are large and bright in colour; the dorsal sepal creamy-white tinted with rosy-pink, the lower sepal large and paler, petals about 5 inches long, spirally twisted and wholly rose-pink; pouch large, bright rose colour, the infolded lobes creamy-white spotted with purple.

The above comprise the most of the long-tailed *Selenipediums*. They are all highly deserving of attention, some of them being the most free-flowering in the genus. Amongst the eastern kinds with long petals may be mentioned *C. Stonei* and the variety *platytanum*, *C. Sanderianum*, *C. Morganiae*, *C. Rothschildianum*, *C. philippinense*, *C. Parishii*, *C. euryandrum*, &c.

WM. HUGH GOWER.

Tasteful arrangements at flower shows.—In visiting various exhibitions, be it in town or country, the eye is often offended through the bad taste displayed by exhibitors in displaying their productions. When, however, the opposite is the case, and a most pleasing effect is produced, it gives one pleasure to record such instances for the bene-

fit of others. At the meeting of the Royal Horticultural Society on April 14 two such examples of good taste were to be seen, one of which had been previously sent. This was a basket of choice alpine plants in flower sent from the Kew Gardens collection, than which nothing could have been in better taste. The plants were arranged in a circular basket, being grouped together effectively, making thus a beautiful display. No ordinary way of exhibiting would tend so much towards popularising these beautiful plants as this method. It is worthy of consideration by the trade growers also; in fact, it is a most convenient way of transit, let alone any other good point in its favour. I hope we shall see several more such exhibits sent from Kew in this manner. The plan adopted for naming is also a novel one, and is done in a most simple method. A circle is drawn upon a card, and the names found thereon correspond in position with the plants in the basket. Were the names added by little strips of card upon each kind, then the effect would be spoiled to a great extent, reminding one more of the appearance presented by shop windows when selling off. This has been most judiciously avoided. The other instance was that of the first prize collection of Daffodils in the large class, sent by Mr. Cowan, Valleyfield, Penicuik, N.B. Some eighty or more varieties were arranged in a most tasteful and natural manner upon a bed of Moss. True, such a glare of colour was not produced, but that even is of small moment when obtained at a sacrifice of taste and natural arrangement. The only fault that could be found with this arrangement was the lack of Daffodil foliage to accompany as far as possible the blooms of each respective kind. If this had been used the effect would have been considerably enhanced, and thereby the semblance of thinness, by the flowers occupying too much space, would not have been noticed at all. Such displays as these set up out of the common line of things in general deserve encouragement.—JAMES HUDSON.

STOVE AND GREENHOUSE.

AZALEAS.

THERE is no single class of greenhouse plants yielding such a wealth of flower or that makes a brighter display than the above, and yet it is often the case that they do not receive all the attention they deserve, except at that particular time when one is anxious to get them in flower as soon as possible, or in the case of specimens which are annually shown. It is perhaps easy to account for the neglect; the very little trouble required to keep them in health, and to secure an annual display of flower, is apt to suggest the inference that no attention at all is required beyond the watering. Failure to flower may be traced to several causes, among which are a very late and badly ripened growth, a partial destruction of foliage in spring, a similar catastrophe to bud in autumn, and a severe visitation of thrips. Azaleas want a nice, genial warmth for a time after flowering to assist the growth, a Peach house or vinery in work suiting them admirably; it may, however, be specially noted that it is a nice, genial warmth, and not any very great amount of heat that is wanted, particularly if the plants are to stand outside through the summer months. With warmer weather, and the fruit in the houses approaching the ripening stage, come increased ventilation and a dry atmosphere again, just what are wanted for the ripening of the wood. It would be well if there were in all gardens of any size one or two light, airy structures that could be used for the summer housing of Azaleas, but, failing these, they have to go out of doors as soon as the weather will permit, which is not, as a rule, until June is well advanced, and all danger of biting winds is past. Assuming that the outdoor temperature is propitious, the only thing to be feared is very bright sunshine. Danger from this is perhaps about the last thing thought of, but it, nevertheless, must be guarded against, for it must be remembered that if the plants come from fruit houses they have for some time been somewhat heavily shaded, and unless something similar is pro-

vided for a few weeks the young growth is not able to stand against the direct rays of a powerful sun. I have erected in the open a couple of skeleton frames similar to that described for *Chrysanthemums*, viz., with fir poles, and on the top and south side of this I hang tiffany until the appearance of the plants indicates that the foliage may with advantage be exposed to full light and air. Such an arrangement is in my opinion preferable to placing the plants where they are naturally in the shade, such as under a north wall, as this position is not so conducive to building up stout hardy foliage and plump flower buds. In the matter of autumn housing I would say by all means get the plants under cover in good time, not later than the first week in September. They might remain safely out of doors in some seasons until the end of the month, but it is a risky experiment, and so lately as the autumn of (I think) 1887 we had sufficient frost on the 10th of September to nip and destroy any of the advanced buds, alike of *Azalea* and *Chrysanthemum*, that remained unprotected. So far as the enemies of the *Azalea* are concerned, I suppose thrips must be reckoned the worst. Red spider will attack them, but only so far as I have seen when there has been unwarrantable neglect with the water-pot. Both spider and thrips have their special seasons and places, and where the latter is locally troublesome, as on outdoor fruits, the *Azaleas* will require careful watching, and may want two or three vigorous applications with the syringe during the time they are out of doors. A few varieties that may constitute a small collection or that may be included in any case are *Borsig*, *Felder's White*, *Kaiser Wilhelm*, *Mlle. Louise de Kerchove*, *Sigismund Rucker*, *Souvenir de Prince Albert*, *Stella*, *Reine des Roses*, and last, although by no means least, *Deutsche Perle*. This is not only one of the best *Azaleas*, but one of the most useful plants of late introduction, very early and admirable alike for effective decoration and for cutting.

Claremont.

E. BURRELL.

Habrothamnus Newelli.—Now and then one sees a note on the old *Habrothamnus elegans*, but very rarely is the newer and much better *H. Newelli* mentioned. In habit and freedom of flowering they are much alike, but while the colour of the former is of a dull purplish red, that of the latter is a rich lustrous crimson. I have found this invaluable for dinner-table decoration for some weeks past, as the plant is of the cut-and-come-again character, one large plant giving flowers enough to make a good display. For filling the little troughs so often used to hold flowers on the dinner-table, or for vases which require long sprays, it is equally suitable, and in either case good sprays of a pendulous *Retinospora* associate well with the bright-looking flowers, for this is one of the few flowers that do not look at their best in a cut state when set up with their own foliage. This plant succeeds well in a position that many things would resent, such as the back wall of a vinery, where it will easily and soon cover its allotted space. A good plate of this plant appeared in *THE GARDEN*, Vol. XXXIV., p. 106.—J. C. T.

Funkias as pot plants.—Viewed as regards their highly ornamental foliage, there are few plants more deserving of pot culture for greenhouse or room decoration than *Funkias*, especially the two kinds *F. Sieboldi* and *F. ovata variegata*, the foliage of both of which is highly ornamental. Plants of these are very useful for vases and last a long time in perfection. Not only are they good for the purposes referred to, but they are even more valuable for church decoration, for which I have used many of them this Easteride for filling in and forming a setting to pots of *Deutsche Perle* and other white *Azaleas*, *Deutzias*, &c., and giving the necessary greenery thereto. This they afforded of the choicest kind and of a very distinct and striking character, the deep rich metallic hue of the one contrasting and showing up very pleasingly against the delicate green and creamy white edged leaves of the other. The way I manage these *Funkias* is to grow them in some spare part of the garden and take up the plants any time during the winter, when if too large they are cut

through the crown and so divided, and then potted into 6-inch or 8-inch pots, after which they are stood under the greenhouse stage or any out-of-the-way place till they are put into heat a few weeks before they are wanted for use.—S. D.

PROPAGATING WINTER-BLOOMING PLANTS.

WINTER blooming Begonias should now be propagated to obtain fair-sized plants by the autumn. Some also can be raised from seed for this purpose. *B. Knowsleyana* is a case in point. Other good kinds, for the dull season are *B. insignis* and *B. Digswelliana* of the shrubby species. Such fine varieties as *B. Adonis* and *B. John Heal* of the tuberous section should not on any account be overlooked. These may also be raised from cuttings, but I hope the time is not far distant when we shall be able to have this new race in greater variety and from seed also. The early spring flowering shrubby kinds as *B. manicata*, *B. hydrocotylifolia*, *B. odorata*, and *B. nitida*, ought also to be increased from cuttings as soon as possible. *B. semperflorens* and *B. weltoniensis* for autumn flowering should now be potted. Cuttings of the first-named strike freely enough, as also do those of the latter. *B. weltoniensis* can also be increased readily by division. The fine foliated section are most useful towards the autumn for vase plants or to use in the conservatory when other things of good quality are getting scarce. For these purposes attention should now be given them, increasing by division of old stools now or later on by the leaves. It serves no good purpose to start these Begonias earlier in the season; the foliage made early does not stand nearly so well. Begonias prefer a light soil with plenty of sand; leaf-mould can, therefore, be freely used in every instance. Those tuberous Begonias started some few weeks back will now give good cuttings if the stock requires increase. Taken off with a heel they strike freely enough in moderate warmth. This is a good method for perpetuating the choicer of the double-flowered kinds. For these Begonias it is best to use 2-inch pots and nearly all sand. Seedlings raised this spring should be kept growing without any check. If pots or the time for potting off cannot be spared, they will do equally well in pans or boxes. Do not let them remain in a temperature still rising, such as a vinery advancing, but rather aim at keeping them near about the same by removal from house to house to suit the case. *Justicias*, *Scutellarias* and the *Pentas* are all most useful autumn-blooming plants; cuttings of each of these now strike well, taking the young shoots with a heel and placing each one singly in a small pot to prevent a check later on. Continue to keep an eye on all suitable cuttings of *Poinsettias* and *Euphorbia jacquiniæflora*, putting in a few as they may prove fit. *Thysacanthus rutilans* will now be past its best; cuttings should therefore be taken as soon as they are fit, keeping the old stools if any extra stock is desired; these will continue to do good service for several years. This lovely early-flowering spring plant ought to be grown more than it is. *Amsonia punicea*, when well grown, is a decidedly distinct and useful winter-flowering plant; of this cuttings can now be struck from the young wood. *Centropogon Lucyanus*, although it does not require the heat of a stove, needs at least a temperate house and extra warmth at the start. This plant can be easily increased by division of the old stools now or later on from cuttings. *Eranthemum pulchellum*, the finest of all blue flowering plants for the winter, should be struck as soon as young shoots can be obtained, the old ones being only kept for future supplies of cuttings, later batches being desirable for the sake of having a stock of dwarfier plants to use with dwarf *Poinsettias*. *Franciscea Hopeana*, a deliciously-scented winter blooming stove shrub, is well worth looking after. It may now be struck from cuttings, growing well upon its own roots. This plant has a singular appearance whilst in flower; its blossoms open of a rich mauve colour and gradually fade to almost a pure white; thus you have two colours of flowers upon the plant at the same time. *Plumbago rosea* and the brighter variety *P. coccinea* had best be struck afresh every

spring; these should also be struck in small pots as the cuttings can be had. Young plants mostly of all the foregoing grown on quickly are much better for decorative use in the winter than older ones kept over from year to year. Not only do they take less room, but the return is frequently far more satisfactory both as regards freedom of flowering and general utility. H. G. H.

MAGNOLIAS IN POTS.

WHILE fully agreeing with the opinion expressed in the note by Mr. Wythes on the above subject, I notice that particular favourite of mine, the little *Magnolia stellata*, or *Halleana*, is not mentioned, yet it is, perhaps, the easiest of all the *Magnolias* to grow and flower successfully year after year in pots. This species forms a low, much-branched shrub, whose flowers are naturally produced early in the spring before the expansion of the foliage. These blooms, which are borne singly on the points of the shoots, are from 3 inches to 4 inches in diameter, and composed of a number of narrow, strap-like petals, which, after being open some time, gradually reflex, and finally show the centre of the flower. When in the bud state the blooms are often slightly tinged with pink, which, even if present, is confined to the outside of the petals, and, consequently, directly they are open the interior, which is of the purest white, is alone seen. This pretty little *Magnolia* flowers out of doors about the same time as the *Yulan* (*M. conspicua*), and while this last is from its early-blooming character frequently cut by late spring frost, its smaller relative is likely to suffer even more. This is owing to the dwarf character of *M. stellata*, the blooms of which often get splashed and disfigured during heavy rains. By giving a little stimulant occasionally I have had this *Magnolia* flower year after year without being repotted, and every spring a good-sized specimen of it is very attractive in the temperate house at Kew. *M. Lenné*, *M. Soulangeana*, and Messrs. Veitch's *M. Soulangeana nigra* all flower well in this way, and the darker tinted blossoms, especially of the last, are very different from the lighter coloured flowers of the *Yulan*.

Besides *M. fuscata*, there is another evergreen species that requires the protection of a greenhouse and will flower freely in a small state. I allude to *M. pumila*, whose blossoms are—as in those of *M. fuscata*—by no means showy, but remarkable for their delicious fragrance. This *Magnolia* forms a freely-branched bush, clothed with oblong-shaped leaves 6 inches to 8 inches in length, deep green above and glaucous beneath. The flowers are egg-shaped, of a greenish white colour, and as a rule do not stand clear of the foliage, being partly hidden by the leaves; still, a single expanded bloom will from its fragrance be at once detected. Like the other members of the genus, this is rather impatient of being disturbed at the roots. It is often regarded as a stove plant, but will do well in a greenhouse. H. P.

Carnation Souvenir de la Malmaison.

I have always considered this to be the tenderest *Carnation* in cultivation, and it was therefore with much surprise that I read in THE GARDEN that upwards of 100 plants had passed through the severe winter uninjured so far north as Birmingham. Not having frame room for them, I left about fifty well rooted layers in the open ground, and not more than half-a-dozen of them are alive. During the severe frosts they were covered with 2 inches or 3 inches of straw; whereas other kinds entirely unprotected growing near them came through uninjured. Living as I do south of London, it is a mystery to me how this *Carnation* could survive in the late severe winter so far north as Birmingham. I can only surmise that the frost cannot have been so sharp and prolonged as here. I should much like to know how these plants will bloom in the open ground. I have never found *Malmaison* quite satisfactory, not even when the mildness of the winter allowed the plants to come through in a fresh healthy condition. The flowers are so large and double, that they require more warmth to expand them than *Carnations* generally. Even when fairly

well opened they too frequently get damaged by rain and moist nights, so that their beauty is of but short duration. I know that there are favoured localities to which these remarks do not apply. A lady, for instance, residing at Torquay told me that there *Souvenir Carnation* grows like a weed in the open, and, of course, blooms proportionately well. Cuttings put in in the open ground without protection of any kind strike freely and soon grow into blooming plants. But Torquay is a paradise for hardy things having an element of tenderness in them; and we have such a number of fine *Carnations* constitutionally adapted to our climate, that I see no use in growing one that can only be relied on to bloom satisfactorily in such exceptionally favoured localities. *Souvenir de la Malmaison* is a greenhouse plant and demands, even with the aid of glass shelter, really good culture for the production of blooms that emulate the *Rose* in size when well developed.—J. C. B.

Fuchsias.—Old plants potted early will now have made good growth, and will in many instances be in need of another shift to keep them still growing in a free manner. Pinching at the second joint should be persisted in for some weeks to come, and it need not cease until about six weeks before they are required in flower, that being about the time needed to get the majority into a good blooming state. Young spring-struck plants must not be starved; generous treatment will receive ample reward later on. A shelf near the glass will suit these very well for some little time to come. Those in baskets ought also to be stopped, as early flowering is not desirable when their value is more apparent later in the season. In the case of rafter plants, for which purpose *Fuchsias* are admirably suited, the leader should be encouraged until the proper length has been obtained, side shoots being meanwhile stopped, but not tied in too formally at this or any time.

Begonia Triomphe de Nancy.—This *Begonia*, which was given an award of merit at the Royal Horticultural Society's meeting on April 14, is one of the many beautiful hybrids raised by M. Lemoine, of Nancy. It was first put into commerce last year in company with a second variety—*Triomphe de Lemoine*. Both of these were announced as the result of crossing the singular *B. socotrana* with the pollen of another *Begonia*, probably *B. Roezli*. At all events *Triomphe de Nancy* is a very beautiful plant, and one destined, I should say, to become popular. Though the name of M. Lemoine is more closely identified with the many beautiful hybrid *Gladioli* than with any other class of plants, there are many more which remain a living proof of his skill as a hybridist, as, in addition to several classes of *Begonias*, we have *Pelargoniums* of various sorts, *Fuchsias*, *Montbretias*, double *Lilacs*, and numerous other subjects.—H. P.

Sollyas.—These are pretty neat-growing plants, blooming freely in the summer months, and producing just the colour which is rare, *i.e.*, blue. They are suitable for covering trellis-work. They may be potted in well-drained pots in peat, leaf-mould, and light loam, the whole made tolerably sandy. During the summer *Sollyas* require an abundance of water. Being natives of Australia, they succeed well in the greenhouse, and even in the open air in summer. *S. Drummondii* is a small-growing, trailing plant, with narrow leaves and a profusion of dark blue flowers. It is useful for clothing trellis-work and for hanging baskets. It is one of the smallest kinds. *S. heterophylla* attains to a height of some 8 feet or 10 feet. The cymes are many-flowered and the colour a delicate blue. It is a very beautiful plant for covering pillars in the greenhouse, but is more effective when planted out. *S. linearis* grows about 4 feet in height. The cymes are many-flowered, drooping, and rich deep blue. Its habit will render this most effective when grown as a specimen pot plant. It is a native of the Swan River.—W. H. G.

Show and fancy Pelargoniums.—These must have plenty of light and air to keep the plants dwarf and stocky. As soon as they show flowers they may be fed liberally either with liquid manure or artificial stimulants. The

shoots should not be allowed to get overcrowded in the centre of the plants; if drawn gently outwards, this will not occur. One often sees far too many of these plants grown in comparison to the room at command, the result being that they are partially spoilt before they reach the flowering stage. Half the number when well grown would give far more satisfaction, leaving room for other things earlier in the season when these do not require nearly so much room. Keep a close watch against green-fly and fumigate in good time, or adopt other means, as syringing with soft soap in a weak state.—G. H.

ARUM LILIES.

OPINIONS seem to vary much among gardeners as to the desirability of planting out Arum Lilies, but I am convinced it is far better to do so than to keep them in pots during the summer, for, however well they may be attended to, they never make anything like the free growth they do when they have unrestricted root-room and plenty of water. It naturally follows that the plants become much stronger under such treatment, and are therefore able to form, perfect, and send up a much greater amount of bloom. I am led to this conclusion from having so managed them for years and meeting with such good results, if I may say so, as we have quantities of plants in 8-inch pots that have from five to eight expanded flowers at one time with others showing and in different stages, the first being very large and the successional ones smaller, but all of great use for different purposes, the last mentioned of much value for cutting and furnishing. The time I plant out is about the end of May, or as soon as I consider that we are safe from frost. Before planting them out a trench is prepared something after the manner of that used for Celery, or if more than one row is put out, then a bed is got ready by digging and throwing out the top 4 inches of soil, and then forking in a good dressing of short rotten manure, and when all is ready the plants are knocked out of the pots, pulled apart, and at once planted at about 2 feet apart. The next proceeding is to mulch, to which I attach much importance, as it shades the ground, prevents washing of the soil when watering, and conserves the moisture, thus keeping the roots in a uniform condition all through the summer and autumn. By the end of October it is time to take the plants up, and it is then necessary to lift them carefully and to work away a good portion of the earth if they come up with large balls, and so reduce the bulk that they will go into medium-sized pots. When the potting is done they should be stood close along under the foot of a north wall or other shaded and sheltered position, and then have a good soaking of water, afterwards keeping them frequently sprinkled or damped overhead. This will prevent any flagging and maintain the foliage quite fresh, as well as assist the plants in forming new roots. To get Callas into bloom early they must have a light warm house or pit, and if they can be accommodated with a little bottom-heat all the better, as that sets them to work at once and quickly starts up the flowers. A few years ago I raised and grew many Callas from seed, hoping to get something fresh among them, but all turned out exactly alike, and as they increase so readily by the number of side shoots they send up, it is not worth the trouble of seeding them, and yet it appears that a new one has in some way originated and is being sent out. If it is the exact counterpart of our long-tried and very old favourite, except greatly diminished in size, it is sure to be sought after, as it will be valuable for so many purposes.—C. aethiopia being too large for some uses when the plants are well grown. S. D.

SHORT NOTES.—STOVE AND GREENHOUSE.

Bouvardias.—Those which were pruned and potted some time ago will now have made considerable progress. Ours are at the present time in a late viney, from which they must soon be removed as the Vines are now coming on fast. Shade from this time is not

in any way desirable, but a little warmth for a few weeks longer will not do any harm. Pinching the points of the shoots should still be followed up, a bushy growth being desirable. Young stock struck this spring will require rather more heat for them to make proper progress so that good plants may be had.—G. A.

Coleus.—Cuttings of the fancy kinds to make useful dwarf plants, or those grown on without much stopping should now be got in. If struck much earlier the danger is they will be allowed to remain crowded together, thus being drawn up and spoiled in appearance at an early stage.

Coprosma Baueriana variegata.—This is worthy of a place among the variegated plants recommended for the greenhouse on p. 367, for the leaves are all distinctly edged with yellow, against which the bright shining green of the rest of the leaf affords a pleasing contrast. It is of easy culture, while what is also greatly in its favour is the fact that at all seasons of the year it is equally beautiful. Propagation is effected by means of cuttings which strike root without difficulty, yet I have seen many failures in attempting to increase the Coprosma in this manner.—T.

ORCHIDS.

ONCIDIUM STRAMINEUM AND O. CHEIROPHORUM.

THESE two dwarf growing and pretty species I recently saw in great beauty. *O. cheiroporum* I have only once seen before in such glorious condition, and that was in Mr. Philbrick's fine collection at Regent's Park. It usually flowers about Christmas. These plants are usually ignored by the beginners in Orchid growing because the individual flowers are small. They are, however, very numerous and very sweetly scented, so that they should be welcome to all. They require but little room, and are best accommodated in small hanging baskets, well drained and filled with peat fibre and Sphagnum Moss chopped small. The *Odontoglossum* house suits them well; indeed we are told that the thermometer stands at some few degrees only above the freezing point at the time of flowering in their native country. I do not think we have sufficient means of ripening the growths during our summer to enable the plants to withstand so low a temperature under cultivation, and I consider 45° sufficiently low. These flowers last several weeks in full beauty.

O. CHEIROPHORUM is a small growing species with flattened pseudo-bulbs, about an inch high, and bearing a pair of leaves nearly 6 inches long. The scape is drooping, about as long as the leaves, and densely flowered; the flowers small, golden yellow, and remarkably sweet-scented. This plant was originally found by Warszewicz on the volcanic mountain of Chiriqui at an elevation of 8000 feet above the level of the sea.

O. STRAMINEUM.—This Mexican plant was discovered many years since, but was not introduced to cultivation, I believe, until some twenty-five years ago. It may be said to resemble the previous kind in manner of growth, but it has broader leaves. The spike is very similar, but in some instances it is slightly branched at the base; the flowers are dense, three-quarters of an inch or more across, sepals and petals white, the lower ones slightly dotted with red; the lip is white, tinged with yellow, and more or less speckled with red dots. It comes from the mountain of Orizaba, in Mexico, at some 3000 feet elevation. It appears to have been discovered by Hartweg when travelling and collecting for the Horticultural Society of London, and its name was first published by Lindley in 1838.

WM. HUGH GOWER.

Dendrobium Falconeri giganteum.—With various other things Mr. Cypher, of Cheltenham, sends a fine flower of this variety, which seems to be cropping up in the west, as a short time ago I received a flower of a variety from the fine collection of Mrs. Studd, Royal Crescent, Bath. The flower now before me, however, is finer than Mrs. Studd's and the colours are brighter. It is quite 3½ inches across, the

sepals wholly rose-coloured, with darker tips, the petals broad, white, and heavily tipped with deep amethyst-purple; the large lip is heavily tipped with the same colour, and marked at the base with a heavy blotch of maroon-purple, bordered with deep orange.—G.

Oncidium zebrinum.—"G. H. B." sends me a very fine flower of this species, which he says is from a spike some 14 feet long. The plant was bought for *O. macranthum*. It is in growth very much like that species, the bulbs, however, being somewhat more slender. The flower measures some 2 inches across, the sepals and petals nearly equal, much undulated, pure white, transversely streaked with violet, the centre of the lip deep yellow, the limb white. This plant has been in cultivation nearly twenty years, having first flowered with Mr. Bull, of Chelsea. It is a native of Venezuela.—W. H. G.

Oncidium sarcodes giganteum.—Under this name comes a truly magnificent form of this plant from Mr. Cypher, of the Queen's Road Nursery, Cheltenham. The flowers are round and full and the colours very bright; the dorsal sepal yellow, faintly marked with brown, the lateral sepals similar, reflexed and quite hidden by the lip; petals broad and full, rich yellow, blotched at the base with bright shining brown; lip very large, clear rich yellow, spotted just below the crest with a few dots of bright brown. The spike is very long, extending some 4 feet or 5 feet, much branched, and carrying a quantity of flowers, which last a long time in full beauty. It thrives well with the *Cattleyas*.

Flowers from Norton Manor, Taunton.—Mr. Wilfred Marshall sends me a beautiful lot of Orchids, the colours and the remarkable vigour of the specimens showing they have been grown in a clear atmosphere. Amongst them are a fine spike of *Odontoglossum triumphans* bearing six flowers, the ground colour being rich golden-yellow blotched with deep chocolate; a spike of bloom of *Cymbidium Lowianum* carrying ten flowers; and a very good form of *Cattleya Mendeli*. It is singular how early this kind is blooming this season. A grand flower of *Cattleya citrina*, a fine spike of a good form of *Odontoglossum Andersonianum*, the lateral sepals rose colour spotted with bright chestnut; a flower of *Cypripedium caudatum*, which, from the size and brightness of its sepals and the colour in its lip, I think deserves the name of roseum, were also included in the collection sent.—W. H. G.

Dendrobium Jamesianum.—Flowers of this plant have been sent me by Mr. Cypher, of Cheltenham, mixed with those of *D. infundibulum*. They are easily recognised. In *D. infundibulum* the flower is spreading, the front lobe of the lip broad and full. The side lobes meeting over the pure white column are stained in the mouth with yellow in this instance, but sometimes with cinabar-red. In *D. Jamesianum* the flower is equally white, but the petals are inclined forward, the side lobes of the lip being differently shaped and meeting over a green column. The two kinds are found together, and consequently grow well under cultivation with the same treatment. I think Reichenbach was quite right in making them distinct species.—G.

Trichopilia suavis.—One of the most pleasing of the beautiful Orchids exhibited by Mr. Sander at the last meeting in the Drill Hall was undoubtedly this old species of *Trichopilia*. It is very rarely indeed that one sees it in such splendid condition, the three baskets being literally covered with bloom, and the plants themselves showing remarkable vigour. The sepals and petals are lanceolate and about 2 inches long, having a pinkish ground colour marked with spots of a deeper shade. It is in the large lip, however, that the especial beauty of the flower resides; it is 3 inches long and somewhat funnel-shaped, the whole of the outside being white, as are also the throat and the reflexed margins on the inside, but the main portion is coloured similarly to the petals, only the blotches are more distinctly defined and more deeply rose-coloured. On Mr. Sander's plants the stiff, oblong leaves were 3 inches wide and nearly a foot long. This Orchid is certainly one of the most charming of those that

flower at this season, although it has none of the dazzling beauty of such associates as the Cattleyas. It is a native of Costa Rica, whence it was introduced forty years ago. It should be grown in hanging baskets, the compost being of fibrous peat and Sphagnum; it prefers a little more warmth during the season of growth than the other Trichopiliis, and should be given the warmest place in the intermediate house. The specific name refers to the sweet fragrance of its flowers, which is comparable to the Hawthorn.—B.

PHAJUS GRANDIFOLIUS.

THIS is one of our oldest Orchids and still most valuable for winter bloom. It requires but little attention, as its chief wants are liberal feeding and abundant supplies of liquid manure. This Orchid is not so much grown as its long-blooming and free-growing qualities should warrant. No doubt many choicer varieties have taken its place to a great extent, but it should certainly be in all mixed collections of stove plants. Being a good winter-blooming plant, it deserves extended cultivation. I well remember the value of this plant in the early spring months for decorating a large hall that was filled with plants, and kept at a temperature of 55°. We had large plants in 16-inch pots, and they threw up noble spikes yearly with twenty to thirty blooms on a spike, the flowers lasting nearly six weeks. This plant requires abundant supplies of liquid manure when making its growth, and to obtain large specimens plenty of root space. The plants should be repotted and divided, if necessary, shaking out a large quantity of the old soil, and shortening back the roots.

A good compost for this Phajus is loam of a good turfy nature with a portion of dried cow or sheep manure and bone meal with a dash of sharp sand and some broken charcoal if the loam is of a heavy nature, and good drainage. I have repotted large plants every other year, feeding liberally when not repotting. The repotting and dividing should take place as soon after the flowers are over as possible; indeed, in the case of small plants and not over strong it is a good plan to cut the spikes when they have been open a short time, so as to throw all the vigour possible into the plant. This Orchid delights in a high temperature during the growing season, and should get the warm end of the stove, shading from bright sunshine and syringing twice daily round the pots and the old leaves, but taking care to keep the moisture out of the young growths. When the plants have made their growth they should be removed to a drier and cooler house; an intermediate house temperature is a safe one. The roots should be kept drier, but not so dry as to cause the foliage to flag. I find a temperature of 50° is a good one, with careful supplies of water at the roots; careful watering is also necessary when the plants are pushing up their spikes.

G. WYTHES.

SHORT NOTES.—ORCHIDS.

Lycaste Skinneri.—From Mr. Henderson, The Gardens, Broadoaksbury, comes a highly-coloured flower of this species. It was, however, past its best, and I could not form an opinion of it. I should much like to see it again in better condition.—W. G.

Dendrobium Boxalli, discovered some fifteen years ago, is now not much seen in collections. It seems to be nearly allied to *D. crystallinum*, and is a very pretty and showy species, the sepals and petals white with purplish tips, the lip yellow, bordered with white, tipped with purple.—W.

Angrecum Sanderianum.—This is now very beautiful in Mr. Sander's nursery at St. Albans. The long pendulous racemes are produced in great abundance, and they bear a vast quantity of their pure white flowers, which are each about an inch across with a long slender spur.

Oncidium Marshallianum.—Some flowers of this species come to me from Mr. Gregory, of Haselbeck Hall, Northampton, for my opinion. They are exceedingly beautiful, bright golden yellow, the centre of the petals being marked with bright cinnamon-brown. The spike was large and produced from a

newly imported plant, so that with care this will doubtless become an exceptionally fine flower. It succeeds best when grown upon a block of wood, and during the winter it should be kept at the cool end of the Cattleya house, but not dry.—W. H. G.

FLOWER GARDEN.

AMONG THE EARLY DAFFODILS.

WHEN the Daffodils begin to expand their welcome flowers from amidst a sea of waving glaucous leaves we know that we have already entered upon the brightest season of the year. Never before perhaps have these spring flowers had to contend with such unfavourable weather. In the early days of February we express little surprise should a keen frost visit us and seize the earliest kinds in the very act of expanding, and only a few years ago I well remember a

considerably retarding their flowering, very little damage was done. The mere retarding, however, will yet be felt by large growers, as with bright weather many kinds will flower out of season, and the first and second earlies are coming in apace, almost neck and neck, as it were. A very early form is *N. cambricus*, dwarf and free-flowering, with yellow trumpet and pale primrose perianth. King Umberto is also an early Daffodil, though not possessing any great merit, simply because the segments seem quite unable, or unwilling at any rate, to expand, therefore giving it the appearance of not being quite happy. Despite its reputed earliness,

N. pallidus præcox was not so early in flower this year as the Tenby Daffodil; in fact its earliness fades away after the first season in English gardens, and not only does it fade in this respect, for the bulbs very often die off wholesale. Even



Daffodils arranged with flowering branches of Berberis.

spell of frosty weather lasting a fortnight or thereabouts when the plants of the lovely *pallidus præcox* were several inches above ground. There they remained immovable in its icy grip, though quite unharmed, and eventually the flowers expanded within three days of the thaw setting in. But this season these beautiful spring flowers have been kept waiting by frost at a more seasonable time, though it was eventually prolonged to an unprecedented extent, and accompanied by storms equally and unusually severe. So far as the frost alone is concerned, our Daffodils are perfectly safe, but they are by no means equally safe, particularly in early districts, when visited by such storms as that which swept over the land on Monday, the 9th of March last, burying whole plantations of these flowers, and in some instances doubling and splitting the stems by the sheer weight of the snow, though, happily, beyond

our best cultivators cannot cope with this, and under cultivation, in English gardens at least, this otherwise chaste and pleasing form cannot be accommodated for any length of time. Even in maiden loam freshly broken up it is by no means happy, flowering well the first year and tolerably well the second, but beyond this—I am, of course, referring to home-grown bulbs—the flowers are sparse indeed. In a wild state it includes some really handsome forms, some of which have deservedly borne distinctive names, and but for this peculiar obstinacy to cultivation would hold a very prominent position in the list of early Daffodils. The flowers are extremely variable both in size and shape; some of the trumpets are bold, widely expanded, and beautifully reflexed at the margin; others, again, are intermediate in these respects, and from this they gradually taper down, as it were, to long cylindrical trumpets, and small in proportion; the greater beauty, of course, exists among the bolder forms, which if they were amenable to cultivation would be much prized.

N. OBVALLARIS (the Tenby Daffodil).—The flowers of this are only of medium size, yet possessed of a wonderful golden hue and a sturdy habit and vigour not easily surpassed or even equalled. Its compact flowers have made it one of the most popular of early Daffodils, and it is not surprising that it finds its way into the leading markets in quantity year by year. A fairly rich loam and deep, rather inclined to be heavy than excessively sandy and hot, suits this to perfection, and if planted in various positions in the garden a profusion of its neat blossoms may be had for a long time. Following closely upon this one we have

GOLDEN SPUR AND HENRY IRVING, two very fine varieties, though both are not required in any small collection. Golden Spur, however, is by far the handsomer flower; the length of the cup, the broadly expanded mouth, the deep rich gold of the trumpets, combined with an exceptionally vigorous constitution, are points fitting it for any garden. The weakest point in this noble variety is a lack of substance in the perianth a shortcoming extended to other good kinds, *e.g.*, *princeps* and *Horsfieldi*. On the other hand, Henry Irving beside Golden Spur lacks colour; while possessing a bold trumpet it is also deficient in its perianth divisions which are not generally of good form and are short and irregular at times; indeed, in these respects it should be regarded with the forms of *spurius*, to which in fact it belongs. Fitted for association with those just named is

ARD-RIGH, OR IRISH KING, flowering at the same time here as Golden Spur. This variety does not in all soils readily reveal its true character, and to obtain fine flowers you must first have obtained some large bulbs. This might naturally be supposed the invariable rule, and to some extent it is, but not absolutely, as many kinds will exhibit their true characteristics from quite small flowering bulbs. Particularly is this the case with *ornatus*, *obvallaris*, also *cernuus*, and even *General Gordon*; in each of these and many others the produce of small bulbs clearly shows its own distinctive features; while in the case of *Ard-Righ*, what are known as "flowering" bulbs do not show especial merit in the first year; while those two or three years planted reveal a variety of high merit.

PRINCEPS is another excellent kind to be ranked among early Daffodils, a graceful and useful variety for cutting or for exhibition, producing flowers also with remarkable freedom from established bulbs. Some beds of this have just been cleared, many of the bulbs having produced three and four each, while exceptional ones have produced five flowers. These were flowering bulbs when planted in the autumn of 1889 and have not since been disturbed, and I yet incline to the belief that many Daffodils are improved by being left undisturbed for a year or two, provided always they are healthy and sound when planted and room given for future development. Another first class kind is

GENERAL GORDON (known also as *spurius coronatus*).—This one is remarkable for its size and also the long, broadly expanded, yellow trumpet and lighter perianth segments, the latter standing boldly out and much imbricated.

N. VARIFORMIS is early and distinct among miscellaneous kinds; it is virtually a bicolor, much varied in form, the rim of the cup being beautifully recurved.

All these are now well in bloom, or have been during the past fortnight or three weeks out of doors, a sort of beginning as it were to a long season of flower, of which every garden should possess its share. In conclusion, it may be well to warn those who grow these for cut flowers alone, and particularly those living near London, of the mischief caused by heavy rains, especially after fogs or a continued drought. These are far more injurious than daily showers, as the grit from these latter may easily be washed off again; but this can hardly be done when a heavy downpour of rain succeeds a week or ten days' dry weather, for then the atmosphere is more fully charged with soot

which the first heavy rain brings down with it, and all flowers that are expanding will be much damaged thereby. It is unfortunate, too, that it is so adhesive that nothing will remove it. Even successive rains avail nothing, and it is better to try and prevent it rather than attempt to cure. The only thing that occurs to my mind is to keep the flowers gathered, provided they are required in a cut state. Gardeners in private places, however, should never be without a few pots of these lovely flowers in the conservatory at this time, growing them cool and allowing plenty of root room, for in such places their fullest worth may be realised and the purity of their flowers considerably enhanced. The larger Daffodils are very suitable for arranging in vases as in the illustration (p. 416), where *N. maximus*, bicolor, *Horsfieldi*, &c., are arranged with flowering branches of *Berberis*. E. J.

Spiræa astilboides.—It is now seven years since this *Spiræa* was put into commerce by Mr. William Bull, who imported it from Japan, and by whom it was first exhibited in flower at a meeting of the Royal Horticultural Society on June 6, 1880.



Primula rosea.

On this occasion it was awarded a first-class certificate, which time has proved to have been worthily bestowed, for it is a plant that is slowly, but surely making its way in popular favour. That it can be readily forced is shown by the numerous plants of it that may be seen at the various meetings in the early part of the year, while as a border plant, or, perhaps, I should say a subject for the bog garden, it is equally desirable. Like the other herbaceous members of the genus, it needs an ample supply of water at all seasons, but especially so just as the flower-spikes are developing. Though suitable for forcing, I question if this *Spiræa* will ever to any extent supersede the old *S. japonica* for that purpose, as it cannot be induced to flower so early in the season, added to which *S. astilboides* is naturally a much larger grower than the other, and consequently it is not available for small vases and similar positions. Still, a good-sized specimen of it is wonderfully effective in the greenhouse, and, as above noted, out of doors later on. *S. astilboides* is gradually becoming cheaper, but it is likely to be some years before we can purchase it as cheaply as the better-known *S. japonica*. There

is a variety of it I see announced by some of the Continental nurserymen under the name of *S. astilboides floribunda*.—H. P.

A FEW GOOD PRIMULAS.

PRIMULAS are essentially outdoor subjects, and so far as my experience goes, they resent culture under glass, more or less according to the nature of the locality and its proximity to large smoky towns. In this respect the other members of the *Primula* family differ widely from the florists' *Auricula*, which with coddling and other attentions has developed into an exotic, requiring the shelter of a greenhouse the greater part of the year. The species and hybrids, which have considerably increased in numbers since the conference in 1886, are amongst the very finest of our spring rock plants, and yet, with a few exceptions, one never sees them growing in the open air. Even *P. denticulata* flowers with the greatest freedom on the open rockery when the thermometer shows 10° of frost. Although this species thrives with the roughest treatment, and may be hacked about

with a spade to almost any extent when re-planting in autumn, I have rarely seen even moderately-sized flower-heads. It seems to want a loose, rich, black soil in a partially shady and moist spot. In such I have seen self-sown seedlings take entire possession to the exclusion of native weeds. *P. rosea* is another hardy and very charming Primrose. In a peaty bog I have also seen this species thrive well, seedling freely, and forming quite a colony of seedlings, with almost as many different shades of bright rose-pink. It is, however, one of the most accommodating Primroses I know, growing and flowering freely on dry as well as on damp soil, in shade and sunshine, exposed and sheltered. It will also be found very useful for pots, for corridors, &c., simply lifting the tufts and potting them, planting back as soon as the flowers are over. Dr. Aitchison says that wherever *P. rosea* was found its toes were always in water. *P. Clusiana*, in the London neighbourhood at any rate, is not easily man-

aged in pots, and yet when planted out it has made one of the prettiest groups I have seen this spring. Imagine a patch a yard in diameter with bright rose-purple flowers in such profusion as almost to hide the foliage, and we have in reality what this magnificent species has been this spring. *P. Clusiana* may either be divided or raised from seed. This latter plan I prefer, as it gives not a few very interesting and pretty forms. *P. Reidi*, from wet rocks in the Himalayas, is just coming into flower in a sheltered spot. The colour of the flower is of the most delicate cream and with a delightful fragrance. It thrives in a loose rich vegetable soil, and should be planted about an inch or so under the surface. Seeds which are freely produced should be sown directly they are gathered. *P. japonica*, one of the very finest of this genus, is not, however, nearly so plentiful in gardens as it ought to be. Once fairly established and left alone, it takes good care of itself, seeding about everywhere, and soon forming large colonies. *P. sikkimensis* is evidently a short-lived plant, and, if one may judge from the quantities of seed sent over, one of the commonest on the Himalayas. It is always at its best the third or fourth year, and although plants live longer and flower well, the vigour seems gone, and this should be remedied by periodically raising a batch of seedlings, which give little trouble if sown in a suitable compost in the open border. A free, rich, peaty, or vegetable soil suits it well, and shade rather than too much sunlight. The *cortusoides* section is again coming into favour, and with the new varieties raised both in this country and on the Continent will be much valued for the rockery. These plants, of which there are a great many very distinct varieties, do well in ordinary soil in a sunny spot, and flower at a time when they are both required and appreciated. They should be occasionally split up and replanted to give renewed vigour. If allowed to stand too long in one place the roots mat and the plants become weak. *P. pubescens*, *viscosa*, *Kitaibeliana*, *biflora*, *Wettsteini*, *intermedia* (illustrated on p. 420), *Wulfeniana*, *calycina*, *alpina*, and many others will be found to give better results in the open air than they do in pots or pans. K.

Early double sulphur Primrose.—This is the earliest to bloom of all the double Primroses, often expanding its first blooms at the opening of the year. It is now in fine condition owing to the long enforced period of rest during the severe winter, the blooms being so numerous as to almost smother the foliage. This Primrose ought to be valuable to the market grower, as the blooms are of a fashionable colour and owing to its precocity, gatherings in ordinary years can be had long before the single yellow Primroses come into flower. I have never tried it in frames, but with such shelter it would yield plenty of blooms when there are few, if any, Primroses in the open. I think that Primroses are far too little grown in this way. They are charming potted up in autumn and placed in cold frames, where with just a mat on in hard weather they will open their blooms almost as well through the winter as in their natural season. If one-year-old plants are used, say autumn-sown seedlings, put out 6 inches apart now in a cool situation, they will commence to bloom in October; whereas older specimens are much later in coming into flower.—J. C. B.

Cheiranthus alpinus.—I must apologise to "E. J." for any seeming doubt expressed in my note (p. 275) of his ability to strike cuttings of this plant, though after reading it carefully I fail to find anything that should convey such an impression; on the contrary, his own words, which I quoted, appear to me to have quite a different bearing, as he made no allusion to any difficulty in his own case, but only that some other people find a difficulty in striking it. In his last note on the

subject (p. 359), however, it appears that it is not always the grower who is at fault, but that some other influence causes the erratic behaviour of the cuttings or slips. I have read THE GARDEN long enough to place the proper value on "E. J.'s" notes, and I hope to have profited by them, and I hasten to admit that his experience of alpine in general, and of this one in particular, is probably much wider than my own, but my note was written in a moment of vanity at having struck a good batch of plants. It suits my purpose much better to propagate this from slips or cuttings rather than on the hillock principle, and I should continue to do so if I only got 25 per cent. to strike, as even then I should get a fair increase of stock, and I am quite content with the size of the resulting plants.—J. C. TALLACK.

OUTDOOR FUCHSIAS.

I HAD proposed to head this paper "Hardy Fuchsias," and, perhaps, should be justified still in doing so; but it does seem needful that we should learn from those who have quantities of old Fuchsia stools treated as hardy herbaceous plants as to how far these stools have come safely through the winter. Practically we have no really hardy Fuchsias, if by the term hardy we signify plants which will stand unharmed through our severest winters. But there are relative degrees of hardiness, and amongst Fuchsias some are undoubtedly harder than others. Around the sea-coast in the extreme north and in the Isle of Wight the variety *Riccartoni* may be seen in all directions forming large bushes or hedges, as at Appley Towers, or in many diverse forms. These plants ordinarily do not appreciably suffer during our winters, and are not cut close to the ground. More inland, one can only have these bush Fuchsias by cutting down the annual growths close to the roots every winter, and protecting the stools with mounds of ashes or other material. It would now be interesting to learn how far these Fuchsias have been harmed. I do not anticipate that the stools protected as described have materially suffered, because the snow which lay whilst the frosts were most severe proved a great protection to all kinds of close-growing or earth-sheltered plants. It would indeed be a misfortune were those gardens which have been so beautified by Fuchsias in the summer to be deprived of their chief summer charm; and when we note how severe has been the injury done to many assumed hardy shrubs, it can hardly be expected that Fuchsias have escaped even if the root stocks are uninjured. It is very doubtful whether through all our great range of hardy shrubs we have any which are more beautiful than are fine naturally grown bushes of Fuchsias when in full bloom. We may grow plants in pots during the winter and turn them outdoors to bloom in the summer. That is very well, but it is not exactly what is most desirable or pleasing in Fuchsia culture. Such plants will only be safe in sheltered places where strong wind does not play. Bush Fuchsias from old stools are less liable to injury from rough wind, as the shoots are stout and come from the ground direct. Such varieties as *Riccartoni*, *coccinea*, *corallina*, *magellanica*, and *globosa* are all capital shrubby forms and bear cutting back with impunity. It would almost seem, from the facility with which they reproduce growth in the summer, that they were naturally herbaceous shrubs. I have often wondered that big beds of such Fuchsias are not found in public parks or large gardens. Nothing in that way should be difficult of accomplishment where it was desired. In planting such a bed the stronger growers should be put into the centre, and the dwarfier ones, such as *magellanica* and *globosa*, round the sides. The white-flowered forms seem less fitted to endure winter treatment of this nature. Still the old *Venus de Medici* and *Rose of Castile* are fairly robust, and well merit a trial for this purpose in beds fairly sheltered from rough winds.

A. D.

Hepaticas.—These, like Christmas Roses, seem very uncertain in their likes and dislikes, as in some gardens both may be seen growing with the

greatest freedom, and at the proper seasons flowering profusely, while in others, do what one will, there seems a difficulty in getting them to do at all. Much of this must, I think, be owing to soil, as Hepaticas like a cool, moist bottom where they can be partially shaded or protected by Evergreens or the north side of some buildings. Not long since I saw a bed in Mr. Gilbert's nursery in Ipswich where all the plants were in the rudest of health, and not only so, but thousands of seedlings were coming up around them, and so thick were these, that the cocoa-nut fibre in which they were plunged was quite full and perfectly green on the surface. These plants were in such a position that the sun never reached them, or if so, only for a very short time. The spot was a low, damp one, as water springs up near, and therefore the cocoa-nut fibre must be always moist, and yet not unduly wet, which accounts for the free germination of the seed that falls on it. It is often by accident that little discoveries in the management or raising of plants are found out, and feeling that the knowledge of this particular case may be of use or interest to lovers of Hepaticas has induced me to mention it. Although we cannot all find such a suitable situation as the one referred to, we can try a layer of cocoa-nut fibre round our plants, as that, I am convinced, is very helpful to them in maintaining a uniform degree of moisture and keeping the requisite coolness at the roots.—S. D.

Hardy plants from seeds.—As a rule, seedlings are better and more robust than plants obtained by division. I have just been sowing a collection of hardy plants on a piece of land that was trenched up before the frost set in last November, and which now is in splendid condition. Many of the seeds are very minute, and if sown among rough clods would fail to grow. I prefer to sow in shallow drills, the depth being proportioned to the size of the seeds. *Lupinus arboreus* and *L. polyphyllus*, for instance, should be sown deeper than the *Campanula* and others, whose seeds are like fine dust. Nine inches between the drills will give plenty of room for hoeing, cleaning, &c., and the plants will grow faster when the surface is frequently stirred. The seeds should be sown when the surface is quite dry, and there is no better way of covering than the old-fashioned one of walking along with one foot on each side and drawing the feet along so as to scatter a little soil from each side alternately, and then finishing off with the back of a wide rake. If only a few plants of each variety are required, the ground may be laid out in 4-foot beds with the drills drawn across. After sowing go over and press the seeds down with the teeth of the rake, and finish by drawing the back of the rake over to give a neat finish.—E. H.

Double crimson velvet Primrose.—With reference to what has been written about this splendid Primrose, I may mention that a London nurseryman has a large stock of it, the plants being in excellent condition. I do not know how the plants are grown, but I have an idea that they are artificially screened in frames, perhaps, from the effects of the parching atmosphere during the summer and early autumn months. The remarkably fresh appearance of the foliage in autumn would seem to justify this impression. In whatever way they may be cultivated, it is evident that it is possible to grow this fine double Primrose satisfactorily in the south of England. Mr. Wolley Dod considers that soil is all-important, and doubtless a vigorous root action will in a great measure neutralise adverse climatic conditions. I am inclined to think that perfect drainage is the primary point to be considered. I have found that the roots of this Primrose are much more delicate than those of Primroses generally. If the soil becomes close and over-wet in winter, many of the roots will decay, and although the foliage may remain fresh through the winter, the health of the plants will be undermined and they will succumb later on. A year or so ago I planted some nice young specimens of this Primrose on a north border. The soil got very wet in winter, and this spring I find that the greater portion of the roots are decayed, so that the plants have to make an entirely fresh start, and

of course they will give but little bloom, and that very inferior in quality. Other kinds growing with them did not perceptibly suffer. It may therefore be concluded that good drainage is of the utmost importance in order to guard the roots from the effects of stagnant moisture during the resting period. This Primrose appears to belong to that class of hardy flowers which requires plenty of moisture in the summer with perfect drainage during the winter months. If these conditions can be accorded it, there is a reasonable chance of getting it to thrive. It is a beautiful flower, and more worthy of cultural care than many things grown under glass.—J. C. B.

Single white Primroses.—Under the appellation of "Munstead White," Miss Jekyll showed the other day at the James Street Drill Hall a basket of a white single Primrose. I find nothing easier than to have pure white Primroses true from seed. My experience for some few years has been that fully 90 per cent. will come true to colour, and I have no doubt whatever were the seed stock grown more removed from coloured forms than I can have them, that the produce would be all absolutely true. Very effective indeed are pure white sorts, especially when seen in large clumps. The plan of sowing seed so soon as ripe, and of getting the plants dibbled out into the open ground early in the following spring, conduces to the production of these early blooming clumps. Where there are plenty, a few dozen lifted into pots and stood in a frame or cool greenhouse will produce pure white blooms for pulling in abundance, and be under glass as white as snow. The cream or sulphur-coloured variety, the natural Primrose hue, also will thus treated come very true from seed. That colour is, however, less popular, because, let the blooms be ever so fine and good in substance and form, there are foolish people who aver that they are but common or wild Primroses. If we could induce admirers of the political flower to grow these freely from seed in their gardens, there would be less reason for the Selborne Society to utter its strong protest against the wholesale destruction of wild Primroses which seems to be going on throughout the country.—A. D.

Alstroemerias.—"M. C." (p. 376) has, I think, come to a very wise conclusion in reference to these when he speaks of saving any he may in future have over the winter, so as to plant them out in the spring, and even then I would advise him to put them in at least 6 inches deep, as it is only in that way that Alstroemerias can be made safe against severe frost. A good plan of proceeding, if the plants are in pots, is to dig out a trench, or trenches, if beds or borders are to be planted, making them of about the depth mentioned and putting the plants at a foot apart therein. As growth commences and continues they can then be gradually earthed up to the proper level of the ground, which is better than burying the crowns all at once and leaving them to find their way through. The thing with Alstroemerias is to start right and give them a good place, for then, when once fairly established, they, by their naturally deep-rooting habit, are well able to take care of themselves. To this fact I can testify with the greatest confidence, as I have two borders of them here that have been in existence nearly thirty years. The plants are full of vigour every season, and have now just again pushed their way through the soil, and promise to give the usual fine show of blooms. The borders referred to are sloping south, and therefore exposed to the full sun, and they were prepared by being trenched and having plenty of leaf-mould and sand worked in below. All I do to them is to keep them free from weeds, and when the stems are perfectly ripe or dead remove them, but not before, after which, or some time during the autumn, I give a coat of half-decomposed leaves or very mild leafy manure, which answers the double purpose of enriching the soil and protecting the plants during winter and spring. If seed be sown the beds should be treated much in the same way—that is, start with them low and earth up as the plants progress; but most

important of all with them is to mulch the surface before winter sets in, as they must be well below the surface to be out of reach of hard frost, and for the first few years they will not have got their soft, fleshy roots far enough down.—S. D.

SPRING FLOWERS.

IN a recent article it was pointed out that the home of many of our prettiest spring bulbous plants is in the Grass, and that we have only to plant them therein to ensure their success. The Snowdrop and the Aconite are now past, but they have but given place to other things as lovely. For example, the Spring Snowflake and the Apennine Anemone are now in season, and nothing more beautiful and spring-like could be desired than spreading colonies in the Grass of these two flowers. There are a few spring flowers that are worthy of the best culture in beds or borders, and some of these may with advantage be passed in review. These are flowers that we ought to grow in large colonies or spreading masses. If instead of the usual crowded shrubbery we have beds and borders of choice shrubs, between and among them we shall find places for spring flowers and the ground may be carpeted with blossom. Failing these, it were far better to make some special beds or borders for these flowers, so that we should not greatly miss them when their season was past, nor be under the necessity of rooting them up to plant other things for the summer. In how few of our gardens do we find any Auriculas, yet in them we have flowers that are sweet and very pretty. As a garden flower the Auricula is neglected. At present those who make a speciality of Auriculas grow them for exhibition. These fine show kinds, however, are out of the question; they would be poor out of doors, but as with Carnations so with Auriculas, we want sturdy self-coloured, free-flowering border kinds. Auriculas are so thoroughly hardy that they leave nothing to be desired in that direction. They are easily raised from seed, and those who propose to grow the flower extensively out of doors had better start with seed, and selecting the best kinds continue seed-saving and raising till a good strain or a selection of fine kinds is obtained. The best are easily increased by division; therefore good kinds should be grown in large masses. There is room for considerable improvement in the Auricula from the open-air cultivator's standpoint, and this will very probably be brought about in the course of time. It would appear to be too much to expect it of the society which professes to exist on behalf of this flower, as its members generally are too much occupied in producing flowers with beltings or edgings, eyes and pastes of geometric roundness and evenness, that they give little or no heed to the production of finer self types that are equally as beautiful, and many think more so, and of some value in the garden.

The Primrose has lately been so improved and such fine forms have been raised, that it is pre-eminently the spring flower for extensive cultivation in our gardens. The way not to grow it is to stick in sundry tufts at remote intervals along some border of hardy plants, and yet that represents the sum total of hardy Primrose culture in many gardens. In speaking here of the Primrose, the Polyanthus of gardeners is included, because since the advent of some of the finer strains which have been called bunch Primroses, it may be as well to include them all under this name. The season of this flower lasts at least for three months, the Primrose proper, that is the single flower upon a slender stalk, being the first to appear. Of this there are many forms, some very choice, such as the old double crimson and others, but these can only be well grown in special places that are cool and moist, so they may be left out of the present article. The single lilac Primrose, however, is a kind that almost everyone can grow. One of the features of an East Kent rectory garden are the lines and masses of this single mauve or lilac Primrose, which is earlier even than the common yellow, as in mild seasons it flowers more or less throughout the winter, and finishes with a great flush of flowers

in Primrose time. The bunch or Polyanthus Primroses come a little later and prolong the Primrose season on to May. Recent improvements among these have been quite in the right direction, and there are now some magnificent strains. Some of the crimsons and reddish browns are very rich and striking, but perhaps the finest of all are the whites and deep and light yellows that have flowers the size of those of the common Primrose borne in clusters upon such long, stout stalks, that no better or more applicable name than bunch Primroses could possibly have been given them. Yet these are strangers to some of the largest gardens, although so easily grown. Only those who have seen them in great masses know aught of the delightful effect they produce at a very minimum of cost, labour, and trouble. Although they grow more freely and better where they have the ground all to themselves, yet they may be planted in such places as the common Primrose thrives in, but generally there is far too much bareness in and about our gardens waiting to be covered with plants that will establish themselves and obviate the necessity of so much needless annual digging. If there are no suitable positions as above suggested, these Primroses justify and repay the preparation of a site for them, for no spring flower is more worthy of a good place. Forget-me-nots, Wall-flowers, Rockets, and Anemones are among the finest of spring flowers, but they need good culture. Between the subjects that have only to be planted and left alone for the future and those that need not half the trouble of the fleeting, tender, annual things, spring might indeed be a season of fragrant flowers. H.

HARDY HERBACEOUS SPIRÆAS.

THE Spiræas form a pretty extensive family, chiefly of a shrubby or semi-shrubby nature, and from their dwarf, compact, and free flowering habit are specially adapted for grouping and for mixed borders of all kinds. Many of the more robust of the shrubby kinds, such as *S. Lindleyana*, are really the most charming of summer-flowering plants, and characterised by the light airy grace of their sweet flowers and the elegance of their varied foliage. The herbaceous section, which comprises many ornamental species, is now indispensable in the hardy flower garden, and when grouped in a natural way produces the most charming effects.

THE GOAT'S BEARD (*S. Aruncus*) is one of the most effective for this purpose. It requires little trouble to establish it, and its abundance of feathery heads, which last a considerable time, make a really ornamental group. It is a vigorous grower, 3 feet to 4 feet being an average height. The leaves are pinnate, the leaflets being in three or four pairs, oblong, and finely serrated. It is a noble plant for the rockery and mixed border, and is easily multiplied by division of the stools or by seeds. The variety *angustifolia* is very elegant in habit and a most useful border plant. Native of America, Asia, and various parts of Europe.

THE DROPWORT (*S. filipendula*) is a common, but extremely useful species, and especially the form with double flowers, which I find extremely useful for cutting. Both this species and variety do well in the mixed border; their close compact habit and white rose-tipped flowers recommend them as dwarf border plants.

S. KAMTSCHATICA OR *GIGANTEA*, a giant species lately introduced, will be found more useful in the wild garden or by the lake-side than in the flower border. It grows from 5 feet to 8 feet high, and bears huge leaves similar in shape to those of *S. palmata*. The flower-heads are rather small and disappointing, considering the vigour of the plant.

S. LOBATA (the Queen of the Prairie) is the most charming of all the dwarf species, and I believe it includes the plants introduced under the names of *S. palmata purpurea*, *S. p. alba*, and *elegans*. It seems nearly allied to *S. palmata*, differing in the more or less pinnate leaves, with irregularly toothed leaflets. It thrives best in a rich sandy soil. It is very valuable for the rockery, and also for the margins of shrubbery beds. *S. digitata* and *S. venusta* are nearly related.

S. PALMATA, with its rosy-crimson heads of flowers, is by far the most beautiful of this section. Although generally considered a tender species, I have found it perfectly hardy, flowering most abundantly on the margin of a lake or pond, near enough to allow the roots

to find their way into the water. It thrives best in a deep, rich loamy soil, and would make a most effective group in the wood or on the margins of shrubby borders. *S. Ulmaria*, *S. U. fl.-pl.*, and the form *aurea* are also worth growing, especially by the margins of ponds, &c. D.

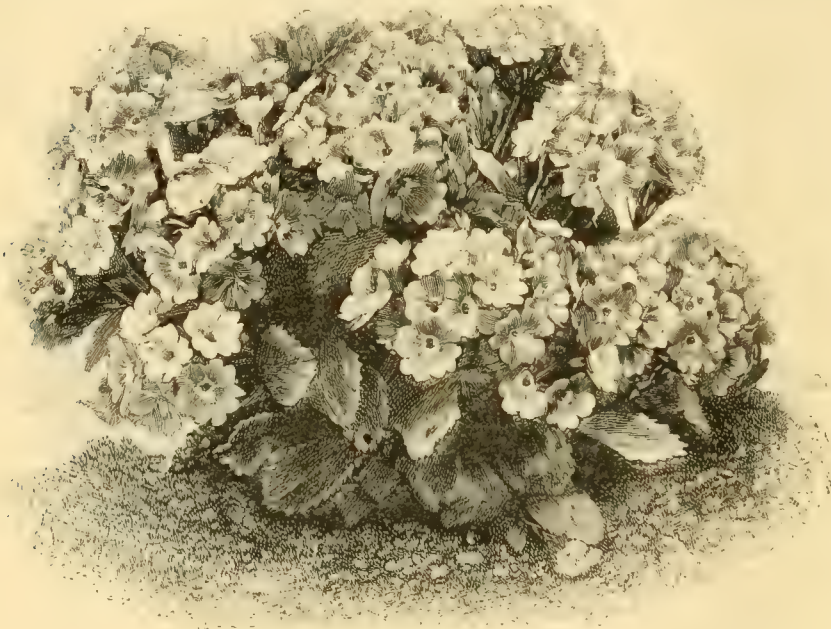
THE CULTIVATION OF HARDY FLOWERS.*

OUR problem for to-day is, "given a garden, it is required to make it gay with hardy flowers for about ten months in the year." Hardy flowers suitable for mixed borders often belong to plants of shrubby habit, or bulbs or annuals, but the larger part of them grow upon herbaceous plants. Time will not allow me to include to-day any description of the special cultivation of rock plants, or alpinists properly so called, though the term "alpinists" is often used indefinitely, and includes many things suitable for the mixed borders; but I propose to deal with hardy plants, as the term is generally understood by the mass of amateur gardeners, to whom I address myself. Probably all my hearers have a garden with hardy plants in it already; they wish to know how to select more, and how to grow them all in the best way. In visiting other gardens they

If the two last keep their old leaves through the winter till the new ones come, and if all the three flower well, your garden may be gay with flowers all the year round; but where any one of the three flourishes there is not much fault to find with the drainage of the soil. However, it is better to be contented at first to make up your flower borders with plants which you know by your own experience, or that of your nearest neighbours, to do well in your soil and climate. In this way you will bring no failures into conspicuous places, and visitors to your garden will observe how well everything seems to do. But every garden, however small, must have reserve and trial beds behind the scenes. It is better to try to do, if possible, with fewer Cabbages and Potatoes, and to take part of the kitchen garden for the reserve beds. These beds should be composed of different mixtures of soil—some of the natural soil of the garden, some lightened with leaf-mould or sand, some mixed with lime and brick rubbish, and so on. Have as many of them as you can, both for providing flowers for house decoration—some of the best of which grow on very unsightly plants—and for propagating what you wish to increase; also for nursing seedlings till large enough for the mixed borders, but mostly

exhausting to soil, and few things can grow through the dense mat which they make on a surface where they are established. Never replant old lumps of anything; nearly all plants are better for being pulled into small pieces when moved, so that every part of the root can find its way through, to be fed by the renovated soil. There are some few plants, it is true, which should never be moved or divided; of these the *Fraxinella* is a notable example. Giant Poppies, too, and some kinds of *Eryngium* will grow for a generation in the same spot without exhausting the soil; such things may be left growing, and be dug round when a border is renewed. The feeding roots are so deep that this may easily be done. The most convenient size for a mixed border is 7 feet or 8 feet wide, when accessible from both sides, so that every part can be reached without walking upon the soil. A large proportion of hardy plants show a decided preference for an eastern aspect, or a slope towards the east. It is not east wind that they like, but morning sun; and if they can be sheltered from the wind without taking away the sun, all the better. A western aspect is the worst of all. Many choice plants dislike mid-day sun, and do best on the north side of a slope. In recommending shade, the prevailing atmospheric conditions in each district must be taken into account. Plants which do well in shade in Kent or Surrey might die for want of light if planted in the shade in a sunless part of the kingdom like Cheshire; but shelter from wind is far more important to many plants than shade. Most sun-loving plants are quite contented to see the sun from sunrise to mid-day. However, every garden does not admit of choice in these matters, and plants must be selected and placed according to circumstances; but as regards soil, it may be made heavy or light, and lime or stone may be added according to the preference shown by each in the trial-beds. By far the best time for replanting is early in autumn, not later than the middle of October; roots will then have enough activity to fix the plant to its place before the dead time of winter. Things which cannot be planted before the end of October had better be left until just starting to grow in spring, though in that case a spring of late frosts and dry east winds will cause many to fail; but the worst time to move is when all the leaves are dead and the plant is absolutely at rest. It then cannot anchor itself to the soil; it remains with loose roots all winter, and subject to evil influences which nothing but the strongest constitutions can overcome.

I mentioned about five years as the average time during which a border may be left nearly to itself after planting, if weedy and rapidly spreading plants on the one hand and short-lived or delicate plants on the other are avoided; and this leads me to say something about the average duration of the life of hardy plants. This depends in a great measure on the soil, as they wear themselves out far more quickly in a moist and retentive soil than where it is sandy and dry. Some deep-rooted plants will go on for many years flowering annually in the same spot without deterioration. Others continue only on condition that they are allowed to roam and seek ever new pastures for their roots. Some of my choicest plants—the best Columbines, for instance—seldom flower well for more than two seasons. With other plants, the richer the soil the more they multiply shoots; and, if not divided and moved, a plant which in poor soil might have lived ten years or more becomes helplessly exhausted in three or four. I therefore determine five years as the average ornamental life of a plant in cultivation, where, it must be remembered, life is under very artificial conditions. Then there are some plants which grow for four or five years from seed or cuttings before they flower well, and such plants must be grown on in the store-beds. Others never do so well as the season after they have been planted as single shoots in the previous spring or autumn. All this must be learnt by practice. As for plants of running habit, they should be avoided in mixed borders. It is ruin to most of them to try to keep them in bounds by cutting round, as by this all the best flowering shoots are cut off. I have tried confining them by



Primula intermedia. (See p. 417.)

make notes of what they see and admire, they observe what is praised in gardening journals, and in due time send an order to a nurseryman, and when the fifty plants ordered arrive, they plant them haphazard in the mixed borders. The result rarely comes up to their expectation. Perhaps many of the things ordered would never thrive in their soil and climate under the most skilful treatment, for every plant has its likes and dislikes, which must be considered if it is to do well.

In the first place, the soil must be well drained; amateurs must learn what this means and see that it is done. Most soils are well drained by nature, but my own garden is an example of the contrary. Formerly every flower bed on a sloping lawn filled with water, and ran over at the lower side in wet weather, and of course nothing choice would grow until this was remedied. You may try your soil by digging a hole 3 feet deep in your flower border, and filling it with water; if after three or four hours the water stands in the bottom, artificial drainage is probably required; but different parts of the same garden may vary much. A good test of drainage is afforded by plants themselves. Observe *Gentianella*, *Hepatica*, and *Christmas Rose*.

* Paper read by the Rev. Wolley Dod at a meeting of the Royal Horticultural Society, June 24, 1890.

for gaining experience with plants new to you, and finding whether you can do well with them, and in what soil they do best. You can then promote them to a more honourable position when you please.

Flower borders should never be dug, unless you intend entirely to empty and replant them. In strong and exciting soils, in which plants grow fast and are short-lived, this should be done every five or six years; in the intervals you will from time to time have made notes about the arrangement of the plants in the bed, in which you should consider how and where each thrives best as much as where it looks best, because the first condition generally ensures the latter. In planting observe that some plants will flower from top to bottom, if not crowded, and want to be seen all round, especially those of shrubby habit; others, such as *Lilies*, *Lychnis chalcidonica*, and the like, flower only at the top and want less room in proportion. Therefore, do not attempt to plant by rule as regards distance, but consider what space each plant wants in order to be seen to the best advantage, and give it that space. As for filling the blanks between the principal large plants with dwarf early-flowering things, such as bulbs, it requires careful judgment and experience, or the whole border will be made a failure by it. Wood Anemones, for instance, which I have seen recommended for this purpose, are very

underground earthenware hoops, or within boards, without much success. Therefore such subjects as *Helianthus rigidus* and *Anemone japonica*, which few of us can do without, must have special arrangements made for them; but, however they are treated, it is better to keep them in full view, where they can be under constant control, and to assign to them a sufficient breadth of soil to prevent their soon exhausting it.

Another question which occurs in selecting occupants for a permanent border, expected to last for years, is that of hardiness. This is, of course, a relative term, and there can be no absolute standard fixed. Some plants which are called hardy may withstand perhaps 20°, perhaps 30° of frost; their power of withstanding depends upon a combination of surrounding conditions and attendant circumstances. What we want to know, and it must be learnt chiefly by our own experience, is the relative hardiness of each plant in our own garden. Many a plant is well worth growing which is killed once in five, or even once in three years, but such plants should not occupy positions so prominent that their death would leave a conspicuous gap. A hardy plant may even require annual renewal by cuttings, to be wintered under glass, and be quite worth the trouble. Other perennials seem soon to lose their power of breaking in spring from the hard or woody base, and are lost if not renewed by seed or cuttings about every third year. Such are *Hypericum olympicum*, *Ononis rotundifolia*, *Gypsophila paniculata*, &c. When we have once lost all our stock of a good plant we should consider by what precautions we might have saved it, and take them another time. Perennial does not mean everlasting or immortal, as some cultivators seem to think. As soon as a new plant is obtained, our next thought should be how to increase it; when we have succeeded in this, we should try what soil, what aspect and surroundings suit it best. Without neglecting what you can learn from others about its successful cultivation, try yourself to discover something new in this way. Gardeners should never be content with imitating, and should not think too much about imitating Nature. Those who have seen the plant growing wild are perhaps more likely to succeed with it than those who know nothing about its habits; but as this subject has been fully discussed lately I will only say, never think you cannot cultivate a plant successfully because you cannot imitate the conditions in which it is known to thrive in its native home; you may find it flourish still better under very different conditions which you can easily give. But one thing no man can do or ever will do, and that is, train a plant by habit to live in a greater cold than it is made by Nature to bear. What is called acclimatisation, or habituating plants in successive generations from seed to become harder than Nature made them, seems to me to be a theory unsupported by the experience of facts. Plants may adapt themselves in the course of ages to very gradual lowerings of temperature in their native home, but it cannot be done suddenly, or in the space of a man's life. I believe an individual plant of any cosmopolitan species will be equally hardy whether the seed from which it is raised is gathered in the tropics or in the arctic regions.

(To be continued.)

Crocuses.—Referring to "A. D.'s" note (p. 333), I put in in the autumn of 1889 ten varieties as well as a quantity of large yellow. They made a fine show in the spring of 1890. I left them undisturbed until this spring, but find that the yellow and purplea grandiflora are the only sorts that have bloomed well again. Surface soil good, subsoil clay; position due south, so that the bulbs should have ripened well. The leaves were left entirely untouched, so that the failure is not due to any undue clipping, as is so frequently done.—T. J. W., *Crouch End*.

A beautiful mixture.—A carpet not over thick of the exquisite double white Violet Comte de Brazza mixed with the scarlet Windflower, single or double, (*Anemone fulgens*). The single is best for artistic effect, the double being apt to grow into lumpiness. The double scarlet Windflower looks better in masses edged with the Violet aforesaid, the white Forget-me-not (*Myosotis dissitiflora alba*), or the white Arabis.

What a glorious hardy plant this Arabis is, blooming magnificently after such a winter as has not yet closed, while the double white Violet and the early white Forget-me-not have been cut severely, the latter in many cases killed outright. But the Arabis and the Windflower have smiled at the frost, and are blooming just as usual—the Arabis better than usual, if there is any difference. Either of these plants by itself in masses in April is very beautiful, but huge masses of scarlet flanked with broad tufts of pearly white are simply matchless in their combination.—D. T. F.

BOOKS.

OBSERVATIONS ON INJURIOUS INSECTS.*

THE winter has been so long and continuous, that farmers and gardeners must almost have forgotten that there are such things as insects which attack and devour our crops. Miss Ormerod's annual report comes to remind us that such creatures do exist, and, what is better still, shows how they can be best dealt with. This report is the fourteenth, and contains the results of observations and experiments made during 1890 on twenty-three different kinds of pests to field and garden crops. Exactly the same number of insects were reported on last year, but in the present publication there are eight larvae not hitherto mentioned in these reports, and one, the eel-worm (*Tylenchus devastatrix*), which causes Clover-sickness and Tulip root in Oats, has another plant added to its list of victims. Most of the attacks on which observations have been made are more interesting to the agriculturist than to the gardener; still few of the latter, particularly those who grow fruit, can afford to ignore these reports, though I am afraid many do so to their cost. As in those of former years, the utility of these reports is much lessened by the want of conciseness in the way the information is given. A judicious use of the knife would remove many redundant words which bear no fruit, when those which do would have greater prominence; at present it is often a matter of difficulty to find the fruit which one wants, so overshadowed is it by leaves. Last year seems to have been a favourable one on the whole as regards immunity from insect attacks. Miss Ormerod in the preface says: "During the past season of 1890 all, or most all of our common crop insect pests were present and their ravages reported on to a greater or less extent, but only a few as being seriously injurious and none as causing wide-spread attack," and, judging from what opportunities I have had of forming an opinion on this point, I can quite endorse Miss Ormerod's statement. She also mentions that "to avoid yearly repetition, I am trying to bring forward observations of attacks not hitherto worked out, but which are of practical importance." The insects and other pests which have not found a place in previous reports are the American Clover-seed midge, one of the mites, the dot moth, the horse botfly, the fox-coloured Pine sawfly, an eel-worm causing Cauliflower disease in Strawberry plants, and the Willow beetle. The American Clover-seed midge (*Cecidomyia leguminicola*) is supposed to be a recent importation; it is a very small insect. "To the unassisted eye this appears much like a little blackish or brownish gnat about an eighth of an inch in length;" it lays its eggs in the flowers of Clover, the grubs from which feed on the seeds, thus rendering the crop useless when badly attacked except for feeding purposes. A mite (*Tyroglyphus longior*), which is so very nearly allied to the common cheese mite that it is very difficult to distinguish it from that species, is occasionally found in enormous numbers in haystacks. They are very small creatures, not more than a twenty-fifth part of an inch in length. Why this species should at times live and breed very freely in haystacks has not yet been discovered; they are usually found in cheese, flour, linseed-meal, and other similar substances, but every now and then one hears of their appearance in haystacks in the most extraordinary numbers. It does

* "Report of Observations on Injurious Insects," By Miss Ormerod. Fourteenth edition. Simpkin, Marshall, and Co.

not appear that they are in the hands of the people, who would be in a position to do much good by their names. expected. the infested hay would. Soames, Green, & Co. late, so the dot moth (Mamestra group) was any Goose-proved quite a pest in only exhibitors only those garden produce, particularly J. Laing & Co. Industry Currant bushes; they are a group. Other kinds over what kind of plant they feed on. It is double (Gastrophilus equi) has no class; it is White-on. This year it appears to be by Whit-with a view to direct attention to the exhibit of about was, however, unusually abundant. a variety has fox-coloured Pine sawfly (*Lophyrus*) the market English name is much longer than the market was found doing much damage to the felling of the young Scotch Firs in Argyllshire obtained by the nearly allied pests are very difficult in the matter. when several thousand acres are infested, it is to grow it, ping the grubs off by hand as the people's being the leaves is the most efficacious method. They are fit for them when it can be employed, but the people's thousands of acres or even hundreds of acres are fit for Strawberry plants in some fields near S. Kent, one Cray, Kent, were attacked in a very singular manner by one of the eel-worms (*Aphelenchus* *gariæ*). This eel-worm is very small, being not more than one-thirtieth of an inch in length; it seems to attack the axils of the lower leaves, causing scaly buds to form and the central stem to swell very much and to grow much longer than it naturally would; at the top it branches somewhat after the manner of a Cauliflower, and from this head grow a number of distorted flower and leaf buds. This eel-worm is new to science, and there is nothing to show in any way by what means it was imported or whence it came. The loss to the crop owing to this attack was considerable; in one field half the plants were infested with this pest. Obviously in the case of an attack by this eel-worm, the best thing to do is to take up and burn every plant which shows the least sign of the disease. Attention is called to the flower-heads of Tares, which are sometimes found to be much distorted. It is presumed that the foe is the grub of some insect, but the culprit has not been detected. The Willow beetle (*Phratora vitellinae*) was the cause last year of much injury to Osier beds; both the beetles and their grubs feed on the leaves, eating great holes and notches in them, and at times even gnawing the stems. In some places acres of this crop were quite destroyed.

Among the pests which have been noticed in the reports of previous years is the Apple weevil (*Anthonomus pomorum*). A remedy which is well worth trying is suggested in order to lessen the number of the insects the following year, which is to shake the boughs of any tree which is infested by them over a tarpaulin or sheet, when the blossoms which are attacked will fall off; these should be collected and burnt. One of the eel-worms (*Tylenchus devastatrix*) which was known to be the cause of Tulip root in Oats and Clover-sickness was found last year paying its attentions to Broad Beans, feeding within the stems, and causing a very stunted growth in the plants, some of which never exceeded 10 inches in height; in one field attacked by this pest it was estimated that more than one half of the crop had been destroyed. The same eel-worm was very injurious to Clover in some places; so bad, indeed, was the attack in one place, that there was not one acre in twelve whose Clover could be seen. It appears that Beans should not succeed Oats as a crop if the latter have been attacked by this eel-worm, nor should either follow Clover, or vice versa, if the previous crop has suffered. As a dressing to stop the attacks, 3 cwt. of sulphate of potash and 1 cwt. of ammonia have been very successful, or sulphate of potash two parts, sulphate of ammonia three parts, and four parts of sulphates have been found very useful, but a judicious rotation of crops, I expect, will be found the best preventive. There fortunately does not appear to be any increase in the attacks of the Hessian fly. In fact all the observers except one (in Scotland) report the injury caused by this insect as "immaterial," "slight," "of no consequence," "a trace." "The scare," like that of the Colorado beetle a few years ago, has died out, and we shall probably hear but little more of it,

to find their way into the water, deep, rich loamy soil, and would group in the wood or on the borders. *S. Ulmaria*, *S. U. fl.-pia* seems to have red borders. *S. Ulmaria*, *S. U. fl.-pia* are also worth growing, especially on gradually spreading millowen should be ponds, &c.

THE CULTIVATION OF its first appearance, OUR problem for to-day is to eradicate, as it gets into required to make it gay mill, as well as into cracks ten months in the year in fact wherever there is flour for mixed borders of to live on. Where it is in a habit, or bulbs or on with sulphur seems to be the them grow upon hmedy, but it should not be used if allow me to include of flour about. One correspond special cultivation stating that he had successfully perly so called, thou, "But we found the sulphur used indefinitely, and not anticipated or wished for. for the mixed border on the mill itself when the fumi-hardy plants, as they out some 80 or 100 sacks of by the mass of and to our dismay that the sulphur address myself a right into these and acted on the garden with the flour in such a manner as to appa- to know break it up into soluble albumenoids, and all in or the dough made from it more like a lot of alk putty than the strong tough dough our customers require."

Perhaps the most interesting part of the report is the chapter on orchard moth caterpillars. Miss Ormerod advocates the plan of examining the trees and cutting off all twigs, &c., on which eggs have been laid, and recommends for this purpose a pair of nippers with handles 5 feet long. Even though the eggs are often laid together in masses or in rings round the shoots, I cannot think that they could be detected at such a distance as to require an instrument with such long handles to reach them. The application of sticky bands round the stems of fruit trees in order to prevent the wingless females of certain moths from crawling up their trunks is no doubt very successful in catching the moths, but it is liable to injure the trees more or less, as the composition gradually soaks through the substance of the band even if it be made of grease-proof paper. It is very certain that tar is a dangerous compound to use, and any grease containing petroleum would not be safe. One observer tried with good effect hay bands soaked in cart-grease laid on the ground round the trees. The bands must be laid so that the moths cannot creep under them, and should be placed close to the tree without touching it. Several pages are taken up with the *pros* and *cons* of using London Purple or Paris Green as an insecticide, and with the apparatus for distributing them. In February last year at a large meeting of fruit growers a committee, formed for experimenting with various kinds of sprays and washes, eventually decided that they could recommend the following: "Paris Green paste in the proportion of 1 oz. to 8 or 10 gallons of water for Plums, and 1 oz. to 20 galls. of water for Apples; and London fluid (a fluid form of London Purple) one part to twenty parts of water." Both these they recommend as effective in destroying the caterpillars, while they did no material harm to the leafage. The trees should not be so wetted as that they drip. Miss Ormerod says, "The very essence of our spraying work is that no drip should take place. The spray should fall or rise as a haze and remain as dew." These compounds are not of the slightest use in the case of trees that are attacked by aphides, for these insects feed on the juices of the leaves, which are not reached or affected by the spray. Both Paris Green and London Purple have a large amount of arsenic in their composition and are very poisonous. Persons using them should be careful not to wet their hands and arms more than necessary with them, or to inhale the powder when mixing it. It is safer not to feed animals under trees which have recently been sprayed, in case any of the poison may have fallen on the Grass, though if the spraying has been properly done, there is little or no risk incurred. As regards the machines used for spraying the trees, the Knapsack pump or No. 1 Eclair is said to be the best for use for trees and bushes not more than 15 feet high. It is of French manufacture, but may be purchased in England for about 35s. It consists of a conveniently shaped metal cis-

tern fitted with straps for carrying on the back of the operator. A short hose and nozzle distribute the spray. A large form of apparatus is carried on a barrow which throws an effective spray 50 feet in quiet weather. For still heavier work a Strawsonizer is recommended. This report is, as usual, fully illustrated. G. S. S.

NOTES OF THE WEEK.

Seedling Amaryllis.—I forward for your inspection a flower of a seedling Amaryllis, there being six of such blooms on the spike. It is one of a batch of seedlings raised here four years ago.—ANDREW CAMPBELL, *The Gardens, Ashford, Cong, Co. Galway.*
** A well formed and showy flower.—ED.

Lobelia Firefly.—It appears I made a mistake in stating six months ago that this was raised by Mr. C. Smith, of St. Ann's. It has just been pointed out to me that to Mr. Campbell, Ashford, Co. Galway, belongs the credit of having raised this fine variety, and certainly its brilliant colour and noble stature point directly to the genial climate of its home.—T. SMITH.

Forced Strawberries.—I send you three varieties of Strawberries, viz.: Noble, Keen's Seedling, and V. H. de Thury, all of which have been grown under exactly the same treatment. Noble has no flavour whatever and it is no earlier than either of the two other kinds. I gathered from them all on the same day.—J. CROOK, *Forde Abbey, Chard.*

** The flavour of Vicomtesse and Keen's Seedling is certainly far before that of Noble, judging by the fruits sent.—ED.

The Cherry Plum (*Prunus cerasifera*).—Apart from the value of this subject for hedge planting, it would be well to consider its extremely ornamental aspect, as at the present time, when branches 6 feet to 9 feet in length are literally wreathed in pure white blossoms. The Cherry Plum will quickly make a hedge 12 feet in height, and also soon grow into a small tree. It might be effectively planted upon the outskirts of the grounds, or, better still, upon the margins of woods and beside woodland walks and drives. One of its merits is its early flowering quality, and it is particularly appreciated in this dull, cold, backward season.

The common Lungwort (*Pulmonaria*).—This would hardly be included in a list of choice hardy plants, and is not generally tolerated in the borders, yet for naturalising it is very useful, and at this time exceedingly pretty. It has only to be planted when it will establish itself, spread into broad colonies, and gladden us in spring with the sight of a profusion of flowers, which are rosy purple when first they open, and become blue, whilst they look better in the subdued light of a shaded copse. When strolling through a plantation recently, I came upon a colony of this plant mingled with, but holding its own against the Ivy which carpeted the ground.—A. H.

The yellow Wood Anemone (*Anemone ranunculoides*).—This when covered with flowers of the deepest golden is extremely effective. Of late and even now its rich shining golden blossoms have been very conspicuous, but it is by no means a common plant in gardens. Given a shady and cool, somewhat moist position, it thrives admirably, and when in full flower is one of the most charming of spring plants. An excellent position for this Anemone is in company with the North American Lady's Slipper, for here it would be perfectly happy and would bloom before even the *Cypripedium* appeared above ground, thereby prolonging the season of flower in this particular spot.—J.

— This is very suitable for forming a ground-work for dwarf shrubs that are not too leafy towards the base. A beautiful mass at Kew nestling around a Magnolia looks like a patch of gold in the distance, and although the flowers are small, they are so decided in colour as to make a brilliant contrast with the leaves. It is a South European species, and, I believe, a hybrid between it and *A. nemorosa* has been raised. This is fairly plentiful in the native habitat of this species. It has larger, but not so distinctly coloured flowers, and is well worth having. *A. ranunculoides* grows very

freely in a light sandy soil, and seems to do best in fully exposed situations. It also does well on chalky soils, where it increases very rapidly. It may be increased by division of the rhizomes. The flowers have been open for the last three weeks, and are now as brilliant as ever.—K.

The old crimson Clove Carnation.—Can anyone authoritatively state the origin of this grand Carnation, which for fragrance has no equal among the hundreds that have been raised? Thousands of seedlings have been raised, some said to have been superior to this noble flower, but they have all vanished. It is not perfection, I admit, as frequently it splits its pod and is subject to disease, but we cannot afford to discard it, for no flower is more universally popular among all classes than this, and until we get unmistakable proof of something superior it will yet hold its position.—J. W. V.

The Marsh Marigold (*Caltha palustris*).—The double forms of this are exceedingly showy and interesting, and wherever anything in the nature of a bog can be had in a garden they should be grown in quantity. There are about half a dozen forms, distinct either in flowers or foliage, and all of them are extremely showy just now. They are not particular as to soil so long as they can procure the necessary moisture. There are also some varieties amongst the single-flowered ones, *Caltha palustris* var. *purpurascens*, with deep purple stems and bright golden flowers, being especially attractive.

Saxifraga muscoides atro-purpurea.—Among the numerous varieties of the mossy section of Saxifrages the above is perhaps the most charming. Particularly bright and cheerful is it just now when crowded with its reddish-purple buds and flowers. For clothing the rockery with a dense carpet of green it is among the most useful and ornamental plants we possess. Bare patches on the rockery, or indeed anywhere else, need not be while we have such charming subjects as this. It quickly forms one of the most perfect carpets conceivable if dibbled out in small pieces a few inches apart and well watered to give it a start again. A very fine panful of this was shown at the Aquarium on Wednesday by Messrs. Paul and Son.

Anemone Robinsoniana.—This beautiful Windflower surpasses all others of this section in the lovely tint as well as in the greater size of its flowers. Although placed as a variety of *A. nemorosa*, it appears so distinct as to entitle it to specific rank; indeed, it is far more distinct from *A. nemorosa* as a garden plant than *A. blanda* is from *A. apennina*. It need not be confined to the rockery or flower border. I have already managed to naturalise it in a shady wood, where it grows with great freedom, and increases almost as quickly as the common Wood Anemone. Its lovely sky-blue flowers are larger than a florin, and produced in such profusion as to make a dense carpet. It is undoubtedly the queen of this section, and certainly should be in every collection.—K.

Pteris tremula Smithiana.—This was exhibited before the floral committee of the Royal Horticultural Society in August, 1889, and a first-class certificate was awarded. The plant when exhibited was far from being at its best, and all who saw it later on agreed that it was one of the finest specimens of crested Ferns ever raised. Crested forms of *P. tremula* have frequently occurred, but few have come true from spores, and none so freely as the above appears to have done. I have seen a batch of seedlings which promise to develop into plants quite equal to the parent, and appear to grow as freely as the normal form of *P. tremula*, which is not the case with other crested forms which I have grown. *P. tremula elegans* is a very graceful variety, but it requires great care, and I do not find it come freely from spores, the seedlings varying in character to some extent. In its best form it is of a spreading habit, the fronds heavily tasselled at the extremities, the side pinnae also being crested.—H.

— I lately saw in the nursery of Messrs. R. Smith and Co. at St. John's, Worcester, a splendid batch of the above new Fern. It is without doubt the finest crested Fern in cultivation. For market

it will no doubt be largely grown. It is of a most pleasing green in colour, beautifully crested, and evidently will stand as much rough usage for furnishing as the type. The original plant from which the stock was raised is quite 3 feet in diameter and of a close compact habit.—A. YOUNG, *Abberley Hall, Stourport.*

Megasea cordifolia purpurea.—Broad healthy patches of this showy and vigorous kind constitute one of the best permanent ornaments in the garden. The large, broadly ovate, leathery leaves are very handsome at any season, but in winter the rich bronzy tint which many of its leaves assume imparts a picturesque beauty by no means common. Just now its general value is much enhanced by the fine bold trusses of reddish purple flowers as they issue from amidst its handsome leaves.

Hardy plants newly planted.—The long-continued drought which we are experiencing this spring is telling very much upon all newly-planted subjects, and a thorough soaking of water will prove a boon to all such, and most likely save many. We have rarely seen newly-planted subjects at this season of the year in so great need of moisture, and some things, though thoroughly soaked the moment they were planted, have many of their leaves shrivelled. The atmosphere is singularly arid and harsh owing to the prevalence of north and north-east winds, and twenty-four hours' warm steady rain would be welcomed.

Anemone apennina alba.—A most charming clump of this is now in flower in the alpine house at Kew, and forms one of the most attractive plants at present in bloom. In the case of this plant, as in that of *Ramondia pyrenaica*, there are a good many spurious white forms in the trade, some of them a dirty washy white that one only requires to see once. The form here noted, however, is nearly pure white, and, together with its graceful habit and abundance of pretty foliage, makes a very lovely specimen. A group of *A. apennina* (blue) in the wild garden set in a groundwork of *Vinca minor* is very attractive. The kindly shelter of the *Vinca* seems to have suited it very well, as it is more vigorous than we have ever seen it before.

Roses at Messrs. Beckwith's.—Since writing my notes on "Tea Roses for forcing" I have visited Messrs. Beckwith and Son's nursery at Broxbourne, where Tea Roses are largely grown. There are upwards of twenty houses, each 250 feet long, some about 12 feet and others 20 feet wide, all filled with Roses in the most robust health and vigour. Safrano appears to be grown more extensively than any other kind. Several houses were filled with this useful Rose, and I was told that upwards of 200 dozen blooms had been cut in one day. *Perle des Jardins* is another favourite, the growth of this being remarkably luxuriant and the blooms very fine. Catherine Mermet and Niphetos were also well represented. Other sorts noted included *Mme. Falcot*, *Mme. Charles*, &c. Several of the sorts showed a remarkably rich crimson tint in the young foliage, but in none so prominent as the last named. In some houses the plants were all in pots, and in others planted out. The greater number, however, were in pots, and these are found to succeed best, as they are more under control and can be ripened off better. There are other subjects equally well done in this establishment, but of the thirty-six large houses the majority are devoted to Roses.—F. H.

The late spring.—The present is, I think, one of the latest seasons on record, if my memory serves me right. I never remember fruit trees to be so late at the end of April. Peaches and Nectarines upon a west wall are only just in full flower; Plums hardly so, whilst Morello Cherries have hardly a flower open. Jargonelle Pear is not yet in bloom; other kinds are also extremely backward. The Apples I notice in some instances are already attacked with green-fly upon the opening growths. Bush fruits are also very backward, but are promising well; so, in fact, are all the fruit trees alluded to above. Should we eventually have prolific sets of fruit, the question of thinning will have to

be seriously considered with the fact of such a late spring before us and a consequently shortened period for full maturation of the fruit. One good feature I observe is the promising appearance of the blossom, which appears to be full of vigour, although but slow progress is made owing to the continuance of cold weather.—A.

Daffodil Sir Watkin.—This is in fine condition just now. Some of the flowers have been exceptionally fine, and have measured $4\frac{1}{2}$ inches across; the segments are of a pale yellow with lemon-yellow cup. Happily, too, it is endowed with an exceptional constitution, and good bulbs quickly develop fine flowers. This is not all, for it increases with wonderful rapidity at the root by means of offsets. Always plant it in a rich deep loamy soil, and allow it to remain three years undisturbed; you will then have such vigorous growth and handsome flowers that will astonish all who behold them.—J.

SOCIETIES AND EXHIBITIONS.

ROYAL AQUARIUM.

APRIL 29 AND 30.

THIS was the second of the series of flower shows originated by the Royal Aquarium Society, and, like the preceding one, it was very bright and effective, though the dullness of the weather prevented the colours of the flowers being seen to the best advantage, and especially so in the case of the alpine Auriculas. Auriculas proved a leading feature, and the alpine varieties were shown in very fine condition. The best collection of over fifty varieties came from Mr. James Douglas, The Gardens, Great Gearies, who had a remarkably good variety; Mr. C. Turner, Royal Nursery, Slough, was second; and Mr. R. Dean, Ealing, third. In the class for twelve varieties, Mr. T. E. Henwood, Hamilton Road, Reading, was first with a remarkably fine lot, mainly similar to those he exhibited at the meeting of the National Auricula Society some days ago; Mr. J. Douglas was second, and Mr. C. Turner third. In the class for six varieties, Mr. W. L. Walker, Reading, with the Rev. F. D. Horner, Mabel, Dr. Horner, George Rudd, Heroine, and Black Bess, was first; Mr. C. Phillips, Reading, was second; and Mr. R. Dean third. With four show varieties, one of each class, Mr. T. E. Henwood, was first with a remarkably good lot, Mr. Douglas being second, and Mr. W. L. Walker third.

With twelve alpine varieties, Mr. C. Turner was first with a remarkably fine lot, consisting of Alarm, F. Knighton, Charles Turner, Defiance, Orion, Dash, Oriole, Brightness, Lothair, Florrie, and Countess. Mr. T. E. Henwood was second, and Mr. J. Douglas third. With six varieties, Mr. W. L. Walker was first with some finely grown and flowered plants, and Mr. R. Dean second. Mr. Turner was first with four varieties, two gold and two white-centred, and Mr. J. Douglas third. Fancy Auriculas were shown by Messrs. Douglas and Dean, the prizes being awarded in the order of their names. Fancy Polyanthus were finely shown, more fully matured than when seen at the Drill Hall some days ago. Mr. R. Dean was first and Mr. Douglas second, and the same order was observed in the case of the class for twelve pots of hardy Primroses, which were a very attractive feature. In the class for a collection of cut blooms of Narcissi, Messrs. Barr and Son, King Street, Covent Garden, W.C., who staged a number of bunches which filled a large table, were first, and also in the class for thirty-six bunches. Mr. C. May, gardener to Mr. H. J. Adams, Roseneath, Enfield, was second. In the class for eighteen bunches of Narcissi shown by amateurs, Mr. C. May was first, and Mr. C. Cowan, Penicuik, Midlothian, second.

Mr. J. Lambert, gardener to Mr. H. W. Segelcke, Herne Hill, had the best centre-piece for table decoration; Mr. E. Chadwick, gardener to Mr. E. M. Nelson, J.P., Ealing, was second.

Groups of plants arranged for effect were furnished by Messrs. J. Laing and Sons, Stanstead Park Nurseries, Forest Hill, and Mr. H. James,

Castle Nursery, Lower Norwood, who were this being the prizes in the order of their names expected. Nunn, gardener to Mr. J. Soames, Greenwich, late, so was third. Messrs. Laing's group was any Goose—their usual taste. The only exhibitors (only those of Clivias were Messrs. J. Laing's Industry who staged a very fine group. Other things over included Amaryllis, in collection of it is double Douglas being first in this class; or White-japonica, Cytisus, Dielytras, &c.

In the way of miscellaneous exhibit of about Paul and Son, Old Nurseries, Chesham variety has section of superbly grown and flow the market pots, herbaceous plants, Amaryllids, velling of the awarded a silver medal. Messrs. Obtained by the Co., King Street, Hammersmith, satisfactory to Fitzjohn's Avenue, Hampstead, sent in the matter. tions, the former of a very novel chara to grow it, ceived special commendations. Messrs pies being and Son, nurserymen, Highgate, were fit for bronze medal. Mr. T. Lockie, Oakley (the people's dens, Windsor, had fruit of his Perfectly member, perfect models in regard to shape and no one ness, and also fruit of Autocrat, raised from a thin between Carter's Model and Lockie's Perfect Messrs. Hopkins, Mere Cottage, Knutsford, had a pan of Golden Queen Auricula, which is very sweet-scented; and Mr. Smout, of Hastings, a collection of seaweeds and mosses.

Certificates of merit were awarded to Messrs. J. Laing and Son for Caladiums James H. Laing, B. S. Williams, and Lymington, and *Spirea japonica splendens*; to Mr. T. Lockie for Cucumber Lockie's Perfection; to Messrs. Paul and Son, Chesham, for H.P. Rose Duchesse de Dino; to Mr. James Douglas for show Auriculas Abbé Liszt, Miss Prim, and Marmion; to Messrs. H. Cannell and Sons, nurserymen, Swanley, for two superb double Begonias, General Graham, pure carmine, and Miss Emma Hayden Eames, soft fleshy salmon; to Mr. Henry James for Anthurium Scherzerianum var. Austinianum; to Mr. C. Turner for alpine Auriculas Ophelia, Maud Fellows, Alarm, and Countess; and to Mr. T. E. Henwood for green-edged Auricula Mrs. Henwood, and alpinas Mrs. Douglas and Mrs. Martin.

Gardeners' Orphan Fund.—The monthly meeting of the committee took place at the Hotel Windsor on the 24th ult., Mr. William Marshall presiding. The minutes of the last meeting having been read, the secretary, Mr. A. F. Barron, reported that he had received a letter from Mrs. Richards thanking the committee for their expression of sympathy with the family in their bereavement. The balance at the bank in favour of the fund was £496 13s. A special donation of £10 from Mr. Alderman B. Watson, and one for the same amount from Mr. G. Dominy, were announced. Mr. Stevenson, of the Bournemouth and District Gardeners' Mutual Improvement Association, was appointed local honorary secretary for that district. Mr. Alfred Weeks, King's Road, Chelsea, was elected a member of the committee in the place of Mr. William Richards, deceased.

BOOKS RECEIVED.

"Les Légumes usuels." Par Vilmorin-Andrieux. Paris: Armand Colin et Cie, 5, Rue de Mézières.

Willing's (late May's) "British and Irish Press Guide" for 1891. Eighteenth Annual Issue. London: 162, Piccadilly, S.W.

Names of plants.—H. Simpson.—1, *Lycaste Harrisonia*; 2, *Epidendrum alatum*.—T. H. D.—1, *Sempervivum arachnoideum*; 2, *Pachyphytum bracteatum*; 3, *Echeveria Peacocki*.—G. B.—Looks like fruit of *Attalea cohune*.—T. W. G.—1, *Commelina deficiens variegata*.—A. Jenkins.—1 and 2, *Dendrobium nobile* varieties. Other flowers send again and numbered.—R. C.—Rose Lamarque.—H. E. J.—We do not know the plant you refer to.—A. B.—1, *Abies pectinata*; 2, *Pinus excelsa*; 3, *Pinus Pinaster*; 4, *Pinus montana*; 5, *Cedrus Libani*; 6, *Chamaecyperus spherioidea*.—R. C.—*Pittosporum undulatum*.—Hazelholt.—2, *Cryptomeria japonica*; 3, *Biota orientalis*; 4, *Juniperus virginiana* Schott. —Colonel Puget.—The fringed Iris (*Iris fimbriata*).—Miss M. M. Wittman.—*Dentaria polyphylla*.—C. H.—*Dendrobium fimbriatum oculatum*.—Daffodil.—Daffodil Henry Irving.

to find their way deep, rich loam group in the borders. S. I are also worth ponds, &c.

WOODS AND FORESTS.

THE ECONOMY OF SPACE IN WOODS.

The question of more extensive planting with wood is so much to the front, that it is well worth while to look a little into the management of them as it is at present. The most is made of all for mixed border. I fear if this was thoroughly habit, or bulbs or ce. I fear if this was thoroughly they grow upon it would be rather astonishing, allow me to include of it be the knowledge of the special cultivation which more could be done with the perly so called, than at the present moment than used indefinitely, within a short distance of the place for the mixed border I write I could point to two large hardy plants, as one of these all available ground is by the mass but in the other, although perhaps address myself to the extent and the soil in productiveness, garden with hardly more than a third the amount to know whether there should be. It would not, of all in, or rather there should be. It would not, of course, be fair to go offhand from one wood to another and jump at the conclusion that because the cubic contents of each were not equal, that the management of that which contained the smaller quantity was bad, as the dates of the last cuttings and the returns from them would have to be taken into account. What, however, is an unmistakable sign of defective management is to enter a wood and see that over two-thirds of its area there is not only any timber, but no preparation made for another crop. If the fellings had taken place during the present or the last season, such a state of affairs would not cause much comment; but when it is seen that years have been allowed to elapse since the fellings and all that the ground is occupied by is underwood of doubtful value, it leads one to question whether matters are as they should be, and whether such a lack of attention towards securing a future crop is at all general. To imagine a wood of 100 or 200 acres with only here and there a few acres of Larch, some clumps of Scotch Fir, and perhaps a quarter of its area occupied with Oak, the remainder being nothing better than underwood, is bad enough, but when we pass from imagination to simple fact it is certainly much worse.

For such a condition of things to become possible there must have been lack of management for many years, as it is perfectly obvious that the mere cuttings of a few years without attempt at replenishment would not be sufficient to account for it. However, if it is never too late to mend, it is never too late to plant; so I would earnestly commend to the notice of those who have woodland falling under their charge that attention to the matter of replanting or reproduction in some form should go hand in hand with the periodical fellings. It may seem passing strange that after all that has been said and written such a fundamental principle should need to be repeated; yet so it is. What perhaps is more remarkable is the fact that on the same estate where the woodland is in the state described, planting of new areas has to a considerable extent been carried out. It may be that it would be injudicious to replant the site with the same or any allied species of tree to that which last occupied the soil. Notwithstanding this, the range is certainly wide enough, for if the last crop consisted of deciduous trees the change to Conifers is open; if it was the reverse, the remedy is just as simple. X.

Cut-leaved Walnut.—As an extremely elegant foliaged tree of modern size, *Juglans regia laciniata* may be recommended to planters with confidence; as a group of three or more, or singly, on the lawn

or near the banks of a lake is quite in place. The foliage, which is light and feathery, much more so than that of *J. regia*, is retained till late in the autumn, and is not so dense that Grass will not grow under its shade. The form is decidedly round-headed and somewhat pendulous. The nuts are rather larger than those of the common type.—S.

UNDERGROWTH FOR COVERT.

I THINK there is often a lot of unnecessary trouble taken in getting plants to form a good undergrowth for covert. I know a wood which is seldom if ever drawn blank, yet the covert is of the simplest character. In the immediate vicinity of the house the case may be rather different, and in smaller areas the growth may perhaps be more dense with advantage, but here a great proportion of the underwood is Oak, growing from old tree and other stools. This is cut down periodically with the other wood. The wood from these stools, though, of course, the common Oak the same as they originated from, retains its leaves all through the winter, and even now there are acres upon acres of wood with last year's foliage adhering to it. This undergrowth of Oak is unquestionably the staple of the covert, and could, if necessary, be made more dense. There is a proportion of Ash, Willow, Hazel, White and Black Thorn, Bramble, &c., but they are all subservient to the Oak. The great objection to the use of Oak seems to be its habit of growing too high and leaving the ground bare. This, however, is true of most of the other woods used if left to themselves. The Ash in this respect is certainly a freer grower than the Oak. What is wanted to keep a good undergrowth is to make the cuttings come in at shorter dates—in other words, to cut the wood before it has the chance to grow into a mass of bare stems where the growth is wanted. Any ordinary hedge will give a sufficient proof of this. If it is cut at frequent intervals the whole growth becomes thick and makes a good hedge close to the ground. If the hedge is left for season after season it becomes thin at the bottom, and all the growth is concentrated above one's head where it is not wanted.

There is, of course, the drawback of the wood being of less value if coverts are cut more frequently, but the one thing must be weighed against the other. If wood be the primary object, then the cuttings must be arranged to bring them in at the age when it is most valuable. If, however, game is sought for the cuttings must come at more frequent dates. In raising coverts in large woods—the one of which I am now speaking approaches 200 acres—cheapness and efficiency should be looked at together. It may be that an owner does not look at the cost. Yet this is no sufficient reason why money should be largely spent upon subjects which are no better than those which are to hand. If, for instance, as in the case under notice, the soil naturally produces good Oak covert, why should it be considered the correct thing to go away for miles and fetch thousands of young trees of other species, which may or may not succeed, and which if they do, will answer no better than the native growth? Then in the matter of food, the common growth of the district is generally to be preferred, and will yield more than the stuff which is often brought to replace it. What sort of sustenance is to be gleaned from the produce of the Conifers which are often adopted for covert? So many new notions of what should or should not be is in too many instances a mere grasping at the shadow and losing the substance. The trial of new subjects in a certain way is of course perfectly legitimate, but it should be kept within its proper limits. To improve upon Nature's arrangements is a thing which cannot be readily done. It is easy enough to see an apparent advantage on one side, but the chances are that in practice it will be found that a corresponding drawback exists on the other.

There is another thing in connection with the growth of Oak from the young stools, viz., the opportunity it gives for establishing a future crop of young Oaks. Some of the best Oak woods I

know have been started in this way, and are now and will for many years to come be a source of profit. It is not on every soil, of course, that Oak will be the natural growth. Where this is so, the natural growth if at all in character with the object aimed at should be preserved. This has been over and over again proved, and should be the test for raising coverts cheaply and well. If an attempt were made to grow agricultural crops upon soils which the experience of generations had proved them to be unfitted to, failure would result. If coverts are attempted with plants which are foreign and unsuited to the ground the result will be the same. W. N.

THE COMMON RHODODENDRON IN WOODS AND DRIVES.

RHODODENDRON PONTICUM, with its many shades of colour, is a valuable plant for the above purpose if the soil is a suitable one. It is also useful because game does not injure the bark—at least, such is my experience. It may be said it does not bring in any return, but there are a number of things planted in woods for cover that come under the same category and are not half as pleasing. As is now well known, the common Rhododendron does well in almost any soil in which lime is not present, and in woods the decaying vegetation, such as leaves and Bracken, seems to just suit it. In wet clayey ground it also thrives when other plants fail, and of course in bogs or peaty soils it is at home. There is also another advantage in growing this plant where it thrives, and that is the great variety of colour in the flowers. It also roots readily when pegged down into the soil, and in a short time may be transferred to other quarters. This plant also drops its seeds in abundance, which root at the base of the old plants, and if removed in a young state and planted in lines in nursery quarters in a rich compost, the seedlings grow quickly into good-sized plants. Some persons may dislike Rhododendrons when crowded on account of their straggling growth, but this may readily be avoided by thinning, also by using the knife freely in spring, as no plant does better if pruned at the right season. If pruned in the late autumn when the weather is severe they often die back and look unsightly for a year, but when pruned in the spring this is not the case, though it means sacrificing the bloom for a season. For the sides of drives Rhododendrons are unequalled, and in suitable soils they should often take the place of the common Laurel and other trees that are continually dying back. Their hardiness should also make them favourites. I often deplore the great quantity of common Laurel planted in kept grounds. Rhododendrons being shallow-rooting can also be used in places where other plants could not exist if given shade. They also do so well under trees, that this point alone should be in their favour. The roots delight in shade and moisture to a large extent, and when planted in clumps for effect they soon make nice bushes, as the dense top keeps the roots cool and moist.

G. WYTHES.

The Cut-leaved Alder is not a tree suited for a very exposed situation. It never flourishes so well as when planted in a low-lying spot near enough to water for the roots to derive abundance of moisture therefrom. In such situations it is not liable to be blown over, as its roots spread widely and obtain a firm hold of the soil. In poor soil or in exposed situations half its beauty is lost.

The Sycamore.—When of a large size the timber of the Sycamore is valuable; and even after it is thirty years old it sells readily for bobbin-making and other turnery purposes. The soil best suited to it is a dry gravel or sandy loam, or even sand; and it is most valuable for planting in exposed situations, or within the influence of the sea breeze.—T.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ORCHARD AND FRUIT GARDEN.

TWO SERVICEABLE WHITE GRAPES.

If asked to name the best white companion for the Black Hamburgh, I should unhesitatingly select Foster's Seedling, and if a second variety was wanted that should be Buckland Sweetwater. Both succeed well in the same house with Black Hamburgh, being also equally as well adapted for forcing. Foster's Seedling is the more reliable of the two, and, all things considered, to be preferred by both the amateur and professional grower. Foster's Seedling was raised somewhere about the year 1835 by Mr. Foster, gardener to Lady Downe, Benningborough Hall, York, and was said to be of the same parentage as the popular and altogether distinct Lady Downe's Seedling, both resulting from a batch of seedlings obtained by crossing Black Morocco with the common Sweetwater. It is of free, yet not rank growth, the foliage being somewhat plain, of good substance, and rich green colour. No more productive Grape could be named, the bunches being of medium size and of compact form, the berries being moderately large and oval-shaped, and no difficulty is experienced in effecting a perfect set. At first the colour of the berries when ripe is of a greenish white, but this changes, if the bunches are kept long enough, to a darker yellow, the exposed sides being tinged with a dull red. It forces readily, is particularly good as a successional or midseason variety, and under much the same treatment as Black Alicante can be ripened later and kept good till December. The quality is usually good. In common with the Black Hamburgh, it will bear a considerable amount of bad treatment before breaking down, but if badly over-cropped the character is much changed for the worse, the bunches being long, thin, and loose, the berries nearer round than oval in shape, and of a sickly green colour, this making the variety almost unrecognisable. Crowding the laterals and rods has much the same effect, and the main rods ought to be fully 4 feet apart. Given plenty of room, the growth is sturdier, the wood both of young rods and laterals becoming almost as hard as that of well-grown Muscat of Alexandria, and capable of producing fine compact bunches at every break. Moderately hard pruned laterals as a rule give the best bunches, those from strong young canes not unfrequently being somewhat loose and also ugly unless the longest of the shoulders are pinched off. At the same time it is advisable to occasionally renew the rods, especially if exhibition bunches are required, young canes laid in near the ground gradually taking the place of the old rods. As before stated, the berries set thickly and well, and that, too, without being artificially impregnated. The stems and footstalks being stout and unyielding, it is advisable to thin out freely, the berries keeping badly if jamming tightly against each other. Shouldering up or suspending the longest shoulders with strips of raffia is also advisable, this considerably improving the size and appearance of the bunch. During the ripening period a good circulation of warm air ought to be maintained, this improving the colour and quality of the berries and also preventing cracking—a failing to which this variety is somewhat addicted.

Plenty of light should reach the bunches in order to ensure perfect colouring.

BUCKLAND SWEETWATER was first brought into prominence in the year 1856 under the name of Ivery's White Seedling, but it afterwards became known that it was a seedling raised by a Mr. Buckland, living in the neighbourhood of Dorking. Being a showy Grape, it soon became popular, but has been largely replaced by Foster's Seedling, and probably would be much more seldom seen were it not for its value as an exhibition variety, well-finished examples surpassing any other white Grape, not of Muscat flavour, while in season. It is not a robust or very productive variety, the wood formed being often somewhat soft and pithy, and, consequently, if hard pruned, failing to show a sufficiency of bunches. The best plan to pursue with it is to be constantly laying in young rods, and these, if not unduly shaded and given the benefit of a little fire-heat, ripen well and produce plenty of large bunches. The latter are loose and the foot-stalks are also thin, so that if freely thinned there is every likelihood of their presenting a flabby appearance, especially when dished; whereas the bunches ought to be better filled and more compact. Loose bunches also travel badly and are certainly not the best for exhibition. The Buckland Sweetwater is also a shy setter, many of the berries failing to swell beyond the size of Peas, and very few indeed have a full complement of stones. Nor can much be done towards assisting in the work of fertilisation, this variety being somewhat peculiar in that the flowers do not part readily with their capsules, the berries, in fact, often being set before they can be got at. This is another reason why the thinning out should be of the lightest description. Little besides the dead flowers, or those that have failed to swell beyond the size of a pin's head, ought to be cleanly cut out at the outset, but the shoulders should be well suspended and stoneless berries taken out, according as it is seen which will not swell to their full size, or say to about the size and shape of Black Hamburgh. In this manner, or by extending thinning over a period of a month or more, handsome and fairly compact bunches may be obtained. The treatment at all times may correspond with that found to answer best in the case of Black Hamburgh. Unduly hurried during the ripening period, the colour will not be good, but if given plenty of time, air freely circulating about the bunches both by night and day, the colour will be perfect. In this instance, again, the bunches ought to be lightly shaded by foliage, exposure to strong sunshine giving the berries a burnt appearance. I have seen the berries of a dirty mud colour instead of a clear amber, this resulting from over-watering. The Vines ought never to become very dry at the roots, but if the border is unduly saturated during the ripening period the effect is most likely to be very unsatisfactory. As a rule, the berries colour the most perfectly on Vines in pots, and in any case the borders ought not to be very wide, loss of control over the roots being almost certain to end badly. Buckland Sweetwater, as may have been gathered from the preceding remarks, is not a suitable variety for unheated houses. Unless a little fire-heat is turned on in damp sunless weather, the berries will be poor in flavour and watery—and at its best I do not consider it first-rate in quality—while it is not a good keeper under any circumstances. Fire-heat is also necessary to ensure perfect ripening of the wood.

W. IGGULDEN.

Gooseberry Whinham's Industry.—At one

time it was very doubtful if the Gooseberries would be large enough for pies at Whitsuntide, this being from time immemorial when they are first expected. Whit Sunday falls early and the season is late, so that it is hardly to be expected that many Gooseberries will be large enough to pick, and only those probably who have planted Whinham's Industry will be in a position to gather. On looking over our trees of this variety I find the fruit is double the size of that of either Crown Bob or White-smith, both popular early varieties, and by Whitsuntide there will most probably be plenty of about the size of Sweetwater Grapes. This variety has been very extensively planted by the market growers on account of the early swelling of the fruit, by far the best prices being obtained by the earliest consignments, and it is very satisfactory to find that no mistake has been made in the matter. Private gardeners generally ought also to grow it, an early gathering of Gooseberries for pies being always appreciated. Green Gooseberries are fit for use—at their best, in fact, according to some people's ideas—when no larger than the size previously mentioned, and with so many on the bushes no one ought to hesitate about commencing early to thin them out.—M. H.

FRUIT PROSPECTS IN WORCESTERSHIRE.

ALTHOUGH it is full early yet to speak with confidence on the future prospects of the fruit crop, as we are far from being "out of the wood," yet on all sides satisfaction is expressed at the extraordinary fruitful appearance of the trees. Indeed it is quite a rarity to see a single tree not wholly covered with fruit-buds. If by any chance we should miss this being a fruit year, it will blight growers' hopes considerably. The only fear is the re-appearance of the dreaded caterpillar. The egg-depositing stage was no doubt considerably hindered by the hard winter—at least, let us hope so—but there was ample time for depositing millions of eggs before the hard weather set in, and events have proved that no amount of cold will touch the eggs. The majority of the trees hereabouts had the protection of greased bands, and large numbers of moths were trapped. In some instances where they appeared to be in great numbers, the bands had to be renewed weekly, for where such was not done the moths were stuck on so thickly, that they formed a bridge for others to cross. The cold weather lately experienced has apparently stopped the hatching, as I have not heard of any complaints so far, except in one instance. At this particular place I am informed that they are appearing in large numbers, but yet nothing was done last season to keep them in check. So far in this garden we have been quite free from attacks; the soil being a very heavy limestone marl may have something to do with it. Spraying with Paris Green will certainly be carried out if needed, as the materials required for the operation are ready to hand. So far fruit-buds appear very healthy indeed. Commencing with Peaches and Nectarines, in our own garden I never saw bloom more abundant or healthy, and the set apparently is excellent. The wall the trees are growing against is 100 yards in length and contains twenty trees, almost every square foot being covered. The trees have had the protection of a 30-inch coping, and the front covered with a woollen net. Apricots have also bloomed most abundantly, and although they have experienced a very trying time they have set well where the bloom was protected. The Cherry trees, for which this county is famous, are full of bloom. Plums and Damsons again are the same. Pear trees are advancing rapidly, and I never saw them so full of bloom. The old Jargonelle, of which there are many hundreds of trees, are just now a picture, grown as they are against the gable ends of the picturesque old farmhouses for which Worcestershire is famous. It must have been the *Pear par excellence* of days gone by, as it is seen almost everywhere. Apples are very promising and full of buds. As stated by Mr. Sheppard recently, the bush fruits appear to be the worst so far, especially Red Currants, these being very yellow on

account of the prolonged cold. Gooseberries and Raspberries, however, are looking well. Strawberries are excellent, especially yearling plants. The trusses on these are showing very strongly, and the results plainly show how desirable it is to have a batch of yearling plants annually, both as regards earliness and the size and quality of the fruit. Early in August is the time to put out established runners from pots; there will then be a crop the following season for a certainty.

A. YOUNG.

Abberley Hall, Stourport.

THE CRACKING OF FRUITS UNDER GLASS.

AMONG the various fruits subject to cracking under glass may be included such varieties of Grapes as Madresfield Court, Black Muscat, and Foster's Seedling, Melons, Figs, Cherries, and I may also include Tomatoes. In some instances the cracking occurs to such an extent as to depreciate the value of the fruit considerably, especially so when required for market. Various causes have been advanced to account for cracking, amongst which I will mention an undue amount of sap as supplied by the roots of vigorous growing examples when the fruit is just on the point of ripening, and also atmospheric influence. This latter cause I am the more inclined to agree with. Sudden fluctuations of temperature, such as a considerable rise coupled with an abundance of moisture when the structure the various fruits mentioned are growing in is closed in the afternoon, and also a sudden rise in the morning when the sun reaches the roof with little or no ventilation previously on, are sure to cause cracking in either of the above-mentioned fruits. With many cultivators the cracking of the berries of Madresfield Court Grape is the only flaw, and in several instances this has led to its culture being entirely abandoned. That the evil of cracking can be combated I have proved. By a judicious course of treatment in the inside or atmospheric management of the structure, the cracking of the various fruits previously mentioned may be entirely obviated. In the case of all of the above Grapes a drier atmosphere should be maintained soon after the second swelling has commenced; air should also be given in larger quantities, and instead of damping down the structure in the afternoon and closing for an hour or two with the intention of swelling up the berries to their fullest extent, this part of the ordinary practice should be abandoned, merely reducing the ventilation as the sun declines in power and damping over the surface of the border and pathways on fine days, so as to create a genial atmosphere. That such treatment will finish up the above Grapes to the highest perfection has been proved. It has also been found that to colour up the Madresfield Grape to its highest state a much greater quantity of direct outside air must be admitted than would be necessary for some other varieties. Taking the various fruits in the order I have named, Melons are often disfigured by cracking to a serious extent, and when this takes place the fruits are useless. Even when only cracked to a slight extent the keeping qualities are considerably lessened, as decay of the injured parts sets in almost immediately. Too much water at the roots when changing for ripening is considered by many people the correct solution, and the plan generally adopted for stopping the evil when once cracking sets in is to cut the fruit-bearing lateral half through. This plan I have tried and found of no avail. When Melons change for ripening a drier atmosphere must be maintained, air also being given more freely, and if the same course of treatment as regards that advised for the prevention of cracking in the Madresfield Grape, but in a more modified form as regards air given, is carried out, cracking of the fruits will be prevented. I once, to hasten on the ripening process so as to have a fruit ready by a given time, kept the structure closer, running the temperature up high with sun-heat, the result being a number of cracked fruits. Figs are also often cracked to a serious extent, and although this may not be so noticeable when only required for home consumption, they are perfectly useless for sending to a distance or for exhibition. To prevent cracking,

the structure during the ripening period would have to be kept drier, and although moisture from the atmosphere must not be wholly withdrawn, yet syringing overhead and shutting up the ventilators during the afternoon, and so causing a high and moist atmosphere, would end in the fruits which are just on the point of becoming fully ripe being greatly marred by cracking, and in which state they would scarcely stand handling. I now come to Cherries, and although these are not grown in many gardens under glass, yet they are most delicious in quality when grown in this manner. It is only when grown under glass that they become thoroughly ripened, as it is found that the quality of the fruit is considerably enhanced by hanging. Experienced Cherry forcers are well aware of the shoals to be guarded against both at the start and finish; not so the young or inexperienced hand, who at the critical period of ripening is apt to make the serious error of syringing overhead and shutting up, with the result of having the bulk of the crop cracked, and so perfectly useless. At this period syringing overhead must not be attempted, and the ventilators would require to be kept almost fully open at all times, the openings being covered with nets to guard against the ravages of birds.

Tomatoes, especially in the case of some varieties, are often greatly marred by cracking, their market value thereby being considerably depreciated. A high and moist atmosphere, such as by syringing and shutting up in the afternoon, will certainly produce such a result. To prevent this a drier atmosphere must be maintained with a rather free ventilation, this to be reduced as the outside temperature declines. It will be seen that I attribute the cracking of the fruits wholly to atmospheric influence, and such an evil may be entirely obviated by a judicious inside treatment.

G. S.

Sewage for Strawberries.—At this period of the year Strawberries growing in the open air are greatly benefited by a soaking of sewage or liquid manure, and especially so in a season like the present, when the rainfall so far has been abnormally small. A soaking of liquid manure at this stage when the trusses are being thrown up will render these proportionately stronger. Waiting for the fruit to set before applying any support is not a wise proceeding, especially on light soils. In many establishments the sewage is often allowed to run to waste, but considering its beneficial properties, and especially so as regards hardy fruits, every available means should be taken to collect and apply it wherever necessary. Now that the roots are in an active state, more care should be taken in applying it in a diluted form than in the winter months.—A.

Protecting Strawberries.—The first flowers to open on Strawberries are always the strongest, and if uninjured by frosts are invariably followed by the earliest and finest fruit. Unfortunately, they are far from being hardy, there being nothing to protect the delicate flowers from either cold rain, hail and frost, and more often than not much of this valuable bloom is lost. It pays well to protect them, especially on the early borders, and, late as the season may be, I am taking this precaution. Once the flowers are well set the danger is past, as it must be a very severe frost that will injure the swelling fruit. Any kind of shading material or scrim canvas would do good service if fixed well above the Strawberries in flower every night, withdrawing it in the daytime. In addition to saving the finest fruit, it might make a week's difference in the earliness of the crop.—M. H.

Fruit from Western Australia.—What is understood to be the first consignment of fruit and vegetables received in England from Western Australia has just been exhibited at the London office of the Midland Railway of that colony, Winchester House, Old Broad Street. It has been sent over by Mr. Bond, the managing director of the company at Perth, as a proof that the country, in addition to its mineral and other resources, is capable of being made one of the great means of supplying the market here with such articles. In this object he is to a large extent successful. Among the specimens

are Apples, Pears, Pomegranates, Onions, and Potatoes, besides red and white Maize; and all of them are sufficiently remarkable for size and quality to show that the climate and soil of West Australia are favourable to their cultivation. As is well known, the Tasmanians have already given a good deal of attention to this industry with encouraging results.

GRAFTING FRUIT TREES.

As "F. W. B." (page 407) has severely criticised my remarks (page 362), I am compelled to take up the defensive from a practical point of view and break a lance with my able, but hostile critic. The present controversy resolves itself into whether the grafting or budding of fruit trees (not bushes) is, or is not, the best and most expeditious method of raising Apples, Pears, Plums, Cherries in quantity on free stocks for orchard planting in the hands of skilful cultivators. As "F. W. B." holds contrary views to my own, and in order to the more easily demonstrate what I have practised and proved positively the best, I should be happy to show him the results here, he, on his part, pointing out his chosen examples raised from cuttings, layers or seedlings. My experience with cuttings and layers has so far been decidedly unfavourable. Of course, it can be done, and toy prolific bushes suitable for small enclosed gardens can be had, but not vigorous enough to please me, and presumably short-lived, whilst I defy "F. W. B." to prove that the quality of the fruit produced is one iota better or finer than that obtained from the grafted or budded trees grown on the wilding or Crab section of prepared stock which I have again and again advocated in the pages of THE GARDEN. Moreover, the thousands of examples open to public inspection on these estates are more weighty arguments than any fanciful theories of a supposed advanced nature by whoever made; hence my statement, based on practice, that budding or grafting is the best and most expeditious method of raising fruit trees.

"F. W. B." does me an injustice when he says "that they (the trees) are always bettered by the process, I deny." As a matter of fact I have never claimed this; therefore the comparisons attempted as to why not graft Gooseberries, Currants, Figs, or Vines are unreasonable; in fact, there is no analogy; moreover they are not orchard trees in the generally accepted sense. "F. W. B." also accuses me of "the careful avoidance of information as far as it relates to the kind of stock employed;" but as this has been given more than once previously in THE GARDEN pages, notably Vol. XXXVII. (p. 277), I naturally concluded intelligent readers would think otherwise; therefore, in repetition I state our best Apple stocks for grafting or budding are obtained by sowing Pippins taken from "cider must." The seedlings from these are always stout and vigorous, having straight stems and sleek bark, and only require to be moved a few times in order to divert their strength into fruitful channels by converting their long tap roots into fibrous ones. On the other hand, the progeny from Pippins say from high bred kinds, such as Blenheim, Cox's Orange, Ribston, &c., is always miffy and of a weakly constitution, quite useless for orchard purposes, and subject to mildew.

"F. W. B." is wrong in assuming that I am grafting or experimenting with 200 kinds on various stocks. A tithe of this number will never reach beyond the trial ground. That there are abuses in grafting I readily admit, but as regards fruit trees, I adhere to its necessity and every word given in my article on p. 362. There are some grand old patriarchal Pear trees growing near here with stems girthing 10 feet at 5 feet from the ground, and as these are grafted trees it says something for longevity.—W. CRUMP, *Madresfield Court.*

— I like the close, searching way "F. W. B." approaches this question at p. 407. Generalities are of no use to anybody who wants to be sure of their ground. I still believe in grafting and budding in some things, but the practice is much abused, and I believe some things are better on their own roots, as, for example, Gloire de Dijon

Rose, which I find is quite as hardy and at least as strong, or stronger, on its own roots. You perhaps might strengthen a wild Brier by grafting it on a Gloire, because the latter looks the stronger of the two, but no increase of vigour is to be obtained by reversing the process. Still, although you may modify the vigour of a stock by grafting, you do not alter its nature. It is the sap of the Peach tree that is in the Peach top, but it is the sap of the Plum that is in the Plum stock below, if the shoots that sprout below the graft indicate the nature of the sap, and the question is, how far is the Peach benefited by its Plum roots? There is, or was, in the nurseries at Handsworth a remarkably healthy, dense-habited Deodar—a very noticeable tree—which I was told was grafted on the Larch. I have never seen another Deodar like it, and it would be thirty years old or more when I saw it.

As regards the general effects of grafting, I may mention that I pointed out in THE GARDEN years ago that plants like the *Cyperus variegatus* and *Mangles*' variegated *Geranium* will continue to produce pure white limbs and leaves so long as green leaves also are produced, and no longer. From this I argued reciprocity among the branches—that the strong helped the weak; and applying it to Vines, I argued that a weak scion would be benefited by grafting when the stock also was allowed to develop branches and not wholly suppressed, as is the practice. When the Muscat Hamburg first came out it was recommended to be grafted on a Black Hamburg root to strengthen it, and plants were advertised of that description by the trade, but it came to nothing. Theoretically, I have no doubt that if the Black Hamburg Vine were budded on the stronger Barbarossa at every alternate spur, so as to blend the two together as much as possible, the Hamburg would produce bigger bunches and be altogether stronger; whereas if the Barbarossa growth was entirely suppressed, in a few years the Hamburg scion would go back to its normal condition. Again, as regards the effect of the free stock and the dwarf restrictive stock on Apples and Pears, when applying the same physiological principles to both I am irresistibly driven to the conclusion that, placed under equal conditions at the root as regards soil and distance from the surface, the one stock is just as precocious as the other, provided both are allowed to develop tops according to their vigour. The free stock will, of course, require more room, but it will produce proportionately more fruit.—J. S. W.

Little good will come from discussing this subject until own-root trees big enough to compare with those grafted on various stocks are growing side by side, under the same conditions and of the same age.—ED.

Early Strawberries.—For affording the earliest supply of Strawberries I have this year been growing three kinds, viz., Keen's Seedling, Noble, and Vicomtesse Héricart de Thury, and find Noble the earliest, largest, freest setting, and heaviest cropper of the trio, but having said that much in its favour, I must stop and denounce it for flavour, which, unfortunately, it lacks, or it would be one of the most valuable of all Strawberries to grow either indoors or out. Taking it all in all, I think very highly of the Vicomtesse, but it requires good cultivation and fine strong plants to produce satisfactory results, the one great drawback with this variety being its liability to mildew. The way the mildew shows itself is on the seeds of the fruit, which look as if dusted with very fine flour, and the fruit, too, has a peculiar bloom and becomes hard, which interferes with its swelling, and when badly attacked spoils it for use. Mr. Gilbert, of Burghley, was so kind as to send me plants of John Ruskin for trial, and I am glad to see that he also contributed a dish of berries of that variety to one of the London meetings. These were favourably commented on, and it was remarked that they looked like an improved Vicomtesse, but if only as good and without that failing, the being so subject to mildew, the sort will be a great gain. I hope to layer every runner and give it a good trial in the forcing houses next season, and am looking for-

ward to see what it will be like in the open during the coming summer. As the plants have not been in long and are small, I cannot expect much so soon from them. Keen's Seedling has been a favourite with me for many years, and is a good old reliable kind, but though the fruit is of fair quality, it is soft, and therefore bad for packing for travelling. Auguste Nicaise I have not tried in pots as yet, but I admired a very fine looking dish I saw of it last May at the Royal Botanic show, and if as good as its appearance indicated, it will have a foremost position for forcing. I am growing it on a border alongside of Noble to see which is the better of the two for outdoor work to give an early supply, a purpose for which Noble is unquestionably valuable, as it is a week at least ahead in ripening of any other I know, and the flavour is better than when the fruit is ripened under glass, which, however, follows as a matter of course. Market growers are sure to grow it, and I know one who has planted it largely, as he finds its good looks sell it. It is a heavy bearer, as even the smallest plants flower freely and swell up to a large size the whole of the fruit. Earliest of All I have discarded, and also Black Prince, as they are too small, and little, if any, better in flavour than Noble.—J. SHEPPARD, *Woolverstone Park*.

SHORT NOTES.—FRUIT.

Mildew on the Vine.—I should be obliged if any of your correspondents could give me some information as to the proper quantities of the sulphate of copper solution used for preventing the progress of the dangerous Vine mildew (*Peronospora viticola*), and also the number of gallons of water to any given quantity.—NOVEM.

Strawberry Noble for forcing.—I have forced it this season for the first time, and only 100 plants in 8½-inch pots. The foliage when the plants are grown in pots of this size is very luxuriant, the fruits set well, swell up to a great size, and are of a very rich colour. Noble is not even second rate as regards flavour; therefore, I shall not attempt to grow it again. King of the Earlies came in quite a fortnight before Noble. The fruit was of medium size, highly coloured, and of excellent flavour, but it was rather shy in setting.—F. RIX, *Hollam House*.

Ferns for covering damp walls.—Frequently in stoves and conservatories damp walls are found. Considering that there are many plants adapted for growing in such positions, the wonder is that more use is not made of them. In one stove under my charge I have had for years a beautiful clothing of Ferns. This wall was formerly washed down clean every year, but this labour was dispensed with when it was found there was a tendency for Ferns to grow upon it in a spontaneous manner. Thus by the let-alone treatment the best of results has been attained. The Ferns now growing on the wall in question consist of the British Maiden-hair in quantity, *Pteris longifolia*, and *Nephrodium molle*. The first has so permeated the mortar of a 9-inch wall as to appear upon the other side in the open air, where young growth is now commencing. This Fern, taken from the inside whilst still in a young state, lasts remarkably well, singular to say, in a cut state when thrust into plenty of water. Had this wall been cemented the Ferns would no doubt have failed to grow. Where there is any difficulty in this respect it may be overcome by cutting out a little of the mortar and then filling in with peat. If this be done here and there, seedlings will soon appear. All that is afterwards necessary is occasional syringing in hot weather, and also when the pipes are extra warm. No further addition of soil is necessary if the wall is thus kept moist.—H.

Pteris serrulata densa.—With the numerous breaks which this type of the Ribbon Fern has produced, it would hardly seem possible to introduce another which would be distinct and useful. Such, however, is not the case, for in this new variety we have one of the dwarfest yet raised, finer in all its parts than others also. The points of the fronds are densely tasselled, somewhat resembling the Fern-leaved Parsley when seen at a distance. The colour is a pale green, being in this point also very distinct. This Fern will make an excellent basket or small vase

plant. It received a botanical certificate at the last meeting of the Royal Botanic Society. It is another of the serviceable Ferns raised in the Elmdon Nurseries of Mr. H. B. May.

NOTES OF THE WEEK.

L'Orchideene.—We are asked to state that a special display of Cattleyas and Odontoglossums is expected at the approaching meeting of L'Orchideene, the Amateur Orchid Society of Brussels, which will be held in the Parc Leopold on May 17, 18, and 19 next.

M. Kropatsch.—We are glad that our friend A. Kropatsch, of the Imperial Gardens, Vienna, has been made a member of the Order of the Golden Cross of Merit for his work in laying out the garden and park in connection with the exhibition of forestry held at Vienna.

The Tortoise-shell Polyanthus.—I send you a few trusses of the rare old Tortoise-shell Polyanthus. It has withstood the winter well, but the hard spring has shortened the growth of the flower-stalk. I also enclose a few heads of Hose-in-hose Polyanthus in various shades; they are amongst the finest of spring bedders and last longer in flower than most Dutch bulbs. It is a pity that they are not more grown.—W. H. BLAIR, *Cork*.

Gold-laced Polyanthus.—The enclosed Polyanthus flowers were cut from plants raised from seed sown last June. I suppose that the flowers would be larger on older plants, but I thought the markings and colour were distinct and bright.—A. LOCKE, *Danesfield, Walton-on-Thames*.

A very beautiful gathering. The flowers were rich in colour, bold, and beautifully laced. Everyone who admires simple beauty should grow the variously coloured Polyanthus and Primroses.—ED.

Polyanthuses.—I send you some seedlings of Polyanthus and Primroses which I have grown here for the last three years. The season has been against them. I have been gathering for some time, but they are not yet at their best. I have a line about 60 yards long, and each plant is covered with bloom. I cannot too greatly praise them for their value for cutting as well as for their effect in the open air at this time of year.—E. WOOLLEN, *The Gardens, Charlton House, Shepton Mallet*.

A fine, well-grown strain.—ED.

Narcissus minor.—A somewhat late planted batch of the true plant has been a perfect mass of flowers quite close to the ground. The lateness of its being planted has tended to make it somewhat dwarfer than usual, while apart from its stature it has not suffered in the size of flowers individually. For the rockery it would make an excellent plant, or for growing in pans in a cold house it would find many admirers, for then the flowers would remain quite clean and last a long time in good condition, while by the protection thus afforded, it could be had earlier in bloom.—J.

The blue Windflower naturalised.—I enclose you a photograph of the blue Windflower (*Anemone apennina*) growing in a wood here. You will see by it that it is a grand thing for naturalising. I think it ought to be more largely planted by the side of woodland walks, rockeries, &c. I daresay a short note in THE GARDEN would be interesting to the readers, as I think it is not generally known that it does so well in such places. This photograph was taken on May 4; it is much later in flowering this season.—W. J. MITCHISON, *Clonard, Dundrum, Co. Dublin*.

The photo shows a dense and wide-spreading colony of this beautiful Windflower, perhaps the best of all blue plants for the wild garden. It can be grown in meadow grass as well as in woods, as the leaves ripen before the hay is fit to cut.—ED.

Habrothamnus Newelli.—This plant is now in fine bloom; its bright crimson panicles when freely produced constitute a most attractive feature. Although it is not such a continuous flowering variety as the well-known *H. elegans*, it makes full amends for that failing in the brilliant colour of its blossoms. It will last in good condition about two months, and during that time is a most conspicuous feature. In order to see it to the best advantage it should be trained as a pillar or rather plant in an informal manner. Another capital method is to train it over arches which span pathways, leaving all the points of the shoots quite free. Grown thus it makes a splendid display, being then seen to the best advantage. What pruning is requisite should be done as soon as the plant

is out of flower. If this is deferred say to the following autumn, it means cutting away so many would-be flower trusses, as it flowers upon the terminals. It will thrive well in a house which does not fall lower than 35°.

Adonis vernalis.—We have already called attention to the beauty of this plant when established. It is still, as it has been for nearly a month past, the brightest of all the alpinas. It is when established, and the tufts carrying ten or a dozen of its lovely flowers, each fully 3 inches across, that the beauty of the plant is seen. This alpine undoubtedly loves a light, warm, loamy soil and a deep rooting medium.

Narcissus Sabine.—I have at last found what I have no hesitation in saying is the true form of this. I believe it was found hidden away in an old garden, and has a history akin to Sir Watkin. It is what may be termed a good doer, the leaves being strong and healthy, the bulbs increasing very freely. It is, of course, one of the rarities amongst Daffodils at present, but its quick increase will soon make it plentiful. *Narcissus* S. A. de Graaf was at one time supposed to be *N. Sabine*, and a note was published to that effect in *THE GARDEN*, May 4, 1889 (p. 407).—D. K.

Narcissus C. J. Backhouse.—This is a most charming variety of the incomparabilis group, and should be grown by all. Possessed of a good constitution, as happily the majority of this section have, and with a fine cup of a rich orange-scarlet hue, it is at once the most conspicuous and remarkable of the yellow incomparabilis. It usually blooms at the same time as *Stella*, but the flowering of the *Narcissus* this season forms no fitting guide to the welcome succession under ordinary circumstances. *Narcissus* C. J. Backhouse may be considered one of the gems of a large and varied section.

The Godolphin-Osborne collection of Daffodils at Kew is now very beautiful, and all interested in this question of imported hybrids, &c., should not miss this chance. The *N. Bernardi* especially are quite a study in themselves, giving endless variety both in shape and colouring, many of them coming remarkably near some of our finer named sorts. A well-known Daffodil grower, without noticing them to be imported bulbs, caught hold of a flower with the remark, *Miriam Barton*, showing how near they are to the garden hybrids. Amongst those which we picked out last year are a few like *Princess Mary*, *Barri*, some of the forms of *Burbidgei*, one very like *Sir Watkin*, and very many close to *Cynosure*, *Leedsii*, &c. *N. muticus*, and not, as one would suppose, *N. pseudo-Narcissus* or *variformis*, is the trumpet form found amongst these *N. Bernardi*. All the rogues have been *muticus*, and in no single instance have I seen anything else unless forms near to *N. poeticus*.—D.

The coming flower for house decoration.—The Himalayan *Rhododendrons* are fast becoming favourites for the above purpose. For a small dinner-table what can be more beautiful than a large bowl filled with the flowers of these, and a set of three bowls or glasses for a large one, with glasses or small blue or other jars for single trusses. These flowers should, if possible, be accompanied with their own foliage, than which nothing is more suitable. The flowers can be cut with long stems, as when established, the plants make growths from 15 inches to 27 inches long in a season. These when bearing three or four shoots, carrying each a truss of bloom, with from three to ten flowers on each, according to the variety, make a grand display. The more the plants are cut, the more compact they will be. The large-flowered section is the one I recommend for this purpose. This includes such handsome varieties as *R. fragrantissimum*, *R. navigatum*, *R. Edgeworthii*, *R. Countess of Haddington*, *R. calophyllum*, *R. ciliatum*, &c. Anyone having large demands for cut blooms cannot do better than devote at least one house to them, and where large conservatories or winter gardens have to be furnished they will be found most useful. I have just counted 140 trusses open on a plant of *Lady Alice Fitz-*

william on a pillar. I enclose a few trusses for your inspection.—A. EVANS, *Lythe Hill, Haslemere*.

* * Large and beautiful things, fine in form and very sweet.—ED.

Dwarf Phloxes.—The finest and most graceful of the dwarf *Phloxes* is *P. stellaria*. It is an American plant with a free habit, producing its lilac-purple flowers in such profusion as to form a dense cushion of colour relieved here and there by some of its pretty green foliage. It is quite as easily managed as *P. setacea*, and may be increased to any extent by cuttings, which strike freely in spring or autumn. *P. procumbens* is also a very distinct and desirable dwarf *Phlox*, as also are *P. reptans* and the free flowering *P. amœna*. This last species has been used with much effect as a spring bedding plant, and masses of it in full flower are very effective.

Saxifraga cordifolia purpurea.—We have sent herewith a panicle of this handsome plant with foliage attached for your inspection. In our Hampton nurseries it is certainly the noblest of this group, perfectly hardy and retaining its foliage throughout the year. Even when not in flower it is always conspicuous by its large shining coriaceous leaves. For the rock garden, where bold picturesque groups should always be found, this is one of the best that could be raised; it is also equally well suited for large beds on the lawn. It is an excellent town plant, defying both smoke and fog.—COLLINS AND GABRIEL, *Hampton*.

* * A very handsome and richly coloured form.—ED.

Ranunculus montanus.—The dwarf alpine form is a capital plant for the rockery. We say the alpine form because it is only the form found at high elevations that keeps so dwarf and flowers so freely on our rockeries. In the valleys of Switzerland and other countries of which it is a native it commonly grows to 18 inches in height, and without the correspondingly larger flowers looks much like our native *R. acris*. The high alpine form rarely grows more than 3 inches or 4 inches high, the leaves, when the plant is in full bloom, being entirely hidden by a mass of rich golden flowers. It grows freely on a western slope and increases so rapidly that it very soon forms large tufts. *R. bilobus*, *R. crenatus*, *R. Trautmannii*, *R. pyrenaicus*, and *R. alpestris* are all white-flowered species, and together make one of the most charming and interesting little groups we have seen for a long time.

Carnation Souvenir de la Malmaison.—“J. C. B.” (p. 414) expresses his surprise that plants so far north as Birmingham should have passed through the severe winter uninjured, and can only surmise that the frost cannot have been so prolonged or severe. We have had our share, the frost having lasted for eight weeks, and on January 4 the thermometer on the same border on which the *Souvenir de la Malmaison* stood registered 29° 18 inches from the ground. The plants I allude to were grown in pots with many other sorts in the open through the summer, and only placed under glass for protection from rain when the buds were ready to expand. After flowering they were planted under a wall facing north-west and layered, and certainly not treated entirely as greenhouse plants. One of the most important points is early layering, which I like to get done by the first week in August, as this allows plenty of time for the young plants to get established before winter sets in. If this were done we should find our losses would be reduced to a minimum. I should not care to adopt “J. C. B.’s” plan of covering with straw; the moisture arising from the ground and condensing on the foliage would bring about the very result which we should try to avoid, viz., spot, &c.—C. H. H., *Sparkhill Nursery, Birmingham*.

Chrysanthemum Mrs. Alpheus Hardy.—Without desiring in the least to unduly prolong the flowering season of the *Chrysanthemum*, or rather to produce blooms at an unreasonable time, I may be allowed to remark that for the past three months I have not been without really good and useful blooms of this variety, some of these having been

fully 4 inches across. It has come about in this manner. Last season I grew a few plants for large blooms on the single-stem principle, and allowed each plant to carry three or four flowers, which were very good; these were cut with a foot of stem and sent to market, realising good prices. Requiring all my plants for stock purposes, they were allowed to remain where they flowered without being cut down. Presently they began to push growths from the head of the plant, which gave me the hint that their energies were by no means exhausted, and I therefore determined to leave them and note the results. The outcome is this: quite a bush of new shoots, each about a yard long, has been produced, bearing one to three flowers each, and of the size already stated; the plants have also produced many cuttings as well. Whether the keeping over of the white late-flowered kinds could be made to pay is open to doubt, though I doubt not private gardeners with vineries and the like at disposal may cut many a good bloom from plants similarly treated.—J.

Narcissus cyclamineus seems to have puzzled some growers. *N. cyclamineus* has been growing at Kew for two years, and this year the plants are certainly stronger and the flowers larger than I have ever before seen them. On Mr. Barr’s advice I planted the bulbs he kindly sent me in a peaty bog within a few inches of a running stream. The condition of the bulbs, as shown in the strong healthy foliage and large firm flowers, proves that the treatment is right. I have also had it growing for three years close to the pond, the bulbs being planted on the slopes a few feet from the water’s edge; here they have also proved a complete success, though dwarfer and with smaller flowers than in the case cited above. I suspect the want of moisture at the proper time has something to do with much of our failures with imported *Narcissus*.—D.

Morisia hypogæa.—One of the most charming of this year’s novelties is this crucifer, that has been brought under notice through the untiring efforts of M. Correvon, of Geneva. It forms dense rosettes of dark green quite stemless leaves not unlike those of *Blechnum alpinum*. From the centre of this rosette come the large brilliant golden yellow flowers, which just now are very beautiful. This new alpine is sure to become a general favourite; at any rate everyone that has seen it has been quite charmed with its neatness and free-flowering habit. I am not altogether sure about its being a perennial, botanists giving it as an annual. I do not think this can be correct. If not perennial, at any rate it is biennial. It is a native of Corsica and Sardinia, and although rare as yet, if it seeds as freely under culture as it appears to do in a wild state, it will soon be as plentiful as its merits deserve. It is now in flower on the rockery at Kew.—K.

Acokanthera venenata.—At Kew, both in the Palm house and in the temperate house, there are now specimens of this beautiful Cape shrub in flower. It is one of a small genus containing but three species, and is also known under the name of *Toxicophlea Thunbergii*. It is valuable at this season both for the abundance of its flowers and for their powerful, but sweet and somewhat Jasmine-like fragrance. It is of tall spare habit, and may be used as a climber in houses that are not very high, the leaves being 3 inches long, elliptical and of leathery texture. The flowers, which are very numerous and thickly clustered, are produced in short corymbs from the axils of the leaves. The five-petalled corolla is half an inch across and pure white, and as it narrows into a slender cylindrical tube the flower is altogether rather Jasmine-like. The baneful properties of this plant have long been known to the colonists and natives of South Africa. There it is called the Poison Tree, and, according to Thunberg, a decoction made from the bark is, or used to be, employed for poisoning arrows. It will succeed either in the stove or in a warm greenhouse, and should be potted in a compost of loam, peat, and silver sand. Although when grown from seed it is said to take a long time to reach the flowering stage, those grown on from cuttings taken from an adult plant flower when less than a foot high.

TREES AND SHRUBS.

THE SAVIN.

(JUNIPERUS SABINA.)

AMONGST small-growing Conifers few are more beautiful and useful than the common Savin and its forms, but particularly that known popularly as the Tamarix-leaved (*J. tamariscifolia*). For carpeting the ground, planting on dry banks where little else save the Furze could grow, along the margins of thick shrubberies, or beneath the not too dense shade of our half-standard park trees, the Savins are amongst the most useful of dwarf-growing coniferous shrubs. A pretty combination is afforded in the interesting garden at Goddendene, near Bromley, by the free use of the Tamarix-leaved Juniper with herbaceous plants, fine broad masses breaking up the beds every here and there, and lending quite an unusual charm to that class of gardening. But to see this same Juniper used as a

garden and shrubbery occupants. The mode of growth is quite decumbent, while the tips of the shoots ramify and jut out here and there in a most agreeable manner. A description of the plant's habit is quite unnecessary, it being truthfully depicted in the annexed illustration. There is a variegated form of sometimes pleasing appearance, but in some specimens the variegation is sickly and repulsive.

A. D. W.

ERECT GROWING CONIFERS.

At a time when most gardens were laid out in a hard geometrical fashion such subjects as the Irish Yew, from its erect, almost artificial habit, were frequently planted, but now-a-days such stiff and formal growing plants are admired by but few, though even in their case some pleasing combinations may be made by associating them with shrubs or small trees of spreading growth. As these erect Conifers need but little space for their development, they are in this

riety of the Chinese Arbor-vitæ is very distinct from any of the others, as it forms a small, somewhat fastigate growing specimen, whose foliage is during the summer of a deep golden yellow, while it becomes suffused with bronze in the winter. It is a wonderfully pretty subject for small gardens.

Several of the Yews are of an upright habit of growth, the best known being

THE IRISH YEW (*Taxus baccata fastigiata*), which besides its style of growth differs from the type in the leaves being scattered around the branches instead of arranged in two rows, as in the common form. There are three variegated kinds of the Irish Yew, one of which has the foliage marked with yellow and another with white, while the third has the young growth of a golden hue. The dense-growing globular-shaped *Taxus adpressa*, or *tardiva*, as it is often called, is represented by an upright growing variety (*Taxus adpressa stricta*) which is of slow growth, and from its small leaves widely different from any of the other Yews. *Taxus baccata erecta* is an upright form of the common kind, which is, however, much less fastigate than the

Irish Yew. *Cephalotaxus pedunculata fastigiata* has only within the last few years been recognised as a *Cephalotaxus*, it being at one time looked upon as a *Podocarpus* under the specific name of *koraianus*. It is seldom seen more than about 4 feet high, and is as upright in growth as the Irish Yew, but with larger leaves. That it is a *Cephalotaxus* has been several times proved by the ordinary fastigate form pushing out shoots that grew in a nearly horizontal manner, and had the leaves arranged in two rows instead of being scattered, this differing in no way from the ordinary form of *Cephalotaxus pedunculata*.

JUNIPERUS COMMUNIS HIBERNICA.—This variety of the common Juniper is one in which all the branches tend upward, thus forming quite a living column. It is widely removed from all the other Junipers, unless it be a miniature form of it, known usually as *compressa*, and regarded as a sub-variety of *hibernica*. A very prominent feature of the Crimean Juniper (*Juniperus excelsa stricta*) is the peculiar greyish tint of the foliage, and in the variety *stricta* this character is even more pronounced, added to which its growth is more spire-like, and it does not attain the same dimensions as the type. Being of such a light tint, it affords a direct contrast to the sombre hue of many Conifers.

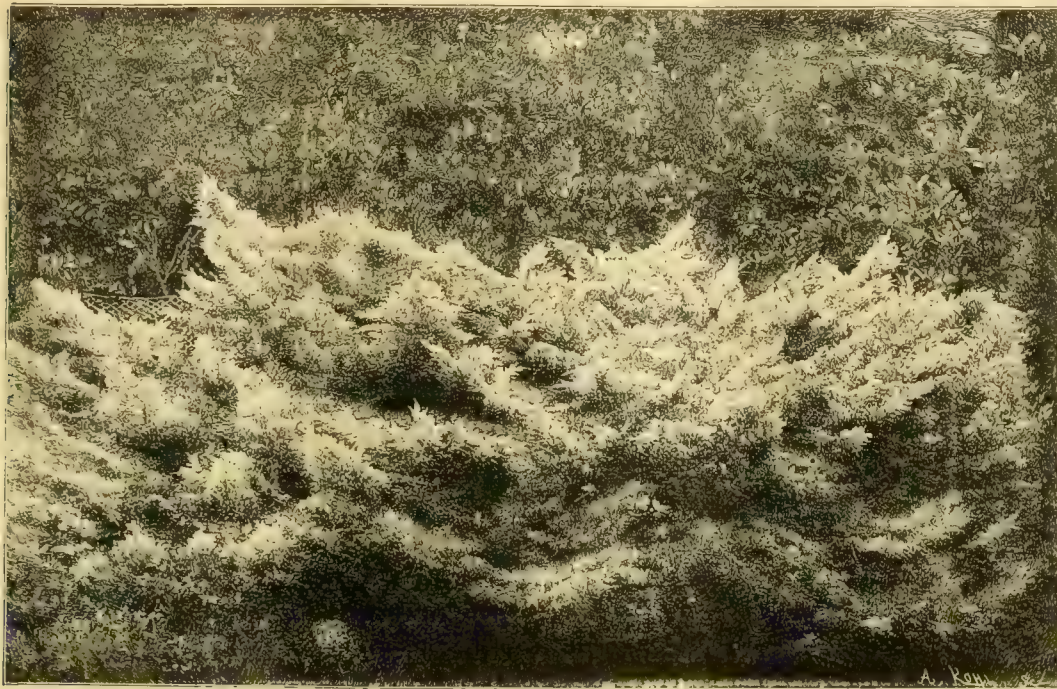
THUJA LOBBI ERECTA is a form of Lobb's beautiful Thuja, in which the branches take an upward direction. In some forms this upright tendency is far more marked than in others, but all possess the rich fresh green foliage of the type.

RETINOSPORA LEPTOCALADA.—There has been a good deal of controversy regarding the origin of this *Retinospora*, but there can be none with regard to its being a pretty little shrub, of a close pyramidal habit and with pleasing bluish-grey foliage.

LIBOCEDRUS DECURRENS.—This distinct Conifer is said in California to be of a somewhat open spreading character, but here it is of a dense columnar habit of growth with deep rich green foliage, which does not change in the winter. It needs a fairly moist loamy soil, as it is apt where dry and gravelly to lose many of its minor branchlets and wear a somewhat unhappy look. Unlike many Californian Coniferae, it is perfectly hardy in this country.

T.

The Jew's Mallow (*Kerria*).—This pretty old shrub is commoner in cottage gardens than in larger ones, and whilst it is no uncommon sight to see fine bushes upon the walls of cottages, especially in the home counties, one may go into many large gardens and not see it at all. Although



The Savin (*Juniperus sabina*). From a photograph sent by Mr. W. H. McConnel, Tan-y-bwlch, N. Wales.

lawn plant instead of Grass is certainly remarkably strange, and yet that it can be so used, everyone who has been privileged to see that velvety lawn has frankly admitted. The plants were inserted when hardly a foot in spread of shoots, and at about 15 inches apart, the most procumbent in a nursery border being chosen for the purpose. Great care and attention were necessary for the first three years, so that all upward shoots were either cut off entirely, or where a bare space occurred near at hand, pegged firmly down. A heavy roller was passed over the ground twice a week, pruning and pegging regularly attended to, and now the lawn is as level as could well be desired and can be walked across with perfect ease. The idea was certainly a novel one, but that it has been a decided success cannot be denied.

Growing alone as a garden or lawn shrub the Savin is a plant of the greatest interest, the neat, not stiff habit of growth and peculiar blue-grey of the shoots being so uncommon and contrasting markedly with the general run of our

respect valuable for small gardens. One of the best of all is

CUPRESSUS LAWSONIANA ERECTA VIRIDIS, by which name the distinctive features of the plant are well expressed. It is a good free-growing form of tapering habit, while the foliage is at all seasons much brighter than in the ordinary kind. A second variety of Lawson's Cypress is that known as *stricta* or *erecta*, which is in all respects much less ornamental than the preceding, being far stiffer in outline, while it does not possess the rich colouring of the other. *Cupressus sempervirens* (the South European Cypress) forms when young a quick growing fastigate specimen of dense growth. It is very ornamental, but is not proof against our more severe winters. *Cupressus thyoides*, known frequently by the name of *Chamaecyparis sphaeroidea*, is usually of a dense tapering habit of growth, though when raised from seed individuals vary somewhat in this respect. Given a fairly moist spot it is a very ornamental Conifer, and one that after it reaches a height of 10 feet to 12 feet grows but slowly.

BIOTA ORIENTALIS ELEGANTISSIMA.—This va-

usually grown against a wall, it will make a pretty bush in all but the most exposed and cold situations. The rosette-like double orange flowers are exceedingly effective at this season hanging from every slender twig. The commonest kind is the double flowered, and a major or large-flowered form is even finer than the type. There is, however, a single-flowered form which makes a pretty and graceful bush, but it is rarely met with. A variegated-leaved kind, too, is pretty, but rather tender. In favoured localities the *Kerria* is well worth planting, and the contrast between its orange blooms and silvery leaves is pretty and uncommon. It is sometimes grown as a greenhouse plant in less favoured localities, and grown in this way it is highly ornamental.—A. H.

FLOWER GARDEN.

WINTERING OF DELICATE ALPINES.

TO THE EDITOR OF THE GARDEN.

SIR,—This correspondence has been most interesting and instructive, and there will, I hope, be more letters on the subject. But the discussion is, I think, in danger of becoming a little discursive, and I should like if possible to bring it into more defined lines, and having done this, I may perhaps venture upon a few further remarks, based mainly on what has already been said by correspondents. It would, I fear, be difficult to say what is the general balance of opinions, considering how varied are the views expressed by your correspondents, though I may say that the differences of opinion appear to relate, not so much to the question, "What conditions do the plants like?" as to the query, "How are those conditions most nearly to be attained?" and disagreement upon this is sure to arise among correspondents, even the most experienced authorities, who write from localities having such widely different climatic conditions as those of Geneva, Malpas, Isle of Wight, Guildford, and Kirkstall. First, however, allow me to clear away a point which has occasionally been raised, and which does not affect the original question. Let me admit at once that there are plenty of choice alpine plants which are grown with comparative ease, and that it is better for the cultivator to select plants of this nature, and particularly those which are adapted to the special conditions of his locality; and, having done so, I am free to return to my original question, "How should we winter delicate alpine plants?"

It will, I think, simplify matters if I tabulate what I imagine to be some of the natural conditions of the higher alpine plants in summer and winter (for I imagine both of these should be taken into account, though we are only actually considering the winter).

During summer.—(1) atmosphere perfectly pure; (2) atmosphere rare; (3) plenty of moisture; (4) bright sunshine; (5) frequent alternations of 3 and 4; (6) abundance of radiant heat from sun in daytime; (7) a comparatively cool fresh atmosphere, even in daytime, notwithstanding 6; (8) the freest ventilation; (9) gritty soil composed of ground-up rock and stones and of the special character enjoyed by the plants which grow in it; (10) protection of roots from evaporation; (11) free and rapid drainage.

During winter and early spring.—(12) complete interment in snow; (13) exclusion of air; (14) protection from weather absolute; (15) perfect dryness; (16) no light or hardly any; (17) moderate warmth; (18) rest.

Period of change.—(19) rapid change from winter conditions to summer conditions; (20) abundance of moisture at period of change; (21)

period does not arise until climatic condition of summer well advanced.

It would be preposterous for me to pretend to be laying down didactically a series of items on a subject which has probably been studied by most of your correspondents long before I fully grasped the difference between a *Geranium* and a *Calceolaria*. No doubt my list is full of inaccuracies and omissions, and it does not pretend to be either a correct or a full list of the leading features of the high alpine home. I merely adopt this method of enumerating some conditions which I imagine to exist, as being convenient for the purpose of brevity on subsequent reference.

The alpine conditions (as I may call them) must be closely associated with and dependent upon one another. We cannot imitate them all; and therefore it does not necessarily follow with reference to any individual one that it is desirable for us. For example, some of us lack No. 6, and this fact may modify our requirement as regards No. 7, and *vice versa*. Similarly, if we are deficient in Nos. 4 and 6, this must surely affect our want of No. 3. And here, to my mind, arises one of the chief difficulties in dealing with the question of delicate alpine plants, and one of the causes of such difference of opinion among experts. Most of the conditions from No. 1 to No. 7 are denied to many of us; and, what is still more serious, all the conditions from No. 12 to No. 21 (except perhaps No. 20) are denied to all of us, and the degrees in which these respective conditions are wanting vary very much in different localities, nay, even in different years in the same locality. The problem must surely be a difficult one to solve, and is full of conflicting details. For example again, we must not bury our alpine plants in winter, even, I imagine, if we can imitate No. 12 and do it in snow; for we have not Nos. 19 and 21, and this fact would produce the opposite of Nos. 15 and 17, and the plants would probably perish. We must not attempt absolute protection from weather (No. 14), for No. 12 not being available as a method, our only alternative is a completely closed bell-glass or frame; and as Nos. 13, 15, and 18 are not obtainable, our plants require No. 8 (as a winter condition), and without it would damp off and die. Then, again, another crop of difficulties arises. In lieu of the greater number of the conditions of winter we have, during that period, a number of summer conditions. Which of these summer conditions should be avoided absolutely, which avoided partially, and which entirely encouraged? Thus No. 15 is hardly attainable, nor under the altered conditions would it be desirable; yet, on the other hand, what could be more disastrous in winter than No. 3? but where are we to draw the line? Again, it would be absurd to apply No. 16; but is it desirable that the plants should during winter have too much of No. 4, which must surely militate against No. 18? And if not, how and to what extent, and for how long a period must we modify it? Also, as our plants cannot have Nos. 12, 13, 16, and 18, experience tells us we must have No. 8. But how is it to be obtained, except at the cost of Nos. 14, 15 (or a modification of it), and 17?

I fear my method of explaining my meaning by reference to these figures is not elegant, but it has the virtue of brevity, and to those who do not mind the trouble of looking back it will, I think, be clear. And I must again try to disarm critics by saying that these detailed comparisons are not the result of knowledge or experience (which I do not possess), nor of careful and prolonged thought. They are put down

hastily, not so much as individual propositions, but rather as illustrations of the nature of the complications in which the question seems to be involved. Many of them may, therefore, be wrong, but yet they answer my purpose, and I will even take them as a basis for my further suggestions.

Let me first eliminate from my conditions those the absence of which (if they be absent) cannot be remedied or modified. This I imagine to be the case as regards Nos. 2, 4, 5 (which cannot be obtained if No. 4 is wanting), 6, 7, 12, and 13 (I think I may fairly include the last two). Next let me eliminate those which can be artificially produced with reasonable sufficiency. This is so, I think, as regards Nos. 3, 9, 10, 11, and 20. I omit No. 8 from this list because, though we can have it in summer, it is with us imported into the requisite winter conditions. We are thus left with the following to be the subjects of our combat with adverse circumstances, namely: Nos. 1, 8, 14, 15, 16, 17, 18, 19, and 21. No. 8, as before mentioned, is retained as one of the final list only in its necessary application to winter, and the same applies to No. 1, because if the atmosphere be impure in summer we cannot combat it. All we can do is to try to protect plants from the more vitiated atmosphere in winter. It would, therefore, seem that the questions to be debated all relate to winter and the period of change, and this seems natural, for if a plant cannot with the ordinary precautions of selection of situation, watering, drainage, &c., be made to thrive in summer, it may, I think, be fairly given up as hopeless. I should, perhaps, exclude No. 15, which with us is, I suppose, hardly desirable. It is perhaps only required to the modified extent which is involved in No. 14.

The following, therefore, would seem to be the conditions the attainment, and in one or two cases the relative desirability, of which constitutes our complex problem: (1) protection in winter from atmospheric impurities; (8) ample ventilation in winter; (14) protection from weather in winter; (16) modification of light in winter; (17) moderate warmth in winter; (18) rest in winter; (19) rapid change from winter conditions to summer conditions; (21) postponement of change until summer (or rather with us spring) is well advanced. And in dealing with these we are met by the difficulty that some of them (as, for example, Nos. 8 and 14) are antagonistic, and that in securing one, we have to partially sacrifice the other, thus introducing the question of relative importance. We also have to consider whether certain of them, as, for example, Nos. 16 and 19, are in fact under our altered conditions desirable.

Having thus tried to reduce the complications to what I may call their lowest terms, I may, I think, look back at the letters which have been written, and endeavour to extract the essence from them. There seems to be a general consensus of opinion that ample ventilation (No. 8) is absolutely indispensable. Whatever we may or may not do, if we have not free ventilation, we lose our plants. I see now that at the outset I was proposing to be far too ingenious in my efforts to coddle my alpine plants to death, and for this lesson I owe a debt of gratitude. All, or nearly all your correspondents are also agreed that we must have protection from weather (No. 14), and most of them seem to think that the greater the protection the better it is, provided always that we on no account attain it at the expense of the most complete ventilation. I think I may also say that most of your correspondents disapprove of an annual lifting and potting, and prefer an arrangement under

which, whatever the method of protection may be, we bring the protection to the plants rather than take the plants up and remove them to the protection. Suggestions are made as to pot culture (see, for instance, Mr. Wolley Dod's letter of April 25), but I rather gather that what is meant is permanent pot culture, and not an annual digging up and potting. The great question seems to be, therefore, "How can we without removal of the plants apply the best winter protection, and yet retain ample ventilation?" and this is the important point upon which the great divergence of experience and opinion arises. The methods discussed are, I think, namely, as follows: (a) Ordinary frame; (b) frame with ventilation; (c) lights open all round; (d) sheets of glass; (e) bell-glasses. The ordinary frame is subject to the objection that, to let in ventilation, we must open the frame at the top, thus often making it impossible to give ventilation when we would fain do so. The frame with ventilation does not, I think, meet with much approval, the reason apparently being that it will probably not ventilate sufficiently. Bell-glasses have perhaps more friends; but they are subject to the objections applied to frames, both ordinary and ventilated. I am disposed to think that the weight of evidence is in favour of either lights over the rockery or sheets of glass over the individual plants; and as, unless the rockery be specially adapted for the use of sheets of glass, it is difficult to so arrange them as to avoid the running of the rain and slop down the rockery and over the plants, it seems to me that the net result of the correspondence is in favour of lights.

No suggestions have, I think, been made as to protection from atmospheric impurities (No. 1); nor do I see what could be suggested beyond the partial protection from falling smuts, &c., which is obtained by the covering applied for keeping away the weather. With many people this difficulty does not arise to an appreciable extent; and, though it would be impossible to grow delicate pubescent alpine in the heart of a large town, I still hope that with careful treatment a good deal may be done, even by people who, like myself, live near one. I may say that I have this winter been able to save nearly all my tufts of *Androsace sarmentosa* (some in a frame and some under bell-glasses); and those that have survived are all looking absolutely healthy and, with one or two exceptions, are now bursting into bloom and are sending out their runners. Rest in winter (No. 18).—We cannot bury our plants, and I do not think any special suggestions have been made as to this item. I take it the plants naturally rest to a certain extent, even with our altered conditions; and by avoiding a close atmosphere and not watering during winter, we stimulate the plants as little as possible. I had hoped, however, to hear more from your correspondents as to this. Modification of light in winter (No. 16) is an item about which there have not been many suggestions; and their very absence would seem to imply that most of your correspondents do not think this item important; though I should have thought that some slight modification of light would have assisted in promoting the rest mentioned above. Postponement of period of change until spring is well advanced (No. 21) and rapid change of conditions (No. 19).—These appear to me to be among our formidable difficulties. Having gone safely through the winter, we have to face the terrors of early spring. The plants have not rested quite as they should do during the winter months, and the winter abates temporarily and further stimulates the plants long before the permanent change of

weather arrives. Then come fresh downfalls of snow, and cold sloppy rain, and biting east winds, which make havoc with the more venturesome plants. No doubt the use of lights only as distinguished from closed frames reduces this difficulty to a certain extent, as it keeps the plants back and enables us to continue our protection a little longer. But here again I would ask if some more suggestions could not be made. Moderate warmth in winter (No. 17) is an item which I imagine we must not attempt to obtain under our conditions, except so far as it arises from the protection above-mentioned. The only other method of securing it would be shutting up in a close frame. Moreover, as we cannot postpone the period of change, and wish to keep the plants back and induce them to rest, perhaps the warmth is hardly desirable. The desirability for certain plants of a wall or rockery which is vertical or nearly so has been discussed, and with reference to this point there could be no difficulty when constructing the special rockery in making a small portion of it absolutely steep, especially if we have a natural slope in the garden, which enables us to avoid the alternative misfortune of letting the higher plants get too dry, or, in our efforts to satisfy the needs of them, making the lower ones get too wet.

I think there is still a good deal to be said on the whole subject. I have no experience and can only deal with the matter speculatively, endeavouring at the same time to sum up (if I may use the term) the evidence which has been given by practical authorities who have had long experience. But there must be much more valuable information which these gentlemen could give, and my desire to secure this information, not merely for my own benefit, but for the benefit of the large and (I fancy) rapidly increasing number of other beginners who are awakening to the fascinations of alpine is my excuse for trespassing at such length upon the patience of yourself and your readers.—ROBERT W. WILLIAMSON, *The Croft, Didsbury*.

—May I just explain that, with very few exceptions, no glass coverings are ever used beyond the end of February or the beginning of March. In summer-time they are more like burning glasses than anything else, and are serviceable for drying off plants which need to be treated in that way. I never knew of any harm coming from them in a single instance in winter, and therefore I use them in a very indiscriminate and wholesale manner. There are many plants which doubtless can pull through the winter without them which will do it much better by their aid. My experience of such a thing as *Lewisia rediviva* has been exactly the same as that of Mr. Wolley Dod. I have never yet kept it for many years together on my rockery, but still I do not despair of it. I think its constitution is weakened by the vicissitudes of our climate in the trying season of the year, and I hope to provide against this by giving it glass protection in winter, and that then it may do better. I have certainly seen it in a more flourishing condition in Mr. Backhouse's frames than elsewhere, and the glasses I venture to recommend are more like little movable frames than anything else.—H. EWBANK, *St. John's, Ryde*.

Poppy Anemones.—Few, if any, of the spring-flowering plants are more valuable than these, as with very little trouble whole masses of them may be had in bloom early, and when grown together they make a magnificent show. For cutting from, too, nothing can be more valuable, and so abundant are the flowers that one may run to a bed or border and gather numbers without their being missed.

One peculiarity with *Anemone* blooms is that when cut and put in vases in rooms they do not close, but remain expanded; whereas on the plants their petals close when the sun leaves them or the day wanes, and open again early in the morning, when their beauty and bright colours always arrest attention and command admiration. The best way of treating the Poppy *Anemones* is as annuals or biennials, by sowing and raising fresh batches yearly, as their flowers may be had in winter if the weather be mild. There are always a vigour and freedom of blooming about seedlings that plants from tubers do not possess or retain long, whether left in the ground or lifted and replanted again. A good way of raising and managing them is to sow in boxes and grow on after the plants are up in gentle heat or frames, but this only early in the season, so as to get them strong, as it is better after this period to sow in the open where they are to remain and flower, as now that the weather is warm seed germinates quickly, and the plants are soon up and large enough for thinning. The most suitable situation for *Anemones* is a border facing south or other similarly favoured sunny spot, and the soil they like best is that which is light, rich, and sandy, and if not naturally in this condition it should be made so, or as near to it as can be, by adding the necessary ingredients before sowing the seed. The proper distance to put this in is about 1 foot apart in drills drawn for the purpose, along which the seed may be scattered very thinly or put in in patches at 8 inches or so from each other, the latter being the better way, as the seed is difficult to separate. All the attention the plants need during the summer is the keeping them free from weeds by hoeing between, and a good soaking now and then with water or liquid manure if the weather is dry, so as to keep them freely growing and get them strong by the autumn.—S. D.

The Fœtid Hellebore (*Helleborus fœtidus*).—The value of this plant for clothing dry sandy banks of the poorest description cannot be too widely known, whilst it is as beautiful as it is useful, and most effective during winter and early spring. All through this past long, hard winter the plants have shown an abundant leafage of a rich dark glossy green colour, and now the leaves are surmounted by a branched many-flowered spike, which adds to the effectiveness of the plant. The blooms are green, the edges of the petals just faintly tinged with purple, and when touched emit the fœtid odour, as implied by the specific name. This bad quality, however, is gladly tolerated in a plant so valuable for special purposes in clothing with richest verdure the driest and most arid spots in the garden. Two years ago I was looking round some neglected clumps of shrubs, and I came upon some old tufts of this Hellebore that were nearly choked with Lilac, Privet, and Snowberry. I took them up, pulled them in pieces, and planted them upon a loose bank of soil where neither of the three above-mentioned shrubs would succeed, and now they are glorious in leaf and blossom.—A. H.

Double white Hepaticas.—I have very little doubt that the story of the double white Hepatica being in cultivation is a myth. Glenny's statement is a very meagre one and seems to be only hearsay evidence, but such as it is it made me look up the matter some time ago in order to discover what foundation there was for his remark. The question seems to have arisen long ago, as Miller in his "Gardeners' Dictionary," published in 1735, devotes a short space to the subject, in which he states that he has seen the double white Hepatica often mentioned in books, but that he could never see it growing, nor could he hear of any person who had seen it growing in spring. He asserts that the double blue "sometimes in autumn produces flowers inclining to whiteness," but that people who had procured these flowers under the impression that they had secured the coveted white were undeceived in spring. He thinks this the origin of the story of the double white Hepatica. Justice, in the second edition of his "Scott's Gardeners' Director," published in 1759, gives Ray as his authority for the statement that the double white Hepatica had been

in England. He says that for seven years he sowed seeds of the single white in hope of raising the double form, as he understood the florists in Holland had so raised it. Justice was unsuccessful, but raised many singles and semi-doubles of various white, flesh, and carnation colours. It appears singular that the plant could have been totally lost if the Dutch raised it from seed.—A.

HYBRID PENTSTEMONS.

IN many gardens where these useful subjects last year made an excellent display, nothing now remains but the dead stumps, and the show of flowers will this season be neither so abundant nor so early as usual. But at the same time it is encouraging to be able to state that only one year in eight or ten so completely destroys them as it has done this year. In winters of ordinary severity the shoots for some 6 inches or more are invariably killed, but this matters not when we find the base bristling with fresh growths that a few weeks of warm sunshine will see bursting into bloom. This year there are none such apparent, and the only alternative is to plant afresh, and that as quickly as possible. Those who know and value these useful bedding plants will have taken the precaution to secure a batch of autumn cuttings, and such as these wintered in a frame will be much better for present planting than soft cuttings which have recently been rooted in strong heat. I take it that these Pentstemons are not generally known, or if known, not generally appreciated in southern gardens, if we may so judge by their limited appearance in some of the leading gardens in the south, while among the northern gardeners and florists they are grown on a very extensive scale, and it is quite a common occurrence to find from fifty to a hundred varieties enumerated and described in their lists, many being very attractive indeed. To anyone requiring a rich and telling display during late summer and early autumn, I know of no plants so useful. Not only are the flowers forthcoming in quantity, but the spikes also, as may be judged by the fact that a three-year-old plant of that fine variety Horace Vernet last year was fully 4 feet across, and carried some five or six dozen of its handsome spikes. Prior to this winter, however, it has remained evergreen throughout the year, and only required but a little trimming out of the smaller growths and such like. It is an excellent variety, possessing exceptional merit and a fine vigorous constitution, but, unfortunately, not sufficiently hardy to endure the past winter with impunity. Anyone with a fairly deep and rich soil may grow these Pentstemons to perfection, and to all who can possibly make it convenient, I would urge the desirability of allowing them to remain permanent in the beds; the wealth of bloom, together with the marked increase in length of flowering spikes individually, with a natural increase in flowers as a result, is quite remarkable, though while leaving the old plants in the beds there is the more reason for securing autumn cuttings, and so be ready for any emergency. Plants thus left may early in the year be subjected to a process of pruning after the manner of Roses, excepting that the former may be cut down almost close to the ground, as the large shoots from the base will produce much the finest spikes of flowers. With regard to position, they appear quite as content in open sunny spots as in partially shaded ones, nor do they object to a fairly stiff or heavy soil, and in some midland counties I have seen them in exceptional health and vigour in almost clay soil. A good stock of young plants may quickly be obtained, for cuttings of these things root even more readily than Phloxes; indeed with very ordinary skill and a slight bottom-heat in the spring-time the young shoots will emit roots in about fourteen days, during which they need plenty of moisture and shade from the sun. When rooted, at once remove to cooler quarters, or they will quickly become lanky and weak, and a few days later take out the point or top of the plant to induce a dwarf bushy habit. If required to make a display this season, the plants should be potted singly into 3-inch pots and placed in a close frame with mild heat for a fortnight; then gradually harden off and prepare for bedding

them out in May. The following are all good kinds and distinct and showy, though it should be remembered that varieties of these are very numerous, in common with florists' flowers generally; therefore, a good selection will most likely prove of greater worth to the general reader: Lord Beaconsfield, light rosy-lilac, white throat; Robert Dodds, crimson, pure white throat; Percy Wynne, dark crimson, pure white throat, with rose veins; Mrs. Sharp, light rosy-lilac and white throat; Mrs. Kinghorn, dark rose, white pencilled throat; Helen Wood, crimson, fine; Mrs. Nixon, mauve, pure white throat; William Kilgour, bright rose, pure white throat; the hardy French White, shaded rose; Decision, crimson-magenta; Eccentric, crimson, mottled with brown; Mrs. Greenlees, white, suffused pink; Mrs. McIntosh, white throat with crimson markings. These would make up a good assortment for any garden, though many nurserymen who grow these plants may be able to supply others equally good and distinct. The present time is an excellent one for procuring the plants, and I venture the remark that those who take them in hand and do them justice will not readily set them aside, for the colours which they embrace, apart from their general aspect, are not over-abundant at any season of the year, and in those gardens where informal bedding is carried on these forms of Pentstemon gentianoides should always figure conspicuously. E. J.

NOTES ON HARDY PLANTS.

The white Hepatica.—I have raised a seedling that seems to be of extra vigour, and I have so far tested it for that quality as one can by dividing it, for it is well understood that a seedling may be a vigorous plant so long as it is allowed its own unchecked development, but that as soon as it is propagated artificially, as by means of cuttings or root division, it may show a loss of vigour. It has not been so with this fine seedling Hepatica. Its flowers are of extra size and distinct shade, if one may so speak of a white flower. The tint is slightly flesh, not so high as the palest Peach blossom, and the outer sides of the petals or sepals are more pink, and, indeed, lead one at first to suppose the flowers might be going to open really pink. The greater size and substance of the flowers and plant render it a distinct kind. This description applies to plants that have been propagated by division and grown in a rich and rather light loam in full sunshine. The anthers are both very numerous and highly coloured.

Scilla nivalis.—This is perhaps the earliest of all pure white spring flowers, and I know nothing to compare with it for purity and exquisiteness. It is one of the gems of the rock garden, and from what I can learn is not likely to make itself too common.

Sunflowers.—It is too true that many of these have been killed in the past winter, but so far as I have yet found, only those of the section with half-woody and half-tuberous roots, such as *H. multiflorus* varieties and *orgyalis*. It would perhaps be fairer to direct our criticisms to the severe and exceptional character of the weather than the hardiness of these plants as regards 1890-91. I might put it this way: that whilst we may not quite fairly dub every plant that has not been killed not hardy, we may safely consider every kind very hardy that has come through unharmed and unprotected. Who would say that common Primroses, *Lathyrus latifolius*, some *Hellebores*, Sweet Williams and even Ivy are not hardy? And yet in many instances these have been killed this winter.

Cypripedium Calceolus.—Can this be successfully cultivated in ordinary gardens so as to spread and flourish for years? I believe it can, for the simple reason that I know it to be flourishing under such conditions now, and has been doing so for many years. Doubtless conditions might exist in some gardens that would be against it, but then the same can be said of hundreds of other hardy plants. At the same time I am ready to admit that it is among the kinds most difficult to establish. I may add that this difficulty is minimised when proper roots are dealt with at the right time

of year. About fourteen years ago when I first came to this garden, I brought a fresh root from a former garden and set it in light loam under an Apple tree and on the north side. That plant has never been disturbed since, and it has now many crowns. I have also in two very old cracked pots a pair of grand plants that have not been touched for eight or nine years. Nothing whatever is done either to protect or assist these plants.

Grindelia squarrosa.—I had learnt during last summer to greatly admire this plant with its formal, yet pretty heads, which were produced for months in succession. I am sorry to find now that every plant is killed, though a few groups were grown under varying conditions. So completely dead is every morsel of root, that I fear a less severe winter might have injured it.

Erica carnea.—Most of us perhaps in a measure overshoot our mark by going after newer or rarer flowers, whilst we almost forget some of our best friends. This, the Winter Heath, may be common, but what have we that can take its place? How glorious it is after the cold winter we have just come through, and during which, ever since November, its buds have shown more or less colour. You can almost make a gay garden of this *Erica* alone, and whilst it is in place in every garden, it is a hardy subject that might be employed with characteristic effect in many instances. It differs from all the rest, and is bright, neat, and reliable. It has also other good points that might as well be named. It has a compact habit that renders it decorative even when out of bloom; stature, 6 inches to 1 foot; and last, it does not carry a persistent crop of dingy, spent flowers or seed-capsules like some Heaths, especially of the vulgaris and vagans sections. The white variety is pretty, but it cannot compare for effect with the rich purple type.

Dr. Browne's small double Daffodil.—More than usual interest at present attaches to this unique and rare variety, owing to the sad and sudden death of the doctor from a sharp attack of pneumonia just at the time when his favourite flowers were coming out in vast masses. I mean his large collection of Daffodils, and respecting which I have heard him so very frequently go into ecstasies. I am not aware that it has yet been decided whether this distinct double flower is a variety of minor or nanus, but a word or two by way of description might be useful. It grows 5 inches or 6 inches high, grass and scape of equal length. The flower is somewhat larger in outline than that of *N. minor*; the corona is a fine dark yellow, and perfect in shape, but filled to hardness, and yet not distorted in the least. Owing to the open character of the flower between the compacted corona and perianth divisions, the bloom is pretty and shapely, totally distinct from some of the larger double varieties of the Ajax section.

Woodville, Kirkstall.

JOHN WOOD.

Hepaticas at Worcester.—These are just now in excellent form in the herbaceous grounds of Messrs. Smith at St. John's, Worcester. Here they are to be seen in very large masses, and thus grown are very effective. The different forms of *H. triloba*, along with *H. angulosa* and its dark variety *atro-cerulea*, were particularly noticeable. They are cultivated in the ordinary soil of the nursery, which is a sandy loam, and they also have a thin Juniper hedge on the sunny side as a protection from the sun during the hottest part of the day.—A.

Hepaticas.—These are still among the brightest of dwarf plants in flower in the garden, and seemingly spring forth with renewed life at the smallest amount of sunshine, which has, however, been very small indeed. To-day (April 14), however, the warm, cheering sun remained the whole day, and these lovely Hepaticas are showing their appreciation of it by the number of their fully-expanded flowers. It may be well again to observe that the planting of these should be no longer delayed if good established flowering clumps are needed for the ensuing year.

Hyacinths unsatisfactory.—A few days ago I saw a fine display of Hyacinths, numbering several hundreds, in beds. All but one kind, a blue one, were flowering well, but this kind was very unsatisfactory, for more than half of the bulbs failed

to flower, though all had thrown up spikes to a certain point until they were as big as Larch cones, and then the majority stood still. On examining them the whole spike came away with about an inch of stem at the base; the stems were shrivelled and dry, not rotten, and all looked exactly alike, as if they had been severed at the bottom of the stem. A strange thing about it is that the plants are equally healthy with those that have managed to carry their spikes through to perfection, and no other kind was affected in the same way in the slightest degree. Have any readers of THE GARDEN met with a similar case, or is anyone able to help me to a solution of what is to me a mystery? —CORNUBIAN.

The *Kabschia* section of Saxifrages contains some of the loveliest of these dwarf alpine forms,

same all through the section, which is an extremely interesting one and highly useful for all choice rockeries.—K.

MOUNT USHER IN THE SPRING.

THE old Mill House garden at Mount Usher, Ashford, Co. Wicklow, two views in which are here given, is now well known to many of the readers of THE GARDEN. It is only an acre or two of land sloping down to the river Vartry, which passes through its centre, and adds many charms to the adjacent forest trees, the park-like views and to the flowers. The house was originally an old water-mill, and part of the machinery is still preserved there. Years ago I saw the old mill-wheel in its place, although

hardy flowers. All kinds of the best vegetation suited for garden adornment are welcomed, be it bulb, or shrub, or tree, or dainty alpine flower. The vernal Gentian and Nordmann's Spruce, Daffodil and Iris, Nymphaea or Aponogeton, and the rich golden Caltha or King Cup here flourish side by side. I did not notice the Vine married to the Elm, as Shakespeare has it, but I did therein see it married to the Lime trees of an adjacent wood, and the native Primrose of softest yellow is not alone in its glory, but associated with the wild Primroses of the Alps or Pyrenees, of Normandy, woods of Cashmere, or of Himalayan Mountains. Iris stylota flowers well here, its fretted lilac flowers being large and of exquisite colour. Iris pumila in breadths is bearing hundreds of its wine-purple blooms, and there is much promise of Ixias and Sparaxis when the warm weather comes. Clematis montana is hanging from roof and tree, and the silky Wistaria buds are showing thickly upon the grey stems. One of the most dainty of shrubs now in bloom, thick set with silver stars, is Spiraea Thunbergi, a species sometimes grown in greenhouses, but here luxuriant and happy in the open air. In a sheltered enclosure are two healthy Fan Palms (Chamaerops) now throwing up their golden flower-spathes amongst their coir fibre-wreathed stems, and high above them towers a noble Cordyline australis, which has flowered and seeded several times, and thus yielded plants in quantity for the enrichment not only of the wood here, but of the gardens of friends. Later on wall and fence alike will be ablaze with scarlet Tropaeolum. The Virginian Creeper and great-flowered Clematis cover the roof and walls. Phlox and Delphinium light up the place in the sun, but even now the place is lovely and most enjoyable with spring flowers, and freighted with infinite promise of things many and varied to come.

A week ago when I saw this garden perhaps its main charm was the Aubrietia (see illustration, p. 444), which hangs from a long stretch of the river wall which is really necessary to prevent this little paradise from being washed away by wintry floods. It was originally planted here, but has now seeded on walls and rockeries about the place, and varies more here in hue than I have seen it elsewhere, passing as it does from nearly pure white, like Arabis, through all shades of grey and lilac and purple into the clear rose, or rosy-crimson of the variety associated with the name of Herr Max Leichtlin.

In beds and borders and on the Grass the Narcissi also do well here, and the best of the varieties, such as Emperor, Empress, Grandee, Haworth's bicolor, poeticus ornatus, poetarum, and the many incomparabilis forms, single and double, were here healthy and quite at home. A little wood garden beyond the river is rich in Primroses, and Rhododendrons, and Lilies of many kinds, as auratum, speciosum, Martagon album, and here again a sloping bit of lawn Grass is fringed delightfully with Paeonies and Daffodils and choice shrubs, while along the rocky and marshy river margin the lush Grass is enriched with Iris and Typha, Gunnera, and Umbrella Saxifrage (*S. peltata*), Arundo, Pampas, and Torch Lilies (*Kniphofias*) of many kinds. Right through the very centre or heart of the garden rushes a stream of sparkling water which works a couple of hydraulic rams ensconced under a most picturesque archway draped with Aubrietia and other flowers, and in the broader and more stately flowing river and all about the silver falls of the little weirs and among the mossy rocks and stones lie the speckled trout. Here also the birds are welcomed and hospitably pro-



View in the garden at Mount Usher, Co. Wicklow.

which one would like to see much oftener on rockeries. As a rule, they are easily managed. It is, however, somewhat difficult to distinguish the forms unless one is well acquainted with their botanical characteristics. *S. Rocheliana* coriophylla, were it not for its much freer flowering habit and larger blooms, is hardly distinguishable from *S. marginata*, which, again, is not easily picked out amongst a batch of *S. Kotschyi*. *S. Kotschyi*, however, has pale yellow, not deep yellow flowers, as some catalogues have it, while *S. marginata* has whitish flowers and red stems. *S. sancta*, *S. pseudosanta*, and *S. juniperifolia* want careful looking at to distinguish them, and yet when one finds out the differences he can tell them at a glance. It is the

draped and nearly hidden by a tangled mass of the shrubby Knotweed (*Muhlenbeckia complexa*), Clematis, and other creeping vegetation, but at present some rare hardy Ferns adorn the chasm through which a part of the sparkling river rushed to turn the mill. The richly wooded and sheltered county of Wicklow is really the Kent of Ireland, and gives delicious phases of landscape and woodland beauty at all times of the year, but now that early May is here, its glens, woods, and river scenery are, perhaps, at their best, and in such a broad and beautiful setting Mount Usher is a simple garden exquisitely bejewelled with the rarest of

vided for as well as the flowers. You may watch from the windows the bluetits, as they swing and pick at pieces of mutton fat suspended from tree branches, or the titmice or wrens as they carve their rations from the hardened albumen of the tropical Cocoa-nut, just as if it had always formed the staple food of their lives for generations past. Then sparkling water in which all our native birds delight is ever attainable, rushing and sparkling as it is all around them every day. One of the rarer birds common here is the water ouzel or dipper, which nests in the river wall. One season they nested in a rockery over which the millrace fell like a silver curtain, and you could watch the lightning flash of their flitting to or from the nest and through the water as it fell. In the adjoining park of Rosanna it was that Mrs. Tighe wrote her poem of *Psyche*, and there is to be seen there a splendid Sweet Chestnut with a trunk 12 feet in diameter. There is also a wonderful old Yew with its branches naturally grafted together in several places, and the remains of an old avenue of Yew trees with splendid fluted stems run alongside the river. Some of these Yews are adorned with Ivy, which adds considerably to their quaintness, but there are here also to be seen one or two instances of the antipathy of the Yew for the Ivy and other uninvited guests. One fine old Yew in particular has choked the entwining Ivy as Hercules is said to have strangled the serpents, by nipping its main stems here and there between its muscular-looking flutings. The rooks are now busy in the trees; a brown squirrel skips along, or flies from branch to branch of the Beech or Scotch Pine overhead; the wood pigeon's note is heard, and as evening closes in and the mists lie about the river meadows a heron slowly rises and deliberately wings its way out to the marshes near the sea or to its nest in the woods inland. About a mile from the little church which stands near the Devil's Glen is the View Rock above Cronroe, where you can either gaze upon the mountain tops that rise in this garden of Ireland, or out to the blue sea, and below this quartzite rock you may see a sunny spot where once a garden smiled. A shady seat cut out of the cliff which towers overhead and a terraced bed or two retained by low rocky walls bound together by roots of Ivy, Periwinkle, and Traveller's Joy, the growths of which hang and swing like ropes from the trees overhead. There is an odd Rose tree or two of the old sorts our grandmothers loved, also Pæonies among the Fern and long herbage, and a yellow Kerria bush glowing in the sun like gold. As to the cottage at Mount Usher, it is the ideal of what a lodge in the country should be, the original mill house having been added to here and there, but not obliterated. It is a place of rest and recreation pure and simple. Everything really necessary is there, and there are homely luxuries, flowers always, books, and a few good pictures, and from many hearts has gone up gratitude for the simple home-like pleasures and the rest which visitors are invited to enjoy in what is really an approach to Arcady in a bustling and work-a-day world.

F. W. B.

Dicentra eximia ought to be seen in every rockery. Although considerably longer in cultivation than either *D. spectabilis* or *D. formosa*, it for some reason or other is now rarely seen in a garden, although it is quite easily managed and flowers annually with the greatest freedom. The only difficulty is in confining it to a small space, and this is doubtless the reason why it has been discarded. The plant when confined becomes matted and soon exhausts the soil, but when parted occasionally or allowed to roam over a good space, it makes one of the

prettiest rock plants we know, more especially in early spring, when the yellowish green leaves and bright reddish purple flower-buds are peeping above ground.

THE CULTIVATION OF HARDY FLOWERS.*

EVERYONE who wishes to have many herbaceous plants should grow them from seed for many reasons. Seedlings thrive better and are hardier than divisions of a plant; by saving seed in your own garden you may exercise a judicious selection in gathering it. Then it must be borne in mind that not only species, but individual plants vary in constitution; some seedlings will grow more vigorously and flower more freely than others raised from the same pod. For all who understand how to deal with seedlings time is saved by sowing seed as soon as it is ripe; if it does not come up at once, it will come up sooner than if stored in a dry cupboard. Every species includes good and bad forms, and it is desirable to select the best; when once selected they are generally easy to keep. Seeds come up better when sown under glass, but artificial heat is often bad for them. The seedlings should not at any time of their growth be crowded. For transplanting them I use trays made of 4-inch deal laths, about 5 inches deep, and 20 inches long by 14 inches; the laths put together with intervals to allow for drainage and air to the soil. When wooden boxes are used for plants it is well to smear the inside with paraffin and set it on fire to char the surface; this prevents the growth of fungus. It is well to notice how long each species takes to attain its climax of perfection from seed. Some perennials take two years, others as long as ten; they are liable to vary so much in height their first, second, and third year of flowering, as to make the same position in a mixed border unsuited to all these stages of growth. Observe, for example, the annual progress of *Campanula lactiflora* or *Spiraea Aruncus*. Before dismissing the subject of raising from seed I must say that it is well to avoid disturbing without good reason the soil near rare plants, as I have often found spontaneous seedlings when I have been unable to rear gathered seed. This, again, may suggest that it is wise to imitate Nature; but let us consider how small a proportion of seeds become mature plants in Nature. Let us take the case of a perennial which lives five years and produces a hundred ripe seeds each year; we thus get a proportion of one in five hundred. Gardeners expect and obtain a far better result than this. Many good plants which are short-lived and shy of ripening seed must be frequently increased by cuttings or division. In the case of florists' flowers like Phloxes and Pyrethrums, rules for propagation are readily accessible to all gardeners; but rarer plants have to be carefully studied. Some, like the double *Lychnis vespertina*, are so hard to increase that the market in them becomes almost a monopoly. Others are easy to divide and to strike only at some limited period of their growth—perhaps during one week in each year. I have heard it said of a famous gardener at Baden-Baden that he sits up all night rather than miss the right moment for dividing *Omphalodes Luciliae*. Some things require long patience to grow them from cuttings into plants. *Daphne cneorum* and *Lithospermum prostratum* take four or five years before they are large enough to make a show; it is a sound rule to take a few cuttings of all such plants every season, and cuttings make far better plants than layers. Another item of advice I will give is to utilise for growing flowers every corner of the garden, especially if the garden is small. There are always neglected shady spots, which a few stones covered with leaf mould would easily convert into an attractive bed of hardy Cyclamens. Other sheltered places under north walls might be filled with the stalked Hellebores known as Lent Roses. Coloured Primroses in various forms are far more ornamental than Nettles and Chickweed, and would generally thrive where these have been eradicated. A little method easily keeps a garden clear of weeds when it has once been cleaned.

I have said little about improvement of soil, be-

* Paper read by the Rev. Wolley Dod at a meeting of the Royal Horticultural Society, June 24, 1890.

cause I do not wish it to be thought that a gay and flowery garden cannot be made with the materials which everyone has at hand; but no doubt in many cases the number of choice plants which can be grown successfully may be much increased by the addition of peat soil to some of the beds. Also, if the natural soil is stiff clay, it is generally advised to burn some of it and break it small and mix it with the rest; but it is not very easy to construct the kilns for burning, unless the services of a brickmaker can be obtained. In my own garden, where the natural soil is a most unpromising cold clay, I have found very successful results by getting riddlings from stone quarries of the size of small gravel, and mixing it with the soil. The rougher and harder the stone, the better; this is far superior to ordinary pit or river gravel, which rolls together and collects in hollows on the surface. Indeed, where soil is heavy and strong it is difficult to add too much of such material. Half, or two-thirds, of it to a depth of a yard makes excellent border soil; and by adding a still larger proportion I can grow even such genuine rock plants as *Saxifraga oppositifolia* on the level ground. It is desirable to have borders varying in their degree of lightness. Road-scrappings, leaf mould, coal ashes, and all similar materials are invaluable for mixing with heavy soils. On such soils it is well to raise some of the beds 2 feet above the ground by blocks of stone round the sides. Not only does this help the drainage, but the stones may be covered with *Aubrietias*, dwarf Phloxes, Rock Roses, and such-like ornaments down to the ground. Tree stumps are not good for this use; they encourage the growth of fungi, and give too ready shelter to vermin of all kinds. This reminds me to speak of garden vermin in general. I could tell ill-natured tales of many little birds, but, next to a garden without flowers, I should object to a garden without birds, or one in which birds were persecuted; but I will make an exception of sparrows, which have no redeeming virtue, and in the extermination of which I would gladly join. Pheasants should not be encouraged. They annihilate scarlet *Anemones*—flowers, leaves, and roots—if not protected within wire netting, and destroy all the flowers of *Fritillarias*, besides doing other mischief. If there are rabbits near, the garden fence must be made absolutely proof against them, as they always pick out the choicest plants to feed upon. The long-tailed field-mice, which dig for Crocuses, are easily trapped, and are harmless compared with their short-tailed brethren. If your garden adjoins meadows, these marauders sometimes invade it in swarms, and eat off the young growth of choice plants, especially *Campanulas*, in spring. Luckily, their movements are generally followed by weasels, which as well as owls I always welcome as friends, and as far more effective against these field-voles than any traps are. Shrew-mice, as well as frogs and toads, feed upon insects, and though they destroy some slug-eating beetles, the balance of their work is on the side of good. Small slugs, though they seldom are seen in winter, are more destructive at that season than the most severe frosts, which are often wrongly accused of being the cause why *Delphiniums*, *Pyrethrums*, and such-like perennials are found dead when they ought to be making a show of growth in spring. Two or three slugs burying themselves in the crown of a herbaceous plant in autumn eat off the young shoots as fast as they try to grow, and are the ruin of many choice flowers in warm and wet winters. The cultivation of some herbaceous plants would be impossible with me if I did not constantly use precautions against slugs. A mixture of coal-ashes, soot, and lime put over the crowns of all palatable perennials early in autumn, and renewed from time to time, is the best remedy; finely broken coke is pretty good, when the slugs are not already hidden in the crowns; but every device that has ever been recommended, besides every new scheme you can invent, should be perseveringly put in practice against these worst of garden enemies. A liberal dressing of finely broken stone, in sharp angular fragments, as described above, may be

spread over the whole surface of the border. It makes travelling disagreeable to soft-bodied vermin, besides keeping the soil sweet and preventing it from caking. But besides these visible pests, garden plants are subject to many kinds of blight and disease, some of which are within our control. The amateur gardener should observe and study all unhealthy symptoms, and at once try such treatment as is suggested by the advice of experts. The effect of the remedy will often be the means of discovering the cause of the ailment.

What shall be said of labels? At the best they are a nuisance and an eyesore in private gardens, and our study should be to do without them as far as possible; they add nothing to the pleasure of gardening. But when it is necessary to mark plants or bulbs which quite disappear, the compound label, made of a small wooden tablet fastened on to a stout upright wire, is most convenient and durable; but every gardener likes best the label he uses. The names themselves are as bad as the labels. To be asked the name of a neat little white flower, and to have to bring out "*Bœninghausenia albi-flora*, of *Reichenbach*," is a strong temptation to reply "I don't know" to the question. The earliest Greek poet has told us that men bring upon themselves by their own folly many more troubles than they were destined by fate to suffer, and surely long botanical names belong to the class of self-imposed and avoidable evils. Enough pronounceable combinations of letters might be made without exceeding six in any word to supply all the plants in the world with two names apiece. Still I question the advantage of coining and trying to force upon the public arbitrary English names for garden plants. Till a flower has become popular enough to make an English name for itself, it seems better to call it by the scientific name which is common to all languages. Some of these names are hard to pronounce, and it may be doubted how far etymological correctness should be waived in deference to popular usage. We may agree to shorten in pronunciation the last syllable but one in *Veronica*, *Gnothera*, *Hypericum*, though we know it is wrong, but remonstrate against doing the same with *Erica*, *Echinops*, *Agave*.

As to watering, my own garden is so well supplied with water, that I cannot understand a never-watered garden. There are no doubt many, but scarcity of water in summer certainly limits the number of plants which may be grown well. Such things as herbaceous *Phloxes* will hardly flower at all in a dry summer without watering, and it is almost a necessity for what is newly planted. But watering when not wanted is bad for gardens. There are certain conditions of the atmosphere when every plant looks as if it were dying for want of water, though the soil is quite moist. This happens when rapid evaporation is going on, and it is a condition very unfavourable to flowers, but watering is no remedy for it.

Tying up plants is often condemned as giving a stiff and formal appearance; yet in wet soils, where stalks are deficient in backbone, the flowers of tall plants are soon spoilt without it, as the tops often turn over and rest their heads upon the ground in rainy weather. Even if they recover from this posture the stem is left crooked and twisted, and they never look happy afterwards. I find it best to have an abundant supply of iron rods, three-eighths of an inch thick, cut into lengths of from 3 feet to 8 feet. These last for ever, and are always ready. In situations exposed to wind, strong tying material, such as soft sacking twine, is often wanted. Plants which require support when in flower had better be tied as soon as there is any stalk to tie, so that they may never get bent. Do not wait for a gale to lay them low before tying, but always tie as if a gale were coming to-morrow. Well-tied plants are improved in appearance, as the flowers are better displayed, but it is often necessary to have three or four rods to a plant of many stalks.

If you wish to have every plant in your borders as fine as possible, you must not cut them down as soon as they have finished flowering. In the garden of hardy plants there must always be a certain proportion of dead and dying foliage and

flower-stalks. Some of them are ornamental, but such things as *Colchicum* and *Daffodil* leaves must be tolerated, whether ornamental or not. This mixture of withering flowers and leaves seems to many a serious objection to borders of perennial plants, and I know that many visitors have gone away from my garden disappointed, and have decided not to change the neat and trim arrangement of their ribbon borders, and their masses of bright colour, for such an untidy wilderness as they have seen at Edge; and it is true that the bedding-out system is better suited to some tastes and some situations. But besides the objections on the ground of untidiness, the arrangement of the plants in the mixed border will never please all-comers. Some wish to compromise matters with the advocates of bedding-out by planting each kind in large masses. This, of course, involves large flowerless blanks wherever a plant is out of flower. My advice to every amateur is to please himself. There may be often unfortunate contrasts of colour in a mixed border, but accidental combinations will often please more than others which are carefully studied, but which depend upon the variable caprice of particular plants. Make whatever arrangement you please, you are sure to hear plenty of criticism and to get plenty of gratuitous advice, and if you acted on it all you would change the place of every plant in your borders two or three times in a season. Do not imitate other gardens, but try to be original. Gardens would be very dull and uninteresting if all were planned and planted on the same model. Always be studying how you may have more flowers, and let them be so distributed that your garden may seem full at every season. Note times which are deficient in flowers of each particular colour, and look about in other gardens for any which will supplement these deficiencies, so that from the first *Snowdrop* to the last *Michaelmas Daisy* there may be no flowerless time. Above all display in your chief borders only what you can grow well, and nurse your failures in the background till they are no longer failures. To sum up, study your soil and do your best to improve it; study the habits of the plants you grow; keep up a good stock for succession and for replacing losses; do not think so much of how many species you can grow as of growing nothing which is not ornamental in itself, and which you cannot grow so as to be ornamental.

As for the material from which these are to be selected, we find endless choice in the nurserymen's catalogues, some of which enumerate about two thousand names of hardy plants, without including florists' flowers.

ROSE GARDEN.

TOWN ROSES.

MANY lovers of these flowers try to grow them in small gardens near to towns, and more often than not only court disappointment by an injudicious selection of varieties. Such sorts as *Louis Van Houtte*, *Horace Vernet*, *Etienne Levet*, &c., among the Hybrid Perpetuals, and *Comtesse de Nadaillac*, *Princess of Wales*, and *Souvenir d'Elise Vardon* among the Tea-scented Roses, are so constantly seen in the winning stands at exhibitions, and besides are so highly spoken of in all Rose catalogues, that the tyro very naturally orders these varieties. Perhaps he could not pick out half a dozen sorts less likely to do in his suburban garden, and this will serve to illustrate the point of this short paper, viz., the mistake of choosing Roses from exhibition stands, more especially when intended for town planting.

I will name a few kinds that will stand smoke and also the other impurities so unavoidable in a town garden. One of the very best is *Captain Christy*, with beautiful peach-coloured flowers, edged with a silvery shade. It also possesses very handsome and glossy foliage. General *Jacquemint* is a good deep red and very sweetly scented. *Jules Margottin*, an old well-known Rose, very deep

pink in colour. Mrs. John Laing is a grand Rose, and would, I feel certain, do well in any situation; it is of a light pink colour, and very full and fragrant. *La France* does fairly well, and is too well known to need any description. *Boule de Neige* is a good pure white. The above are six good Hybrid Perpetuals, while the following are six good Tea-scented Roses for the purpose: *Gloire de Dijon*, good everywhere; *Cheshunt Hybrid*, a grand red for town work, its only fault being it loses its fresh cherry-carmine colour so soon; *Homère*, a pretty soft pink with lighter edges, an excellent Rose for button-holes, and sure to do well; *Marie Van Houtte*, a good yellow, coming very prettily shaded with deep rose on the outside of the petals in autumn; *Safrano*, a strong grower, having flowers somewhat after the colour of those of *Mme. Falcot*, but not nearly so deep; *Mme. Lambard*, deep red early in the season, changing to a soft salmony pink later on. The twelve Roses named are very good for town work, and also fairly good as individual flowers. RIDGEWOOD.

Roses and the past winter.—After a season in which many losses have been sustained in the Rose garden, it would be interesting as well as advantageous to Rose growers if lists of those which have stood best the severity of the weather were recorded in the pages of THE GARDEN. In our large collection none have been killed and few have been injured at all, only those which had made extra strong growth last season having suffered injury. The time has not yet come to prove what the frost has done, as many Roses suffer at the junction of scion and stock, and do not show distress till growth is active. Some years ago, after a very severe winter, many plants died off during May and June. Where the junction was well covered with soil among dwarf Roses, and those on tall stems were protected with haybands, injury was comparatively small. As with fruit trees, extra luxuriant growth among Roses suffers more readily than medium growth.—*M. T., Stirlingshire.*

Rose Reine Marie Henriette under glass.—It was welcome news to hear from "Ridgewood" that this Rose promises to prove as useful under glass as in the open air. This is very high praise indeed, for it is a most useful addition to our hardy and vigorous Roses. For beauty of foliage, vigour of growth, brilliancy and profusion of blossom it has few or no equals; as good or better indoors as out, there is little or nothing more to be desired. Unfortunately, one cannot say so much of *Mme. Berard*, the Rose that "Ridgewood" couples with *Reine Marie Henriette*. Unless this blooms more freely under glass than out of doors, it is hardly worthy of a place beside *Maréchal Niel* and *Reine Marie Henriette*. Like most or all of the near relatives of *Gloire de Dijon*, *Mme. Berard* is inferior to the original, and I am rather surprised at "Ridgewood" preferring it to *Gloire de Dijon* for indoor purposes, for exquisite for profusion of blossoming and variety of tint, form, and size as *Gloire de Dijon* is in the open air, it is still further refined through culture under glass. Has "Ridgewood" or any other grower tried *Reine Marie Henriette* as a stock for *Maréchal Niel*? I mean to do so at the earliest opportunity, and instead of suppressing all the buds of *Reine Marie Henriette*, leave a few branches here and there to bring up a full tide of sap, mayhap to master warts and mildew, and assuredly to heighten the richness of the golden *Maréchal* through allowing to ramble out or in from the stock a few or many sprays of the red *Gloire de Dijon*.—*D. T. FISH.*

Showing new Roses early in the season.—From cases which have come under my observation, I am inclined to think mistakes are frequently made in respect to this. I have noticed more than once when a new Rose has been exhibited early in the season that it has not been then seen nearly so good as later on. This is certainly better than the reverse, I admit, but considering that the first impression is oftentimes the most permanently fixed upon the memory, would it not be far better, than adopting too much forcing to gain the ends of the

grower, to defer the first introduction to the notice of the public a little later?—A.

OWN-ROOT ROSES.

THE system of growing Roses upon their own roots is not generally recommended by large growers, and with good reason, as the majority of the varieties thrive better and grow more strongly when worked upon stocks, provided always that these last are suitable to the variety of Rose worked. Many of the Tea-scented Roses will do fairly well on their own roots, and for amateurs they possess a special attraction, because no doubts can arise respecting which of the suckers are really Rose and which the stock. Flowering shoots from which the blooms have been cut, also the small side-growths that are about three parts ripened—many of which may now be found upon forced Roses—are suitable for this mode of propagation. Let the base of the cutting be cut off close under a leaf, or if side shoots are used a heel or small portion of the old wood may be left on. Do not cut off the leaves with the exception of the bottom one, and this only to facilitate the insertion of the cutting. If the leaves are left on and the cuttings kept quite close for a time, callus and roots are induced to form more quickly and surely than would be the case if the leaves were removed. A good plan is to procure a few empty raisin boxes from the grocer or some a trifle deeper. Fill them about a third of the way up with good leaf mould and sand, placing an extra layer of sand upon the surface. Insert the cuttings firmly, give a good watering and cover over with a few sheets of glass to keep the whole close.

It is best to strike the cuttings in the same place as the plants are growing in, and any position that is neither hot nor dry will be suitable. When struck remove the glass, and after a while pot the young plants on, using the same kind of compost. Keep them close again for a few days after this first potting, and the next time you shift them on give richer soil and treat similar to the parent plants. The same plan may be adopted successfully during midsummer and autumn, and at that time plenty of suitable growth may be obtained from outdoor plants. It is not necessary to place these summer cuttings under glass. Any shady place out of doors will do just as well, if not better, the only secret being to keep them quite close and moist for a month or six weeks. During hot weather, when the air is also very drying, should the cuttings show the least signs of being dry, let the glass be removed and a good sprinkling be given. These own-root plants may be planted in the open ground, and if a little soil is drawn up to them on the approach of winter, the bottom and most important eyes will stand any amount of frost. It is from these lower eyes that the suckers are produced, and these are the very life of all dwarf Roses, more especially those of the Tea-scented and Noisette classes. Tea Roses upon their own roots will do rather better upon light sandy soils than when the same class is worked upon the Brier stock, as this stock prefers a heavier and more retentive soil. RIDGEWOOD.

Rose Mrs. Paul (Bourbon).—This new Rose, raised at the Cheshunt Nurseries of Messrs. Paul and Son, bids fair to become a great favourite. All the points which characterise a good Rose seem to be embodied in it. It is deliciously scented, which is somewhat of an exception in others of its class; its perfume, it is true, is not so powerful as in the case of some older kinds, but quite sufficient to please the taste of many. In colour it is a delicate satiny pink, the blooms being beyond the average size, full, and of fine substance. The outer petals reflex, whilst the centre remains close and compact. The growth of the plant is robust and the foliage a deep green. A coloured plate of this Rose was given in THE GARDEN of November 22, 1890 (p. 484).

Marechal Niel Rose on own roots.—I have many plants of this famous Rose on own roots from cuttings, which, in spite of being cut back close to the ground-line by frost, are breaking up from the roots very strongly indeed, showing the value of own-root Roses during seasons as

the past winter proved to be. It is of very little use to have this Rose otherwise than with robust growths, as if not so the plants rarely produce blooms worthy of the name. Perhaps as much may be said of many other varieties, especially Teas. Not so long since I read in THE GARDEN highly commendatory notices of Reine Marie Henriette and Mme. Berard as indoor Roses. These I tried for several years, and found them to be too gross growing and too moderately blooming. Eventually both were made to form stocks on which was worked Maréchal Niel. Reine Marie Henriette does very well indeed to furnish early buds on a wall. It is one of the most robust of Roses, and cuttings put in out in the open ground in autumn root very freely. Maréchal Niel does not strike so readily, as it is not easy to obtain sufficiently firm wood. I have found it best to make the cuttings in the autumn from the firmest summer shoots, keep them laid in thinly in soil in a greenhouse for the winter, and then dibble them out early in April just before the buds begin to push. Even if but fifty per cent. strike, the results are profitable. Usually the knife is too much spared to this Rose. To have it in robust condition the shoots should be cut back very hard directly flowering is over. Thus the entire summer is ensured to make and ripen growth, in addition to which the blooms are both strong and plentiful.—A. D.

MARECHAL NIEL ROSE.

THE many inquiries that come to hand respecting this Rose prove that it is a universal favourite, and one very widely and generally grown both under glass and on walls of dwellings with southern or western aspects. Often one plant will linger and make miffy growth, while another, seemingly under no more favourable circumstances, will grow in the most rampant manner and fill a house or cover a large space of wall in one season. So far as my experience goes, as well as that of some others who have grown the Rose under notice largely, I find that it does much better when worked either on the standard Brier or as a dwarf on the seedling Brier. Many plants of this Rose are raised annually by grafting on the Manetti, but the sooner the plant gets rid of this stock and establishes itself on its own roots, the better will it be for the grower. Very nice plants may be grown and flowered in pots where there is a light greenhouse at command, and for this method of growth there is nothing so good as plants raised from cuttings of half-ripened wood. Where specimens are already established in pots the present time is suitable for planting, which should be done in an inside border. The size of the border must be regulated according to what is expected of the plant, but it should always be well drained, and the staple soil should be composed of strong loam. Assistance may be given the plant by mulching when growing freely, and also liquid manure when coming into flower, but it is not well to mix manure with the soil. As soon as the plant commences to grow, the manner in which it is to be trained should be decided upon. A very good way of growing this Rose is in a similar way to a Vine, forming one main rod, from which other growths may be trained on either side, and which may be pruned to a plump bud—that is the unripe ends removed—at the winter pruning, and the laterals or side shoots pruned away after flowering. During the growing season the plant must be allowed considerable latitude, only pinching when it is necessary to divert the sap into other channels and to prevent the plants getting out of the desired shape. When this Rose is trained somewhat carefully and not allowed to form a thicket on the roof, the slight shade from the foliage is of considerable benefit to many plants that may be grown beneath during the summer, but it is essential to success that the house be kept moderately cool during the autumn months, or the Rose may be excited into growth during the dark days and before it has had proper rest. During the growing season this Rose, and indeed all Roses, delight in abundant overhead syringing, but this should be discontinued after the plant has made sufficient growth, in order

that the wood may be ripened before the days get short. Green-fly is sometimes troublesome, but this more often makes its appearance when the trees are started in the early spring and when the atmosphere of the house is somewhat close. Fumigation with tobacco is the best antidote in this case, coupled with the free use of the syringe. It is always well to have succession plants of this Rose coming on, so that a young plant may be ready to take the place of an old and exhausted one.

C. WARDEN.

GARDEN FLORA.

PLATE 804. ANGRÆCUMS.

(WITH A COLOURED PLATE OF *A. CAUDATUM*.)

THERE is no genus of tropical Orchids whose flowers are at once so beautiful and so remarkable in structure as are those of the cultivated *Angræcums*. So much might safely have been said of them ten years ago, but during the past few years many new and valuable species have been added to our collections, and the genus is now undoubtedly one of the most attractive in the tropical section of the family. With the exception of a single species—*A. falcatum*, which is confined to Japan—*Angræcums* are exclusively African. They are found in considerable abundance on both the eastern and western sides of the continent, but the finest representatives of the genus from the horticultural point of view are natives of Madagascar and the neighbouring islands. With regard to *A. falcatum*, it is remarkable that a species should be found so widely removed from its fellows, and under conditions so different from those under which they exist; it is a problem in geographical botany whose solution would be interesting. None of the flowers of the *Angræcums* as yet introduced to this country are characterised by bright colour; they are usually of some shade of white, sometimes as pure as snow, but frequently with an ivory-like or creamy tinge. In several species the sepals, petals, and spur are pale green. The one character in the flower which distinguishes the genus so markedly and renders some of the species so interesting is the extraordinary development of the spur. In *A. sesquipedale*, *caudatum* and *Ellisi* this organ varies from 6 inches to 15 inches in length, dimensions which are not approached in any but closely allied genera like *Aeranthus*. In habit these plants may be compared to *Vandas*, being purely epiphytal, and having, as in that genus, the leaves arranged in two opposite rows on the stem, being devoid of pseudo-bulbs, and the leaves being leathery or sub-fleshy in texture. Each genus contains also one or more species with cylindrical foliage. The number of species known, either in a dried state or in cultivation, is very large. A considerable proportion of them, however, are of no value except as curiosities; others, except in size and character of foliage, are very much alike, so that the species described below may be said to fairly represent the genus so far as applies to that portion with which Orchid growers in general are concerned.

***A. CAUDATUM*.**—Although this species was discovered and introduced to European gardens about 1832, it has always been, as it is to-day, a rare plant. This is partly owing to the comparatively small number that have been imported, but more to the difficulty which has always been experienced in keeping it in a healthy condition. There are probably many growers and possessors of Orchids who have not seen it; to such the accompanying plate

* Drawn for THE GARDEN by H. G. Moon. Lithographed and printed by Guillaume Severeys.



will be especially welcome, admirably representing as it does the remarkable character of the species. It is spread over a considerable area in Western Tropical Africa, but has been most frequently found in the hot region about Sierra Leone. It is a plant of erect growth, from 8 inches to 1½ feet high, with strap-shaped, recurving leaves nearly a foot long. The raceme is pendent and bears from six to twelve flowers. The sepals and petals are narrow and pointed, from 1½ inches to 2 inches long, and of a brownish green colour. The lip is large, and being pure white forms an effective contrast to the rest of the flower; the base is prolonged into a narrow terete spur of the same colour as the petals and often 9 inches in length, thus coming next in size to that of *A. sesquipedale*. It lasts in bloom for several weeks, generally flowering between June and September.

A. SESQUIPEDALE.—More interest has centred around this Orchid perhaps than any other, and it has always been regarded as one of the wonders of the vegetable kingdom. Charles Darwin made it an especial study, and in his book on the "Fertilisation of Orchids" states his opinion that its fertilisation in a state of nature must be effected by some huge moth with a proboscis capable of reaching the nectar at the bottom of the spur, which is usually from 10 inches to 12 inches long, occasionally more. No such moth had ever been seen at the time he formed this opinion, but one with a proboscis upwards of a foot long has since been discovered, although not, I believe, in Madagascar, the native home of this *Angræcum*. To the gardener it is as valuable as it is interesting to the naturalist. Its flowers, which occur in racemes of two to four, are between 6 inches and 7 inches in diameter, all the parts being fleshy in texture and of a beautiful ivory-white. It was introduced to cultivation by the Rev. Mr. Ellis, who in describing its habitat says that it grows on the outer branches of trees, to which it attaches itself by roots sometimes 12 feet or more in length running along the fissures in the bark. Apparently it does not present a very handsome appearance in its native condition, and is often seen as a long bare stem surmounted by a few leaves. Under cultivation, however, it is a most handsome plant, the broad, strap-shaped leaves being of the darkest, glossiest green.

A. EBURNEUM.—This species is the largest and most robust in the genus, growing to a height of 4 feet, and its thick, fleshy, rigid leaves being 1½ feet to 2 feet long. Although it has no pretensions to elegance, it is one of the most striking and effective of Orchids. The flowers are borne thickly on stout, erect racemes longer than the leaves, a plant producing two to four racemes each season. The sepals and petals are greenish white, the large, concave, heart-shaped lip being of the purest white. The flowers remain in perfection six or eight weeks, and during the whole of that time emit a strong and most delicious fragrance. It is a native of Madagascar and Bourbon, and was introduced by the Horticultural Society of London through their collector Forbes. It flowers during December and the two following months.

A. SANDERIANUM.—Of the later introduced kinds this species is undoubtedly the most beautiful. It is of dwarf habit with shining green tongue-shaped leaves, 3 inches to 6 inches long. Twenty or more flowers are sometimes produced on the raceme, which is pendent and about a foot in length. Each flower is 2 inches across and of the purest white, the spur being 3 inches long. It was discovered in the Comoro Islands—a group lying midway between the northern point of Madagascar and the mainland of Africa—and was introduced by Mr. Sander, of St. Albans.

A. SCOTTIANUM.—Like the preceding species, this was originally found on one of the Comoro Islands.

It was discovered by Sir John Kirk in 1878, and was first flowered in England during the following year by Mr. Scott, of Walthamstow, after whom it is named. It is quite unlike any other *Angræcum* in appearance, the leaves being cylindrical and the flowers solitary on a slender scape 4 inches long. The sepals and petals are white tinged with yellow or green, and are a little over an inch long. The lip is rectangular and, in proportion to the rest of the flower, very large, measuring at least 1½ inches in width. The spur is 5 inches long and pale yellow. For some time after its discovery it was exceedingly rare, and although an importation a few years ago made it less uncommon, we could well do with many more of such a beautiful plant.

A. ELLISI.—This is a very ornamental species with broad strap-shaped leaves 10 inches long and of a rich deep green. The flowers are borne on an arching raceme 2 feet in length, the terminal portion bearing about a score of flowers. These are pure white, delightfully fragrant, each with a slender spur hanging downward about 6 inches. It worthily commemorates the Rev. Mr. Ellis, who in-



Angræcum caudatum.

roduced it and many other beautiful plants from Madagascar.

A. CITRATUM.—This dainty little Orchid is now one of the best known of *Angræcums*, having been introduced from Madagascar in great quantities during the past few years. It does not grow to more than 3 inches in height, having spatulate, bright green leaves 3 inches or 4 inches long. The racemes are slender, 6 inches to 9 inches in length, pendent, the numerous flowers being set in two rows with all the spurs pointing downwards. Each flower is nearly an inch across, all the six segments being almost orbiculate and of a delicate creamy white. Some hundreds of this species are to be seen in Messrs. Low's nursery at Clapton, many of them in bloom.

A. HYALOIDES.—It is to Messrs. Low that we are

indebted for the introduction of this tiny, compact species. It is not more than a couple of inches high, the dark green ovate leaves being also about that length. In proportion to its size it is by far the most profuse flowering species in this genus. I have sometimes counted a dozen or fifteen racemes on one plant clustered round the base of the stem and lower leaves. Each raceme is 2 inches or 3 inches long, and the flowers, as is suggested by the specific name, are of an almost transparent white.

The adaptability of *Angræcums* to the artificial conditions we are able to supply varies a good deal in different species, although most of those mentioned above thrive well under careful treatment. *A. sesquipedale* and *eburneum*, which are certainly two of the most desirable, are easily cultivated; they will grow and flower to perfection in any moist stove, provided other conditions, such as light and ventilation, are suitable. The subject of the plate (*A. caudatum*) is, as before stated, one of the most intractable of Orchids, and is rarely kept in good condition for more than two or three years after importation. *A. citratum* is liable to exhaust itself by flowering, and, indeed, with all the smaller-growing kinds, it is the safest plan to remove the blooms some time before they fade. All the *Angræcums*, with the exception of *A. falcatum*, which requires a cool or intermediate temperature, are essentially tropical, coming from some of the hottest and moistest regions on the globe. My experience with the dwarf species is that in most respects the treatment under which they succeed the best is the same as for Phalenopsis. During the growing season they delight in a temperature varying from 75° to 85°, accompanied by a saturated atmosphere. In the duller portion of the year these conditions, of course, must be modified, and a temperature ranging (according to the weather outside) between 60° and 75° is quite high enough. No greater mistake, however, can be made than to attempt to force them into rest by withholding moisture either at the root or in the atmosphere. The Moss in which they are planted should be kept fresh at all times. Large growing species like *A. eburneum* and *sesquipedale* should be grown in pots, which for the former, owing to the enormous quantity of roots it develops, should be of large size. Most of the smaller kinds are best grown in baskets and suspended near the glass. All of them may be grown in clean living Sphagnum, with a few pieces of charcoal intermixed. The best time for renewing the compost is as soon in spring as there are signs of root activity. The old material should be carefully picked and syringed out, if possible, without disturbing the roots.

W. J. BEAN.

ORCHIDS.

ORCHIDS AT THE DELL.

BARON SCHROEDER's garden is always interesting, especially just now, when the many fine specimens of Orchids are developing their flowers. The Cattleyas are grand, many plants of *C. Mendeli*, the beautiful *C. Lawrenceana* in many shades, *C. citrina*, *C. intermedia*, a large specimen of *Lælia cinnabarina*, and that magnificent Veitchian hybrid *Lælia Digbyana Mossii* being in flower. With these plants are arranged several examples of *Cymbidium Lowianum* in variety, but none among them appear to have such a compact and handsome spike as the plant that was so fine at this time last year, when carrying twenty-nine spikes of bloom. It is now carrying seven spikes against twenty-nine last year, and it is only reasonable to suppose that the plant which had been in bloom over five months when staged at the Temple show last season must have been weakened, and could not have sufficient time to make its growth. It is now forming good growths,

and no doubt will flower freely next year. The Chimæroid group of *Masdevallias*, which are here represented by large specimens, are just now exceedingly gay, amongst them being *M. Chimæra*, *gorgona*, *Wallisi*, *Chestertoni*, *radiosa*, *bella*, and *Bachousiana*; and amongst the gay-coloured kinds were *M. Veitchiana* and a variety known as *Veitchiana grandiflora*, which, although bearing a larger flower, is destitute of the crimson-purple papillæ on the sepals. Many varieties of the richly coloured *M. Harryana*, *M. Chelsoni*, a hybrid between *M. amabilis* and *M. Veitchiana*, and although pretty and distinct, not so good as either of its parents; *M. Lindeni*, *M. ignea*, *M. racemosa*, the beautiful *M. Shuttleworthi*, and *M. xanthocorys* were also in flower. The *Odontoglossums* were magnificent, the best and most conspicuous being *O. Wilckeanum*, bearing a spike with forty-five blooms; *O. Lee-anum*, a superb form, introduced by the Messrs. Veitch, bears a large many-flowered spike of velvety-coloured blooms, the ground colour clear golden yellow, richly spotted with crimson, and with a large reddish brown blotch on the lip; *O. Pescatorei Veitchianum* is bearing two spikes which would have been paniculate, but the plant has suffered with the fog this winter, and the consequence is that they are crippled at the base. It is a magnificent form; the flowers are larger than those of the type, fully one half the sepals and petals being covered with rich purplish magenta on a pure white ground. *O. Schillerianum*, a species discovered some forty years ago, but not brought alive to our gardens till about ten years ago, when it was introduced by Mr. Sander, of St. Albans, is here making a remarkable spike carrying many flowers which are very distinct, some 2 inches across, ground colour yellow, spotted and dotted with rich brown with a distinct lip. Then we have some fine varieties of *O. maculatum*, *O. crispum*, many forms of *O. gloriosum* and *O. sceptrum*, the flowers rich yellow with bright brown blotches. *O. crispum Stevensi* is carrying a very fine spike of bloom, the individual flowers being large, white heavily blotched with pale brown. Hundreds of flowers of *O. vexillarium* were open; this plant evidently felt the forcing influence of the greater amount of fire-heat which has had to be used. Amongst these specially noticeable were the varieties *radiatum*, dark in colour, having very rich purplish markings at the base of the lip; *Cobbianum*, with a very large pure white lip, and also a remarkably large lipped form of *Bleanum splendens*, which is a hybrid between *vexillarium* and *Roetzli*, first raised and flowered by M. Bleu, of Paris. The plant at The Dell is of Veitchian origin, and the flowers are certainly much larger than any I have seen from the Paris firm. Amongst the highly coloured *Epidendrums* with slender stems here flowering profusely we have the rich magenta-purple-flowered *E. evectum*, the bright yellow-flowered *E. xanthinum*, and the rich, bright carmine-flowered hybrid *E. O'Brienianum*, and yet another hybrid named *E. dellense* with orange flowers. Two forms of *Cymbidium Devonianum* having greenish brown sepals and petals and a pale violet lip were very attractive. *Maxillaria Sanderiana* with large flowers (standing erect in this instance) were conspicuous. A very fine form of *Lycaste Skinneri alba*, each flower more than 7 inches across, was very fine. *Maxillaria Kimballiana* is a new large-flowered form with yellow sepals and petals and a ferruginous lip. Amongst the *Cypripediums*, for which The Dell is so famous, may be mentioned the exceedingly rare *Cypripedium Lawrenceanum* *Hyeanum*, an albino form of great beauty; *C. porphyrochlamys*, of great beauty and rich colour; *C. Mastersianum* is a curious species, but not a great beauty; *C. alborpureum* is a superb flower with spirally-twisted sepals and petals; *C. Schroederæ* is most worthily named; this is certainly one of Mr. Seden's best hybrids, and it is here laden with flowers. *Phalænopsis John Seden*, a hybrid between *P. Luddemanniana* and *P. grandiflora*, has large creamy-white flowers suffused with a faint tinge of purplish flesh dotted all over with rose. Large specimens of *Phajus Wallichii*, as also several forms of *Calanthe Regneri*; the pretty and rare *Dendrobium crassinode album*, flowers pure white save a yellow

patch at the base of the lip; *D. superbum* and its variety *anostum*, the beautiful *D. Dalhousianum*, *D. crepidatum*, *D. fimbriatum*, the charming *D. thyrsiflorum*, and other closely allied plants, such as *chrysotozum*, *Farmeri*, and *densiflorum*; *D. nobile nobiliss*, with numerous forms of *Vanda suavis* and *Vanda tricolor* were very gay. Plants of the rare *Aerides Houllettianum*, *A. Lobbi* and *A. Schroederi* were also pushing up their flowers.

W. H. GOWER.

ORCHIDS FOR BUTTON-HOLES.

THE remarks by "Veronica" on pp. 394 and 395 call for a few words in reply from me. The fact of my having so much offended his ideas of what is correct is somewhat amusing. If he had confined his strictures entirely to the subject heading, my reply would now be much more condensed. Instead of this he wanders off into a far wider field of floral arrangements, upon which I shall have also to say a few words. First as to Orchid flowers for button-holes and their foliage accompaniment, permit me to say that I still consider Maiden-hair Fern and the others I recommended to be the most suitable. "Veronica" says "there is nothing rational, nothing original, in this usage of feathery cryptogamic vegetation with flowers of any kind." What a wonderful discovery this to make! Yet he advises what is even more feathery still in the African *Asparagus*, which, in my opinion, and that of a good many more who have had to do largely with this kind of work, is not so well suited to Orchids when used as button-holes as Fern foliage. The Boston *Smilax* (*Myrsiphyllum asparagoides*), I admit, is very appropriate. I have used this myself, but do not at present happen to possess it, this, no doubt, being the reason it escaped my memory when writing. I thank "Veronica" for having reminded me of it. "Veronica" has not evidently cultivated his Maiden-hair Ferns well for the subject at issue, otherwise he would have no reason to find fault with the keeping properties through at least one day and even two. Then he goes on to condemn the small glass tubes, which he chooses to term "glass bottles," which is quite a stretch of the imagination; these, I still assert, are the best accessories for keeping foliage and flowers fresh. The tubes (one of which I send for your inspection) I use are no larger than the stems are, which he advises to be wrapped in oiled silk. Perhaps it may interest "Veronica" to know that I have had for years past to make button-holes daily for a gentleman of no mean taste, who always insisted upon having the tubes, not "glass bottles," used, provision being made upon the coat for holding the same in position. These button-holes have been universally admired. When dealing with other than Orchid flowers, it may satisfy "Veronica" if I inform him that I rarely ever use Maiden-hair Fern. For Roses in particular I prefer their own beautiful foliage and small shoots. With the *Gardenia* nothing is better than its own bright glossy green leafage. I advised the use of *Davallias* when sending a distance instead of the Maiden-hair. I have sent button-hole Orchids thus made up to Norway, reaching their destination in a good state of preservation. Respecting button-holes, strictly speaking, I think no more need be said further than this. I am perfectly willing to put the matter to a practical test, and will produce half a dozen Orchid button-holes, chiefly backed with Fern foliage, and let "Veronica" do the same without Fern, the public to be the judges. There is a very arbitrary ring in what "Veronica" writes in the use of foliage in general. This I never in one word alluded to in my article. "Veronica" is quite behind the times in recommending the use of other and varied foliage. I did this myself many years ago, and demonstrated upon frequent occasions what I had written upon the subject. "Veronica" says, "This indiscriminate use of Fern fronds—Maiden-hair in particular—with flowers of all kinds is one of the hard-to-kill-out remnants or traditions of an ignorant and unthoughtful past." With this I entirely agree; therefore, his remarks upon this point entirely miss the mark in my case.

To confirm this I will only quote a few words in past numbers of THE GARDEN from my pen. When speaking of the Maiden-hair Fern, I said, "Many, however, who arrange flowers rely far too much upon it, no matter whether it is suitable or not;" and in another place, "In the past far too much reliance was placed upon Maiden-hair Fern (*Adiantum cuneatum*), not that I would for one moment disparage this most useful plant," and "Maiden-hair Fern, even when repeated here, there, and everywhere in arrangements, becomes tiring and lacks interest." I cordially agree with "Veronica" that "It is one of the fetishes of floral decorations, but one that is becoming repugnant [To a certain degree. —J. H.] to thoughtful amateurs and gardeners of the highest, i.e., most thoughtful type everywhere." I cannot go to the extreme length that "Veronica" does in condemning Fern foliage in general when there is such a wealth from which one may choose. Some of these cryptogams last nearly as well as the *Asparagus* (*Liliaceæ*) does, notably the *Davallias*. Each is valuable in its place, but the *Asparagus*, I think, looks far better when seen of good size. "Veronica" refers to *Irids*, *Lilies*, and the gorgeous *Amaryllids*; these I have treated of in previous writings after the same manner as he now advises. When I advised the use of Maiden-hair for Orchids in button-holes, it must not be inferred that I would adopt or advise its use solely in other arrangements with larger-flowered kinds, or when entire spikes have to be dealt with. To confirm, I again quote from previous writings. When speaking of *Cœlogyne cristata* I suggested the use of Tulip foliage, concluding my remarks by saying, "Yet if any was sent with the flowers of Orchids or other choice material instead of the Maiden-hair Fern, the receiver might wonder for what purpose it was intended," and in the following sentence I note that I advised "sprays of the common Myrtle for button-hole Orchids." So I conclude, taking credit to myself that I am not such a benighted individual after all. "Veronica" has not evidently succeeded well, as I before stated, with Ferns, nor has he, I think, read the weekly issues of THE GARDEN so attentively as he might have done.—J. H.

— "Veronica," in his note on the use of Maiden-hair Fern with Orchid blooms for button-hole bouquets, goes rather too far when he suggests that its use can only be associated with vulgar taste. I quite agree that it is often used where other foliage would be more appropriate as well as more serviceable. Yet I find that although it is not now used so often as was formerly the case, it still finds favour with those of the most refined tastes. It is not unnatural that such lovely greenery should sometimes be found in association with subjects where other greenery would be more appropriate, and perhaps more elegant. Yet I quite agree with "J. H." when he says that Maiden-hair Fern is a good associate either for Orchid blooms as button-hole bouquets or in the arrangement of Orchids as decorative plants. Maiden-hair Fern forms the finest groundwork of any subject that could possibly be suggested. I have often seen seedling Ferns growing in the Orchid pots, and although a specialist would hardly allow this, it certainly adds to the appearance (that is in the eyes of all unprejudiced and impartial observers). What, again, could be more graceful than a group of *Gloxinias* set in a groundwork of Maiden-hair Fern?—A. HEMSLEY.

Ada aurantiaca.—There are probably few collections of cool Orchids in which this old species is not represented, yet now that it is in bloom it may be worth while to draw attention to the bright and effective colour of its flowers. These are orange-scarlet, a colour by no means common in Orchids, although it appears in such well-known species as *Epidendrum vitellinum* and *Sophranitis coccinea*. The flowers are borne a dozen or more together on erect or arching spikes often over a foot in length. The sepals and petals are closed at the base, the pointed tips alone expanding. When once this plant has been obtained (and it is one of the cheapest of Orchids) there need be no fear of losing it, provided ordinary attention is given it. It is undoubtedly one of the most easily grown in this

family. In its natural state it is found along with, and under conditions similar to those of the cool *Odontogloss* and *Masdevallias*, and under cultivation it is simply necessary to give it the same cool, moist conditions that these plants love. It is a native of New Grenada, and was discovered by Schlim at an altitude of 8500 feet.

Masdevallia Wendlandiana.—This is a species of unusual interest both because of its small dimensions and the fact that it requires to be grown under warmer conditions than any other *Masdevallia* in cultivation. It is, in fact, a tropical species, and should be grown near the glass in a shady part of the East Indian house. The leaves, which are spatulate and from 1 inch to 2 inches long, are produced in dense tufts, from which the one-flowered scapes spring in great numbers, the flowers standing clear above the leaves. Each flower is two-thirds of an inch in length and is chiefly white, the under side of the sepals, however, being marked with two or three mauve-coloured lines, the short tails being orange coloured. We are indebted for this delightful little gem to Mr. Sander, who introduced it from New Grenada in 1888. It will be welcomed by the many lovers of this remarkable genus not only as a curiosity, but for its beauty as well. It flowers during April, May and June.

Oncidium concolor.—It was in the Duke of Bedford's collection at Woburn that this beautiful *Oncidium* was first grown in this country, having been collected on the Organ Mountains, in Brazil, by Mr. Gardner in 1837, and by him sent to this country. From that time up to within the last dozen years it was one of the rarest of *Oncidiums*. Importations have since then, however, made it plentiful, and it is now cheap enough to be represented in all collections of cool Orchids. That there are few *Oncidiums* to equal it in grace and brightness of colour will be the opinion of most of those who are acquainted with the huge genus to which it belongs. The flowers are borne on a pendent spike, which is a foot or more in length, and produces from fifteen to twenty blooms. Every part of the flower is of a rich yellow, the lip being large and spreading, and the whole flower 2 inches in depth. In order that the flowers may be seen to the best advantage it is necessary that the plants should be suspended. The best method is to fasten the imported pieces on blocks of teak, at the same time placing a little peat fibre and Sphagnum for them to root in. It may be grown in the cool house and requires abundant moisture during the period of growth. It is now in flower at Kew.

SHORT NOTES.—ORCHIDS.

Dendrobium lasioglossum (H. P. T.).—I am very pleased to see this species. It is one of Messrs. Veitch and Sons' introductions from Burmah over twenty-three years ago. The flowers are snowy-white, with a few yellow hairs on the disc of the lip and a few red lines on the side lobes. It has a very short spur.—W. H. G.

Brassavola glauca.—From "R. S." comes a very fine flower of this old species. It was found by Hartweg when collecting in Mexico for the Horticultural Society, and was afterwards collected in Guatemala by Mr. Skinner. The variety sent has a broad stripe of lilac down the centre of the lip. Although coming from Mexico, I have always found this species thrive best in the Brazilian or Cattleya house.—W.

Odontoglossum nebulosum guttatum (R. S.).—This is, I believe, the variety you send, and not *pardinum*. It is a very pretty form of the species. The flower is pure white, the basal half of the sepals and petals being profusely spotted with rusty brown; the front lobe of the lip also marked with the same colour. Professor Reichenbach is responsible for this name. I think in the variety *pardinum* the spots are reddish-brown, and they are not so much confined to the base of the segments.—W.

Vanda tricolor planilabris.—Flowers of this variety come from "W. S.," who says that the spike from which the blooms sent were cut carried twelve flowers. The ground colour of the sepals and petals is buff-yellow, thickly spotted and blotched with rich brown, lip large, rosy-purple, fading at the margins to mauve colour; the peduncle and the exterior of the

flower is china white. The flowers are remarkably sweet, and last fully a month in full beauty. It will bloom twice in the season.—H. G.

Cypripedium Godefroyæ (Hugh Kere).—The flower sent is a very fine one of this species, the sepals and petals being very broad, white, richly spotted with purple, lip white, dotted with purplish-brown. It is a handsome plant, one of the section found on limestone, and therefore I like to drain the pots with this material, giving a little rough peat fibre and loam well beaten. For the introduction of this species we are indebted to M. Godefroy, of Argenteuil, who brought it home with him on his return from the French possessions in the East.—W.

THE WEEK'S WORK.

PLANT HOUSES.

STATICES, which during the summer season are extremely useful, if in need of fresh potting, may now be attended to. It is better than deferring the operation till late in the season, the roots having longer to lay hold of the fresh soil. The spikes now showing may be pinched out if an early bloom is not required; this frequently strengthens the plants in leaf development with the certainty of flower later on when it is more useful. Those not in need of potting, but which are growing well, may be assisted by occasional applications of weak guano water; I have found this of particular service when the plants are showing a good number of flower-spikes. Cuttings of these *Statices* may now be struck without any difficulty; this is best done in a gentle warmth. I would recommend for this purpose a garden hand-light or frame; this if placed in a late vinery or a Peach house would afford all that is required. Each cutting should be struck singly in a small pot with plenty of silver sand in the soil, which had better be of a light kind. One of the most useful of all *Statices* is *S. profusa*, of neat and compact growth. Of the larger kinds, both *S. imbricata* (the dark variety) and *S. Holfordi* are extremely useful when well grown and cared for. A watchful eye must needs be kept against an attack of thrips, to which this family of plants is particularly subject. Frequent syringing and sponging will keep them under whilst there are no flowers open; thence onwards no moisture overhead must be allowed. Mealy bug is also troublesome to them, generally settling down around the axils of the leaves, from whence it is often difficult to dislodge it. With persistent attention it may, however, be overcome. As the stronger-growing kinds push up their flower-spikes they should be drawn outwards when of fairly good length; the lateral growths will then push forth upon the spikes instead of all the strength being directed to the terminals. These plants require all the light possible until they are in full bloom; hence onwards light shading had better be used to retain the flowers in good condition. *Statices* will thrive well in good fibrous loam and leaf soil.

THE CITRUS FAMILY.—The different varieties of the Citrus when well grown are fine objects for the decoration of large houses. More of them might be grown than is now the case for that purpose. The Orange, Lemon, Citron, Shaddock and Lime are all fine objects, when they are well laden with fruit, and this by good attention is not a difficult matter. It is not advisable to disturb them very often at the roots, but, nevertheless, fresh potting and tubbing are at times quite necessary. The present is a very good time for seeing to the work, if it is deemed requisite, or for a good top-dressing of fresh rich soil as an assistance in lieu of potting. In fresh potting, good fibrous loam, not too light, is the best soil to rely upon; to this I would add some mortar rubble about the size that will pass through a half-inch sieve. This, I consider, is better than too much sand. As the plants will probably have to remain for some few years without another change, every care should be taken in selecting the loam as good as possible, whilst the potting should be firm also; this can be effected far better when the soil is upon the dry side. In top-dressing, first remove any sur-

face soil which is not full of roots, then add good loam, mortar rubble, and some manure; this latter may be sheep droppings when they can be had from a fold, or dried cow manure worked down tolerably fine. If pruning is needed, this is a good time to see to it, whether it be only of moderate extent or in a more radical manner. Cleansing operations also must receive attention, scale being the chief enemy to contend with; a good insecticide for this purpose is Bentley's paraffin oil, which hardly needs to be used at the strength recommended. The plants after having a good syringing with this or any other insecticide should be allowed to stand for about half an hour, and then be syringed with lukewarm water, another application in a week's time being given if found needful. Syringings should also be given now regularly to encourage fresh growth; this will greatly help in keeping down such insects as green-fly. These plants are, as a rule, safer if kept rather on the dry side through the winter season; now, however, they will take more water.

MYRTLES.—Well-grown plants of these favourite old shrubs in pots or tubs are always acceptable for large houses where it is not safe to winter them out of doors. Both the common and the Box-leaved form should be grown to form a useful supply of greenery to accompany many cut flowers. Any necessary attention in the way of potting should be seen to before growth advances. From now onwards *Myrtles* will be safe enough out of doors in a sheltered place. Loam is the best soil to grow them in. The plants should be kept fairly within bounds; this may be done by judicious cutting from time to time as the shoots are required for use; no waste in this respect need ever take place.

CYCLAMENS.—Seedlings of last October should now be growing away freely; the unfavourable winter has gone against much progress early in the year, but now the young plants will make up for much lost time. Do not attempt to hurry them, however, in too much heat. They should be kept near the glass in a house where a little air can always be kept on at the top in favourable weather. Warmth is congenial to them whilst in a young state, but a close atmosphere will tend to a weakly growth. Do not let them suffer for want of water; guard, however, against the other extreme. Old plants placed aside for seed should be kept in a dry atmosphere, but little water being given them. When no seed is required, all the pods should be picked off when the old corms are to be saved for another season.

CHRYSANTHEMUMS.—These should now have been given their second shift. Growers for exhibition will have done this work some weeks ago, but where room is an object, it may have been postponed. No harm will now accrue if stood out of doors; ours had to be immediately they were shifted from small pots. Old stools of the early flowering kinds should be planted out; the flowers of these will be found useful for cutting.

J. HUDSON.

THE FRUIT HOUSES.

PLANTING GRAPE VINES.—Vines are more often planted in the winter or early spring months than in May or the beginning of June, but it does not follow that the former is always the best time that can be chosen for this important work. On the contrary, those planted in May not unfrequently eclipse those put out much earlier, the latter being liable to come to a dead standstill after the first rush of sap has taken place. Planting in May also admits of the old Vines in houses to be replanted being hard forced, and a crop of fruit ripened before they are cleared out, the loss of a season being thereby prevented. If an old vinery is replanted at the present time, there should be a thorough clearance of the exhausted border, the drainage also being overhauled and made good, and the whole or part of a new border be formed. In the case of old Vines in outside borders only, a fresh set might be planted in a narrow inside border, these to have access afforded to a new outside border, when the old Vines and old soil can be dispensed with. This is not the time to plant in outside borders, and if a new house is to be planted

start the Vines in an inside border, and in time let them have access to fresh soil outside.

FORMING BORDERS PIECEMEAL.—It is no easy matter to form the whole of a border off-hand, nor is it desirable, the better plan being to make the borders piecemeal and as the Vines stand in need of extended root-run. In this manner fresh supplies of food will be given without any waste, the whole being gradually and thoroughly occupied by the roots. If good turfy loam is available, this being all the better for having just a dash of clay in it, few other ingredients for a border are needed. No mistake, however, will be made in adding one cart-load of old mortar rubbish cleared of particles of wood, but not of the smaller brick-ends, half that quantity of wood ashes and well charred garden rubbish, and 2 cwt. of half-inch bones to every five loads of loam. The loam ought to be only roughly chopped up, sufficient turves being preserved to form a good front wall. A border from 3 feet to 4 feet in width is ample for the start, other similar widths being added either in the autumn or spring about every other year. Separate borders ought to be made for supernumeraries, these not being allowed to rob or interfere with the progress of the permanent Vines in any way. Where the subsoil is of a gravelly nature and naturally well drained, there is very little need to go to much expense or trouble in artificially draining the borders, but clayey subsoils ought to be excavated to a good depth, the bottom concreted, covered with a thick layer of rough stones, brick-ends or clinkers, finishing off with finer material and a layer of turves, grass-side downwards—this whether the border is to be wholly made or only constructed piecemeal. A depth of from 30 inches to 3 feet of border in addition to the drainage is ample.

WHAT AND HOW TO PLANT.—Strong young plants in 6-inch or even larger pots, or any equally strong and growing freely, the preference being given to those raised from eyes this spring, are the best to plant, any weakly or that have become stunted in growth not recovering vigour sufficiently early to make much progress this season. Where there are several houses it is always advisable to keep the early and late varieties in compartments by themselves, one or more houses being wholly devoted to the heat-loving Muscat of Alexandria. Much, however, may be done with one or two vine-ries, a long succession being kept up by mixing the varieties more. In this case the white varieties may well be located at the lightest end of the house, Muscats receiving the warmest position, while the black sorts, which do not need so much light to colour them properly, may be given the other half, or more, of the house. Alicante, Gros Colman, Lady Downe's, Muscat of Alexandria, and Mrs. Pearson will all succeed fairly well with Black Hamburg. Locate the supernumeraries 5 feet away from the front of the house, and also against the back walls, this being preferable to planting them mid-way between those intended to be permanent Vines. All ought to be in a moist state at the roots when put out, and have the soil firmly packed about the balls or turves, no attempt being made to uncoil the roots in any way, as there is no necessity for that to be done. Give a gentle watering with warm water, and never let them feel the want of it after. Carefully train up stakes till the wires are reached, pinching back the side shoots to the first joint, also removing tendrils as they form. The strongest of them may be allowed to attain a length of 9 feet before they are stopped, and the rest from 4 feet to 6 feet according to their vigour. A heavy crop can be taken from the supernumeraries next season. When the Vines are first planted and until the wood is ripening, a brisk growing temperature ought to be maintained, plenty of atmospheric moisture being necessary and overhead syringings when the house is closed early on sunny days.

EARLY PEACHES AND NECTARINES.—Having been kept quiet during the stoning period, a change of treatment should be given directly it is seen the fruit is well through this. If there has been any hesitation previously about finally thinning out the fruit, there ought to be none now, as it is a very

senseless proceeding to leave more fruit on the trees than they can swell to their full size. It should be remembered that the majority of fruit grown on overcropped trees is of inferior quality when ripe, not a few falling prematurely. Also well examine the borders, and if in the least dry give a thorough soaking of soft water, or liquid manure. At no time ought the soil to become dry, but rather less moisture both in the border and atmosphere is desirable when the fruit is nearly ripe. In the meantime increase the temperature of the house to 65° by night, with a corresponding rise in the daytime, and syringe the trees freely on closing early in the afternoon the better to keep down red spider.

COLOURING PEACHES AND NECTARINES.—In addition to being large or of full size, it is of the greatest importance that the fruit be highly coloured, this being especially desirable if the surplus has to be marketed. The fruits are certain to be of poor colour if unduly shaded, plenty of light and sunshine "laying on the colour." A few varieties there are that very rarely assume any colour other than yellow and green, the delicious Noblesse Peach being among these, and the Alexandra Noblesse also seldom becomes tinged with red. In order, therefore, to obtain highly coloured fruit of the rest or great majority, as many as possible should either be exposed or carefully laid up to the sunshine, and this ought to be done either before or directly after the stoning period. If much longer deferred the skins are more likely to become scarred by sudden exposure to strong sunshine, and in any case the colouring would be imperfect. Well exposed fruits actually commence to colour long before the stoning period, but it is not advisable to be in too great a hurry to tie down the shoots in order to favour the fruit before they are set somewhat. The tying down must not be delayed after the final swelling off is imminent, nor ought more shoots to be laid in than there is good room for, crowding them being both unwise and inexcusable. Also tuck back some and remove other leaves that obscure the fruit, this being done frequently.

PRACTICAL.

ORCHIDS.

THOSE who have charge of even a moderate collection of Orchids have now plenty of work to do in attending to ventilating and shading the houses, keeping the plants clean, watering them, &c. The house requiring least shade is that containing the Mexican Orchids. We cannot in any way attempt to follow out the natural conditions under which such a plant as *Lælia anceps*, for instance, is grown. The rainy season where this and kindred species grow begins in May, and until October the plants are daily drenched with torrents of rain, and exposed likewise to the fierce rays of the sun for some hours daily, with high drying winds. The plants grow very vigorously under these conditions, and have a dry resting period in October, November and December. The best grown and flowered *L. anceps* I ever saw were grown in England under very similar conditions. I was rather surprised to see one of the gardeners turn the hose from the water pipes on to the plants, and they were thus treated daily with the sun shining upon them, and the house was not shaded. The white-flowered varieties flowered very freely under these conditions. I have never ventured to treat *Lælias* from Mexico or elsewhere in that way, for, in truth, *L. anceps* in its normal type succeeds admirably under the ordinary conditions of a Cattleya house and flowers freely, but in order to induce the white forms to flower freely they must have free exposure to light. They should not lack for water at the roots now, but in all cases I am careful not to give too much, as this would cause the peat in which the plants are growing to decay rapidly. Indeed the result of indiscriminate watering, without noticing the conditions of the roots of individual plants, is to cause decay at the roots of many of them. There are scarcely any plants in the Cattleya house not requiring water freely now, but it is of the utmost importance that it should not be overdone. The *Pleiones* are planted in pots, but these are placed in baskets and suspended from the roof glass of the Cattleya

house. We now water them every morning in drying weather with an occasional dose of weak liquid manure. The best stimulating liquid for Orchids is clear cow manure water used in a diluted state. The *Sobralias* now take much water, with manure water the same as the *Pleiones*. The *Cypripediums* as a rule are water-loving plants, but we do not give it too freely to large specimens in flower which we are anxious to keep in good condition for a long period. I have kept large specimens of *C. villosum* in good condition for three months, and exhibited the plants in London three times during that period, sufficient evidence, I think, of the endurance of this useful Lady's Slipper. Over-watering would cause the flowers to decay much more rapidly. All the *Cattleyas* require water now, but they are not, like some Orchids, given it daily; the larger specimens should be watered when they are dry, and ought to have enough to saturate the whole mass of roots. Indeed their treatment is much the same as in the case of specimen hard-wooded plants; that, of course, applies to plants growing in the usual peat compound and in large pots. The smaller growing species in shallow teak baskets would require water often, and recently imported plants that may be fixed to bare blocks should have water daily. I do not recommend fixing *Cattleyas* to bare blocks, but I have seen them growing so, and would warn cultivators of such plants that there is much danger of their being permanently injured by the fluctuations of temperature and for lack of water at the roots. In the cool house there is not much danger of any plants being injured by too much water if the pots are well drained. I had some trouble to establish *Pleione humilis* in our collection, and found that it would not thrive with the others in the Cattleya house. I find it does well in the cool house in an airy position. *Oncidium Phalaenopsis* and *O. nubi-genum* are two distinct and lovely little species, thriving well near the roof glass of the cool house. They must not have too much material about their roots, and will succeed admirably if freely supplied with water. They seldom require larger than 3-inch pots or 4½-inch pots, using for potting soil good light fibrous peat and clean Sphagnum chopped up, with ample drainage material. When watering plants, the cultivator cannot be successful if he does not attend to the state of the roots; unless there are plenty of active rootlets water cannot be taken up. Newly imported plants of *Odontoglossums*, *Masdevallias*, or indeed any class of Orchids are slow to make roots; sometimes they will be six months before pushing out young feeders. When such is the case water applied too freely might do much harm by causing rapid decay of the potting material and ultimately the base of the plants. As an illustration of the long time some species of *Odontoglossums* will remain in a dormant state after being imported, we had *O. Edwardi* twelve months before either roots or growths were produced. In some instances we have had in the cool house both *Odontoglossums* and *Oncidiums* which have started to grow freely, and before the bulbs were half formed they have rotted off; two I may mention particularly, *Odontoglossum nebulosum* and *Oncidium cheiroporum*. They will if watered freely, as they need be, surely do this when arranged on the stage amongst other plants, but suspend them near the glass roof and they are quite safe. I have recently seen *Disa grandiflora* growing freely in a well-ventilated cool Orchid house placed in the lightest, coolest position. Water them at least daily, and they may need it twice a day during hot dry weather.

J. DOUGLAS.

FLOWER GARDEN NOTES.

THE cold biting winds with nightly frost of more or less severity that have prevailed until very recently have made the transfer of those plants required for the flower garden from houses to any temporary structures roughly put together to assist in the hardening off process rather a risky experiment, but now that May is fairly well advanced the operation must certainly be performed. A quantity of *Heliotropes*, *Aloysias*, *Unique*, *Ivy* and other *Geraniums* that we have on balloon trellises

will have to go under skeleton frames, and be thoroughly well protected both at top and sides. These frames are also handy for the reception of other tall plants. For the temporary protection of the dwarf bedding plants we use some shallow pits that have been enclosed with double boards, the intervening space being tightly stuffed with any Fern, pieces of quartering some 3 inches square forming the supports to which the boards are nailed on either side. Such an arrangement makes a nice warm enclosure, and is an effectual protection alike from frost and cold winds. Nearly all plants used in spring bedding will be very late in coming into flower, and will in many cases have to come up before they are at their best if an early summer display is required in the same border. In addition to the flower garden proper there are always some bare spots in herbaceous borders that require a little summer filling, especially along the front part where early flowering bulbs have been. A quantity of dwarf plants not too strong or rambling at the root are acceptable for the purpose, and these particular portions of the border can be raised by top-dressing, so that there is no danger when planting the summer things of coming in contact with the bulbs. Batches of *Echeverias* and *Sempervivums* (allowing these to grow and flower at will), the dwarfest of *Ageratums*, *Mesembryanthemums*, and *Cuphea platycentra* are a few of the best things for this particular work, as the shades of colour both in flower and foliage are soft and pleasing and harmonise better with the neighbouring herbaceous plants than bright and glaring colours. As an example of a pleasing combination I may mention a long stretch of border planted with occasional clumps of *Spiræa filipendula*, *S. astilboides*, and *S. palmata alba*, and the intervening space filled in with the above named dwarf *Ageratum* and *Cuphea*. This last is an old-fashioned plant not often met with, but it makes a pretty and pleasing border, either with a dwarf companion or as a groundwork for tall plants of, for example, a dark *Heliotrope*. Other things of somewhat stronger habit that may also be used in small clumps along the central part of the border are the varieties of *Diplacus*, a few good *Petunias*, and an occasional plant of *Bouvardia Humboldtii corymbiflora*.

E. BURELL.

Claremont.

THE KITCHEN GARDEN.

BROAD BEANS.—Even for a late crop it is not wise to defer sowing after this date. Select the coolest and strongest soil in the garden, as for this crop the ground cannot very well be too heavy. The earliest crop coming on must have timely attention as regards moulding up the rows on each side. Little else will be needed for Beans except topping when the stems show well for bloom, this, as well as filling up the pods, preventing attacks from black-fly, which is very destructive when allowed to gain a footing.

YOUNG GROWING POTATOES.—Attention must be given to these as they appear through the ground, and as soon as the rows can be plainly seen the intermediate space should be worked over either with a pronged hoe or light fork. This surface-stirring stimulates a very rapid growth, and the operation of moulding soon follows on. With the earliest crops it is very necessary that the moulding should have early attention as a safeguard against late frosts if any should occur. If any artificial manure is to be applied now is the time and before moulding commences, as after this operation it would be of little benefit. Victor will evidently be the first to turn in, as it is far ahead of others growing in frames.

VEGETABLE MARROWS.—These must be grown on freely from the first to secure a profitable return. Plants for the earliest supply will now be ready for putting out on to half-spent hotbeds. It is useless to plant outdoors thus early without the protection of handlights, as without such timely aids the plants will make but poor progress. Where there are not such conveniences as mentioned above, sooner than plant out poor or starved plants, the best course is to sow again.

GLOBE ARTICHOKEs.—After a very unseason-

able time the suckers are now large enough for detaching from the parent plant. With the press of other duties coming on apace, such work is apt to be neglected, and the results of such neglect are only felt in the autumn when the supply of heads runs short. Under good treatment in well-worked and heavily manured soil, strong suckers now planted and afterwards mulched will turn in useful at the time stated. Seed which had previously been raised in a gentle heat and the seedlings duly potted off are now large enough for planting out, and such work should not be neglected until the roots become pot-bound.

PREPARING CELERY TRENCHES.—For the earliest Celery the trenches may now be prepared, as when this work is performed at this early date the soil and manure get mellowed down. The space between the trenches will be found available for other dwarf growing crops, as these would be off by the time the soil would be required for earthing up the Celery. Along these ridges may be sown such quick-growing crops as Spinach, French Beans, Turnips, and Lettuces. Lettuces seldom do so well anywhere as along the ridges between the rows of Celery, probably on account of the greater depth of pulverised soil. An open plot should be selected, away from trees if possible, and the rows should run from north to south, as the plants would then be equally exposed to the rays of the sun. Where double cropping is resorted to the trenches should be 5 ft. apart from centre to centre, and even where the ground is not so occupied 4 ft. 6 in. should be the least distance apart. The trenches should be taken out 9 inches or 12 inches in depth, the shallower depth on heavy soils. To accommodate a single row of plants the width of the trench should be 15 inches, and for a double row 20 inches. The soil having been taken out to the required depth, the bottom should be forked over, and over this be placed the manure, which should be of a solid description. Over the manure place a layer of the best of the top pulverised soil taken from the trenches. The practice is sometimes adopted of merely forking the manure into the bottom of the trench, but this is an unwise proceeding, as generally the bottom soil is of a crude description. The trenches having been prepared, there will be little hindrance when the time arrives for planting, as when such work is allowed to stand over through stress of other work the planting is often delayed.

A. Y. A.

STOVE AND GREENHOUSE.

HERBACEOUS CALCEOLARIAS.

THESE useful plants are not so much grown as in former years, and no doubt much of this neglect is caused by the trouble they give if once allowed to get into a dirty state. The best place I ever had for growing these plants was a badly heated greenhouse. It was a large house with only a single flow and return pipe, rather damp, and in severe weather it was difficult to keep out the frost. I covered the glass with suitable material, mats often being used over canvas, and during the four years I had that house I never failed to obtain large healthy plants. I have for years continued growing these plants from seed of those mentioned, but I must say they do not give much pleasure, being often too long or straggling and deficient of that healthy green thick foliage so telling in a well-grown Calceolaria. I grew the plants on shelves 2 feet from the glass. The house was on a west wall, and I attribute a great deal to the low temperature and being damp. The plants did not get a lot of attention, as I had not the time to devote to them. It is not green-fly only that they suffer from, as if kept in a dry house they are often attacked with red spider and thrips. These latter enemies are not to be feared if the plants are grown in a suitable temperature and kept moist. From the time the seed is sown till the flowering period is past, Calceolarias should not be allowed to get dry, and though for a short time in the dead of winter the plants do not make much progress they should never be at a standstill. Many excellent cultivators do not advise shifting in the dull season, but I

always did it if I found the pots getting full of roots, but only a small shift just to tide them over for about six weeks, and the plants always took readily to the soil, no matter when repotted. It is a serious evil to allow these plants to get root-bound. It is also important that when shifted in the winter they should be most carefully watered, and in no case should repotting take place at that time if the plants are short of roots. Though the plants are not hardy, I have found they stand a few degrees of frost if they are not immediately exposed afterwards. I do not recommend so low a temperature, and extremes should be avoided. A temperature of 35° is preferable to one of 55°. Too much heat with exposure or dry air is the stumbling-block in their culture. They also require to be kept close to the light, and as I have stated I grew them on shelves. They require more attention when grown in this way, as they absorb more moisture than if grown standing on a hard cool bottom. On the other hand, in a cool house they suffer less from damp on shelves, as if grown in frames they sometimes lose their foliage in severe weather. I always removed the plants to the shelves in November. Soil is also an important matter, and undoubtedly a good yellow loam, not clayey, with some dry cow or sheep manure, with some bone-meal and good leaf mould with sharp sand is the best for them, omitting the leaf soil at the last two shifts and adding more crushed bones. Large shifts should be avoided, and in all cases care taken to prevent injury to the roots when being shifted. Firm potting is also essential, and creates a sturdy growth. Much depends upon the aim of the cultivator as to size of plants and for what purpose required. Good specimens may be grown in 8-inch pots, which are large enough for most purposes. When full of roots these plants absorb large quantities of water and should, after February be syringed daily, taking care that the water reaches the underside of the foliage. It is also advisable to syringe occasionally with tobacco-water, afterwards with clear water, thus obviating the use of tobacco smoke as much as possible. Liquid manure may be given in a weak state up to the last potting. When the pots are full of roots and the plants forming their flowers it may be given somewhat stronger. Clear soot water is also excellent when the plants are of good size and in a robust state. Guano water may also be used, but I prefer liquid manure from other sources. The seeds of these plants are sometimes difficult to get up well, and being very small are frequently washed to the side of the pan, thus losing a portion. The soil should be well saturated previous to sowing the seed. It is advantageous to place some damp Moss or Sphagnum on the surface after covering the seed. This when damped over retains the moisture, and also assists the seed to germinate quickly. The seed should be sown in June or July, but if only one lot of plants are grown the latter month is best. Some may also be sown in August if a succession of plants is required. Plants may also be obtained from good varieties by offsets by standing the old plants after blooming in a cool place, cutting back within a few inches of the bottom, not allowing the seed to ripen. When the small offsets are a few inches long they should be removed with a heel and placed singly in a sandy compost in a close frame.

Syon House.

GEO. WYTHES.

Pelargonium Empress of India.—There is more than one *Pelargonium* bearing the above name, but the particular variety in question is that exhibited in such fine condition by Messrs. Hayes, of Edmonton, several times last year, and for which they were awarded a certificate by the Royal Botanic Society. Among the numerous kinds now grown by them it stands out in all respects as a very superior variety. It forms a sturdy-growing, freely-branched plant, which retains its foliage well to the base, while the flowers, which are borne in bold upright trusses, are very large, and of a bright salmon-scarlet colour with a light centre. The two upper petals are blotched with dark crimson. It belongs to the decorative section, under which head are grouped those that do not conform

to any of the recognised classes into which Pelargoniums are divided. It has been spoken of as one of the Regal group, but the flowers are very different from those of such varieties as Captain Raikes, Queen Victoria, and Beauty of Oxtou, to which the name of Regal was first applied; while they are not regular enough in outline for an ideal show Pelargonium. As a market plant, however, it is likely to take high rank, for it has a good vigorous constitution and large bright-coloured blossoms—the two qualities most sought after in a market Pelargonium. Jubilee, a variety sent out by Messrs. Hayes two or three years ago, is another favourite of mine, though the flowers can scarcely be called brightly coloured. It forms an exceptionally compact and freely-branched specimen, which at its best is simply one mass of bloom. The colour of the flowers is a distinct, yet very pleasing shade of pink, with perhaps a suspicion of salmon, altogether very difficult to describe. The upper petals are blotched with deep crimson.—H. P.

Kalosanthes.—These will now, or soon, be showing their flower trusses, and when this occurs the stems increase in height. It is better, therefore, to keep them in a sunny position near the glass, so that they may be eventually as sturdy as possible. At such times the plants grow more rapidly, and some little assistance is occasionally needed to keep the foliage in a healthy state, weak liquid manure being very suitable. This plant is at times seen with sickly-looking foliage and puny flower-heads, which had it received more liberal treatment would have been obviated. What little is required in the way of staking should be seen to now, allowing the sticks to reach a few inches beyond the points.

Rhododendron Countess of Haddington.

—A very fine plant of this greenhouse Rhododendron was staged at the last Regent's Park show. The plant was of unusual size and profusely flowered. When grown and flowered as this plant was, its value for the conservatory is apparent. The only fault that one could find was the rather formal character in which it had been trained, but this can be easily overcome if for the next few years it is allowed to grow away without much or any tying. As usually seen this variety is disposed to grow somewhat tall, the bottom of the plant consisting of weakly spray. Not so, however, with the plant in question; it was equally vigorous all over and bore evidence of careful attention to its culture. Its large pink flowers changing to bluish white are borne in large trusses and last in good condition for a considerable time. Considering the years this hybrid has been in cultivation, it is rather surprising that it is not more frequently seen. The plant referred to above was from the gardens of Sir C. Piggott, Bart., Wexham Park, Slough.—PLANTSMAN.

Pinguicula caudata.—It is now about ten years since this beautiful Mexican Butter-wort was first exhibited by Messrs. Sander, and though grown somewhat extensively for a few years after its introduction, it is, I think, far more seldom met with at the present time than was the case half-a-dozen years ago. There seems no reason why it should decline in popular favour, as it is readily propagated, by no means difficult to grow, and withal produces its brilliantly coloured blossoms pretty freely in the spring. In this species the leaves are borne in dense rosettes, from the centre of which the flowers spring. They are borne singly on erect stalks about 6 inches high, and their rich deep carmine colour reminds one to some extent of the *Harryana* group of *Masdevallias*. It is a native of the mountainous regions of Mexico, where it grows in damp shady places, and succeeds best here under much the same treatment as the cool house *Odontoglossums*. Its flowering season is spread over a very lengthened period, for it will often commence to bloom in the spring and maintain a scattered succession till the autumn. A very peculiar feature in connection with this Butter-wort is the great change that takes place in its leafage, as in winter it forms a pretty little bright green rosette; then, after it has commenced to flower and as the season advances, the leaves become much larger and more spreading, so that

then they lie flat on the surface of the soil. It is but a shallow-rooting subject; therefore the pots should be well drained. In a compost consisting principally of fibrous peat and live Sphagnum, it will succeed perfectly. Its delicate roots seem to appreciate a mass of growing Sphagnum Moss in which to disport themselves, as they are thereby maintained in an even state of moisture. Liberal supplies of water must be given during the growing season, but in winter, of course, less will be needed, though at no time must the roots be allowed to become dry. It is one of the subjects amenable to leaf propagation, to succeed with which the large leaves should be taken during the summer and stuck into pans filled with Sphagnum Moss, over which a little silver sand has been sprinkled. If the Moss be moist, the leaves will not require any water for some little time, and from their succulent nature they must not be put into close cases. A shelf in not too hot nor dry a position suits them well, all that is necessary being to keep the soil merely damp. In this way the old leaf will root and push up a young growth from its base, and when large enough the young plants can be potted off, using for the purpose a compost consisting principally of peat and Sphagnum. Besides the specific name of *caudata*, this *Pinguicula* is also known by that of *Bakeriana*, under which name it was awarded a first-class certificate by the Royal Horticultural Society when first exhibited.—H. P.

TREATMENT OF FORCED PLANTS AFTER BLOOMING.

DEUTZIA GRACILIS.—Of hardy flowering shrubs which are amenable to pot culture for forcing, whether to supply cut bloom or as decorative plants for the conservatory, there is nothing that surpasses this well-known *Deutzia* either for freedom of flowering or the ease with which it may be grown. It has also another excellent property, that of lasting in good condition for a considerable time. I suppose hardly anyone fails to flower it well under ordinary methods of forcing when a good growth has been made the previous season. To bring the plants into this condition they must not be neglected after the blooming period, for therein lies the secret of success for the next season. There is a weakness, or probably want of thought, on the part of some growers respecting hardy forced plants which should be dispelled. It is that of overlooking the requirements of the plants at this particular time. When the *Deutzia* has done good service it is sometimes placed in the most out-of-the-way position, possibly out of doors, being considered of no particular value or any consequence for the time being. The result of this is that the plant receives such a check to its vital functions as to necessitate a year's interval before growth can again be made that will be productive of flower. Thus one season is lost entirely, and occasions thereby the growing of double the amount of plants to meet the requirements. With but ordinary attention, such as one would give to the Indian *Azaleas* after flowering, this may be easily overcome. As soon as the plants in successive batches are past their best the flower-spikes should be picked off and weakly-looking wood foreshortened. My advice is, do not put this work off for a more convenient time, but do it at once. When done, the plants should be put into a brisk growing temperature, such as a vinery well advanced with a goodly amount of humidity. Here they will soon start into fresh growth, and if in good condition at the roots, strong shoots will be made. The *Deutzia* does not, like some plants, object at this time to being shaded, but rather seems to like it. As soon as the growth is completed, the plants should be gradually hardened off, ultimately being stood out of doors about the first week in June in a rather shaded spot for a few days, and afterwards fully exposed to the sunshine to ripen the growth. The best way is to plunge the pots to the rim in coal ashes for the summer; in fact they can remain thus until again wanted for forcing. The pots will in this way (and roots also) be protected against severe frosts. The *Deutzia* delights in an abundance of water from the time of being

fairly started into active growth right through the season until the foliage shows signs of dropping. Whilst in flower they should not on any account be allowed to suffer from drought, otherwise the blossoms will drop prematurely. With annual top-dressings of good rich soil but little potting is needed in the case of full-sized plants. As an instance of this I would quote my own treatment in this particular of large plants than which one could scarcely look for better results. These plants for a period of thirteen years were never once repotted, unless by accident a pot was broken. At the expiration of that time they were in much finer condition than at the commencement. Young plants growing on do, as a matter of course, require potting up to the size at which they are found most useful. Another good method of cultivation is to cut the plants down nearly close to the pots after flowering, carefully preserving the suckers issuing forth from the base in this (and every instance). These young shoots will then make a much stronger growth than would otherwise be the case. This is a very good plan for plants of medium size and those chiefly required for cutting. As a variation in the style of growth, instead of bush plants, informal pyramids could be easily had by using one stake only to each plant. Another and capital plan is to grow a few as standards upon clear stems of about 2 feet; the heads of these need not be in any way of a formal character. When the wood is in a semi-hard state it is a good time to take cuttings for propagating; these strike freely enough if kept close until rooted, and may be either struck in a cold pit or in gentle heat, the latter process being rather more expeditious. This *Deutzia* should, considering its suitability for early forcing, be far more extensively grown than it is rather than having to rely so much upon the Indian *Azaleas* or *Spiræas*. Both of these are excellent in their way, but the former, if hard forced from year to year before the plants attain large size with good enduring powers, must inevitably grow much weaker, the more so if cut hard; whilst the *Spiræas* cannot be forced two years in succession with prospects of a good return. Not so with this *Deutzia*; it rather seems to thrive better than otherwise when forced from year to year. As the spring-time advances and growth commences out-of-doors, there is sometimes a disposition to develop very small and insignificant flowers. All the stock should be moving on under glass before this is likely to occur; it may then happen if the plants are kept in quite a cool house, but I have never known it to occur when treated liberally. For pot culture I prefer a rather stiff loam; this will be found more enduring without exciting extra strong growth for a season or two, and then a tendency to quite the opposite. Pot-bound plants whilst in growth should be freely supplied with liquid manure of moderate strength. Those forced early one season should be again chosen for the first supply, being disposed to start more readily than the later ones.

DEUTZIA CRENATA FL.-PL., with rosy-tinted flowers, and its white variety, of which there is an improved form, ought also to have due attention given to them after blooming. These may be treated in a similar manner to *D. gracilis*, with but a few exceptions. Being of stronger growth, they are best adapted for forcing when of large size; the shoots upon large plants will generally flower more profusely than upon smaller ones. This variety is not so reliable for early flowering as *D. gracilis*, being found at times to turn blind. It does best afterwards if fully exposed to the light, and will succeed well in a lower temperature than the first-named variety. For conservatory decoration or in a cut state it lasts even better, the double flowers being possessed of more lasting properties than those of *D. gracilis*.

AZALEA MOLLIS (both single and double varieties) are superb plants for early forcing; the soft yet showy colours of their blossoms always causing them to stand out as quite distinctive features. For cutting, the double kinds are the best, lasting in good condition better than the singles, travelling better also when packing has to be resorted to. The hardy Ghent *Azaleas* with double flowers are also extremely valuable for early forcing.

ing, being equally as reliable as the afore-named. These plants are, as a rule, grown to a good useful size in the open, and when well studded with bloom then taken up and potted. Being, however, a hardy shrub, it must not be thought that the process of potting, or the soil selected for the purpose, need no particular care. More mistakes are probably made in the potting than in the soil. The potting should be done as carefully and in the same manner as if Indian Azaleas were being dealt with. The peat, or peat with some fibrous loam, should be of good quality, although it is not essential to be of such character as best suits the greenhouse varieties; a softer or more spongy peat will suit them very well. Always pot firmly, taking care that no cavities are left around the sides. Plants thus treated will continue to do good service for some years without any fresh potting, being more productive of flower, even when getting somewhat starved, than for the first season or two after potting. True, a fine display is made the spring after they are potted up, probably better than ever afterwards. Of the two, the amount of bloom then obtained is in excess when looked upon as only a decorative plant, from the fact of not being toned down by fresh green leafage, as in after years. The second season the plants do not, as a rule, flower nearly so well, but after that another good result will be obtained; thus by having two sets of plants for successive years the difficulty is overcome. Those which one season only yield a few trusses each can be turned to account for cutting, so that none need be wasted. I have had some plants which flowered well every year, but they were not forced hard. Care must be taken of the plants when out of bloom, treating them then as advised for the Deutzias. They will complete their growth better, and the same will be found more sturdy and robust if the plants are fully exposed to the light. When the flower trusses are cut some of the straggling shoots with young leaves upon them may be cut also to accompany the flowers, with which they are most appropriate. Full exposure during the summer season, the pots being plunged, suits them admirably. Taken on the whole, they do not require quite so much water as the Deutzias, nor should they have any more than weak solutions of liquid manure when pot-bound.

LILACS bought in small pots (of which Charles X. is a good type) always flower well the first season. These as soon as out of bloom should be pruned back moderately hard and be encouraged to make another growth. Later on, when hardened off, these plants can either be planted out the same season or allowed to stand over to the following spring before that work is done. I doubt if there is much gain in doing it the first year, for not many roots will, as a rule, be made before growth again commences. When planted out, good soil should be chosen, the outer parts of the mass of roots being broken up before planting. The growth made during that season should again produce a good crop of bloom buds. In hot, dry weather watering must be attended to regularly. When lifted, the plants will require larger pots than before proportionate to the progress they have made.

SPIRÆA CONFUSA AND S. THUNBERGI I have not forced as yet, but by what I can see of their requirements they should be treated in a similar manner to the Deutzias. Andromedas and Kalmias should also be planted out, being treated in the same way minus the pruning. *Prunus sinensis* alba fl.-pl. does well under the method of culture advised for the double Deutzias. This useful plant ought to be more grown than it is, large bushes being most effective whilst in flower. The Guelder Rose, or *Viburnum Opulus*, when taken care of may be retained in good condition from year to year in pots. Compared with Deutzias it requires rather more pot room, otherwise the same culture will suit it. *Staphylea colchica* should be treated the same as the Lilacs to get neat compact plants.

RHODODENDRONS.—For forcing, the early-flowering kinds should be the chief ones to rely upon. I have often wondered why the varieties of *Nobleanum* are not more grown for this purpose; this and the other early-flowering kinds, which, as a rule, are

caught by spring frosts, should be those most relied upon for bringing on steadily under glass. These if well cared for and treated after the manner of Indian Azaleas, except as regards heat and moisture whilst making growth, will continue to give a good return from year to year. Plants in large pots of these varieties are most effective for conservatory decoration. PLANTSMAN.

SHORT NOTES.—STOVE AND GREENHOUSE.

Abutilons.—Cuttings of the flowering section of these may now be struck to make useful dwarf plants for the back end of the summer or for growing on to follow in due course early another year. *Boule de Neige* is still about the best white, as *Boule d'Or* is of the yellows. Other good kinds are *Coronet*, *Marmion*, *Red Gauntlet* and *Royal Scarlet*. *Sellowianum marmoratum*, *Darwini*, *tessellatum*, *vexillarium* and *insigne* should also be grown.

Clivia Lady Wolverton.—This is one of the several hybrids raised at the Forest Hill nurseries of Messrs. J. Laing and Sons. There is a decided improvement in this variety, its foliage not being nearly so erect as in the ordinary types. In this there is an advantage, as it permits of the spike of flowers standing well above the leaves. It is also dwarfer in growth than many kinds. The umbel of flowers is of extra size. The individual flowers are also large, of a bright orange colour, with a much lighter centre.

New Indian Azaleas.—Those recently shown by Mr. Charles Turner, of Slough, are particularly noticeable by reason of their vigorous constitution and the excellent quality of their flowers. The colours too are decidedly good. *Princess Clementine*, a waxy-white with a slight tinge of green, is a very free bloomer and should make a good specimen; *M. Labrousse* has flowers of a deep red self colour; *Pharailde Mathilde* is a semi-double blotched pale pink on a white ground; *Mons. P. de Schryvoeur* is a dark carmine; *President Oswald de Kerchove*, a pale pink with white; *Vervaeana*, a semi-double, darker than the last-named; and *Ami du Cœur*, a deep red, are all promising kinds.

KITCHEN GARDEN.

LATE CELERY.

THIS is more welcome than usual on account of the scarcity of other vegetables, and those who grow a good kind for a late supply will, I am sure, this season find it a valuable addition. This subject was noticed in THE GARDEN at page 387, and its value pointed out. My note now is merely to show that it is not necessary to sow late Celery in boxes or pans with the pricking out and preparations usually bestowed, as "A. Y." in his able calendar notes pointed out that it is not even necessary to sow in heat or on a hotbed unless it is a very late cold district or on cold heavy soils. Such is my experience, for the hardier late Celery can be grown, the less likely is it to get injured by severe weather. Of all Celeries I have tried for late use Standard-bearer is the best. I had it in good condition at the end of April, and this was not covered in any way during the severe weather only by snow, and that only a partial covering, as we had very severe weather late when the snow had melted, thus proving its hardiness. I have for two winters grown Standard-bearer specially for late use, and it certainly is a standard variety, as this winter proves, and if specially grown for this work it lasts well into May. Last year I saw this variety exhibited in excellent condition on March 25, and it was much admired for its appearance and flavour, and for a medium sized Celery it is very heavy and solid, being even now very juicy and of a fine nutty flavour. It is called a red Celery, but at this date, late in the season, it is nearly white, thus making it valuable for cooking. Early in the autumn it is beautifully tinged with pink, and is of remarkably close growth. I prepare a movable frame with several lights, four to six, according to the requirements, placing the frame on a hard coal-ash bottom facing south, and place 6 inches of rotten manure and leaf-soil, with a top covering of fresh loam. I sow the seed very thinly and keep close and moist till the seedlings appear, when they are gradually inured to light and air. If the seed-

lings come up thicker than required, which is usually the case, thin them out, and those taken out carefully may be planted on a warm border for planting thickly later on in rows for soups and flavouring. Those in the frame are hard sturdy plants for the late planting, as they lift in fine condition for this work, no previous transplanting having been required. If short of frames a warm open position may be utilised and answers nearly as well if the seeds are covered with mats or canvas till they germinate. In late districts I should advise sowing the last week in April, but I usually sow a fortnight later for the late crop, using the frames for a short time. It is surprising what a rapid growth Celery makes not coddled up in any way, and by planting direct out of the seed beds for late work it is a great gain and a saving of labour. On the other hand, care must be taken to thoroughly thin the plants, and that early, to prevent them becoming drawn. For late work too much manure is not wanted in the trenches, a well-prepared soil and feeding with liquid and other manure as the plants are making their growth being preferable. When too much animal manure is used for late Celery a pithy growth is caused. G. WYTHES.

Sage destroyed by frosts.—Not many plants of common Sage have survived the winter, and unless more than ordinary pains are taken in raising a fresh stock, there is likely to be a scarcity of leaves and shoots when most wanted. The simplest way is to sow the seed on a light well-prepared border thinly in drills 12 inches apart, freely thinning out or transplanting the seedlings, and leaving the rest to grow where they are. A quicker way of raising a stock would be to at once sow seed in a box of fine soil and to place this in gentle heat to germinate, which it will soon do. The seedlings should be eventually hardened off and then transplanted to the herb border. Planted in fairly rich well pulverised soil the young plants soon attain a serviceable size, and next year will surpass the worn-out older bushes.—I.

Early Celery.—The pricking out of the earliest Celery should not be delayed until the seedlings get too crowded, for if this is allowed the plants are apt to "bolt" when placed out in the trenches. Pricking out into boxes is sometimes adopted, but this is quite unnecessary, even in the smallest gardens. The best position for pricking out is in low frames or shelters. The bottom should be perfectly hard and level, to prevent the roots from going down deeply. Over the bottom spread a layer of rotten manure, and over this 2 inches of good holding soil, not refuse from the potting bench, as such material is too sandy and will not hold together when the time comes for taking up. The rooting medium must be made fairly firm, and the seedlings pricked out 4 inches apart, thus allowing each plant to be taken up with a fair-sized ball. As soon as established and growing well, ventilation must be freely given, removing the lights altogether as time goes on. To guard against early attacks of the Celery fly light dustings with soot in the early morning whilst the plants are wet with dew are very beneficial.—A. A.

Ridge Cucumbers.—Ridge Cucumbers are often relied upon for the production of Cucumbers for kitchen use, especially in small gardens, and being of a harder description than the long or frame Cucumbers, they may be grown without the assistance of fermenting material, except for giving them a start. The Stockwood Long Ridge is the best variety for open-air culture. Not being of a very rambling disposition, the ridge Cucumbers should be grown on narrow prepared beds, or, what is better, ridges. These are formed by excavating a 4-foot space 18 inches in depth or thereabouts, and any convenient length, and filling up firmly with fermenting material, bringing it up to a wide ridge 30 inches above the level. The surface should now be covered with about 9 inches of fertile soil. The plants should be set out 3 ft. or 4 ft. apart, and be each covered with a hand-light. If protection cannot be afforded, planting out must be deferred until the end of the month. Watering would have to be attended to, and the hand-lights tilted more

or less daily according to the weather. The plants will also require shading from bright sun until they become established. The hand-lights would only be required for protection until the early part of June, when they would be best removed to make room for the increasing growth. The advantage with ridge Cucumbers in small gardens is that the pinching, which is necessary for the frame varieties, is entirely dispensed with from the first. To keep the plants in free bearing, cut the fruits as soon as ready. Seed may be sown under the hand-lights where the plants are allowed to remain. Sow two or three seeds under a hand-light and thin out to one as they get stronger.—Y.

LATE SEAKALE NOT FORCED.

THOSE who have space at their command and can allow a portion of their Seakale to remain without lifting it will certainly appreciate that grown in the open ground and not forced in any way, as the growth is larger and the Kale more tender when cooked, and in my estimation the flavour is far better. As other vegetables are scarce, Seakale at this date is doubly valuable, and should be grown in all gardens requiring a choice supply of spring vegetables. We use a large quantity of this vegetable from early in November till the end of April, and thus a six months' supply requires a little timely preparation. The greatest difficulty in warm springs is to prolong the supply so that it will last up to the date the Asparagus in the open ground comes in. I often see old stools of Seakale in gardens left year after year, producing a poor crop of numerous heads of small size, that if taken up yearly would give a much larger return and occupy less ground. I find good Seakale of a large size can be grown from root cuttings in one season, and give a larger return than older roots occupying more space. The system is now extensively adopted by market gardeners of getting their supplies from root cuttings as required yearly, taking up in the autumn as soon as the foliage decays and storing thickly, saving the cuttings we take from the roots as they are lifted, as only the large root with the crown is wanted to force. These are cut into lengths of from 4 inches to 6 inches and tied in bundles of 100 each, the top of the cutting being cut level and the bottom slanting, so that no mistake can be made. These are placed in the ground till required, according to the season, and then planted 2 feet apart in the rows and 1 foot from set to set. I would certainly give more room if I could spare it, but I get excellent Seakale at this distance and plant in good ground, giving abundance of liquid manure in the dry summer months, dressing the ground with salt previous to applying the liquid. The first supply for forcing is grown on a warm border and lifted early; the later is on heavier land. The root of this vegetable is often attacked with wire-worm, and slugs are particularly fond of the young tender shoots in the early spring months; therefore I find it best to treat the ground specially for this crop, giving a dressing of gas-lime mixed with wood ashes if the latter can be had, and with the salt applied in the summer, I am not troubled with slugs or wireworm. I lift about three parts of the crop in the early autumn, and at that time secure the root cuttings for the next season's stock of plants, as these are much better taken off before forcing, besides the roots for forcing take up less space. The remainder of the roots is left for the late spring supply, and these I find invaluable in seasons like the present one. Many persons prefer to lift the roots for forcing as required, but several disadvantages present themselves to this course of treatment, as the roots take longer to force when lifted direct from the ground. Another advantage is that in severe weather it is not always possible to lift the roots without injury to the crowns unless covered, and it is not always practicable to cover a large space. I use no pots, boxes, nor any other covering for the crowns for the late crops but leaves, and I prefer those that have been heated and done duty for Marrows, Potatoes, or similar purposes, as when fresh leaves are used they heat slightly and the Kale is too early. Another objection is that the

fresh leaves generally have a lot of small slugs about them, and these injure the young tender growth; the leaves, being partially decayed, keep the roots cool. A depth of from 9 inches to 12 inches of leaves is placed over the rows, no further trouble being necessary, the strong growth of the Kale readily lifting the leaves, thus showing where to cut the blanched Kale. I have also when short of leaves placed fine ashes over the crowns, and they answer well. I prefer leaves, however, as being cleaner and lighter. The stools or latest cut crowns are lifted and the best or strongest cuttings again planted for a late crop. These require more moisture than those planted earlier. They are also good left in their quarters for another season, but I prefer the young roots and get the best heads from these, as the ground can be well prepared yearly by manuring and trenching, which cannot be done when left in the ground year after year, Seakale requiring plenty of feeding.

Syon Gardens.

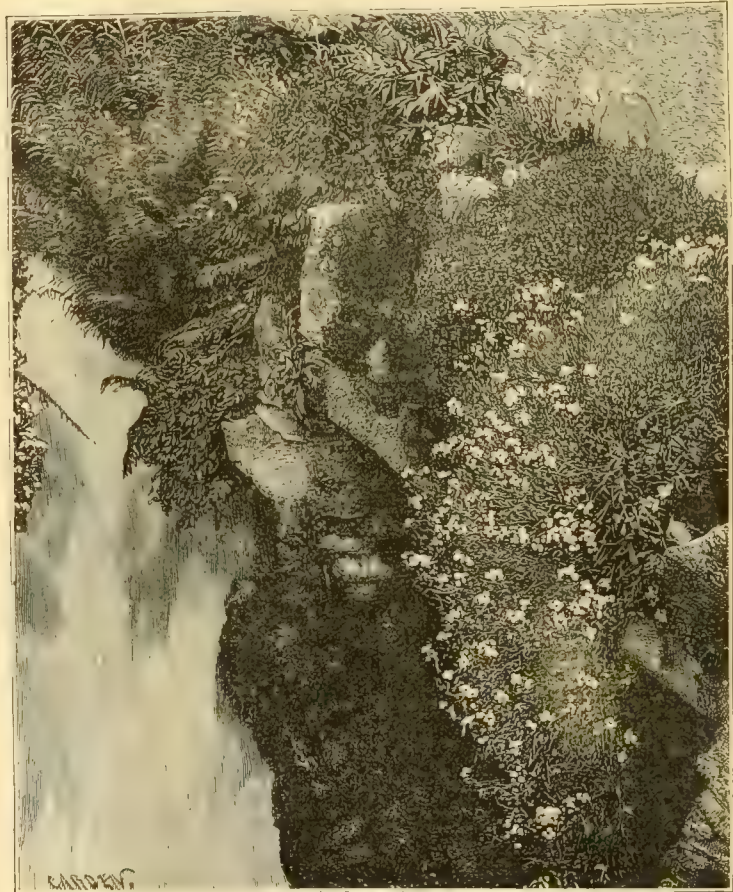
G. WYTHES.

!.* With the above communication were sent

to grow this variety after reading a note in THE GARDEN by one of our most noted vegetable growers, he recommending it as the nicest Lettuce grown, and last year I grew it largely. For sowing at this date and for succession, I would advise others to give it a trial, as I feel sure it will give satisfaction. Its drought-resisting properties should recommend it to those who require good Lettuces daily and for a long time. Being a compact grower and taking up a small space is another point worth attention, as it does not spread about and require a lot of room.—S. H.

LATE PEAS.

THE note in THE GARDEN (p. 249) on well-tried sorts of Peas I think most opportune at this time, and I note the writer does not go into ecstasies over some of the recent introductions. I am glad to see "S.'s" opinion on American Wonder, as it is undoubtedly valuable for early work and superior in flavour to the early white-seeded Peas. I have found Chelsea Gem, a selection, I believe, from



Aubrietia on the rockery at Mount Usher, Co. Wicklow. (See p. 433.)

heads of the Seakale, which were of large size and when cooked very tender and of fine flavour.—ED.

The Perfect Gem Lettuce.—This is, I consider, one of the best Lettuces that has ever been sent out, not only in appearance, but in flavour and crispness. It is certainly the best Cabbage Lettuce I have tried. This Lettuce produces beautiful dark green leaves, compact, and closely formed round the heart, and, unlike some others, it has few outside leaves, thus forming a close solid heart beautifully blanched. It remains a long time before running to seed, no matter how hot and dry the season may be. I usually sow in drills thinly for summer work, and prefer this kind on our light soil to all others. For early cutting I do not advise its culture, but for summer and early autumn work it is a valuable introduction. I first began

American Wonder, one of our best new Peas, and as it is a few inches longer in the haulm, it is consequently a heavier cropper. I would certainly advise a trial of this variety, and also the use of some small sticks to protect the haulm. When supported in this way it is an enormous cropper and a few days in advance of American Wonder. Indeed I would grow no other if its price was not against it. I am also glad to see the variety Duke of Albany recommended, for I know of no Pea that does so well on light land and also for early work. I question if this Pea was not grown more than any other last year for exhibition, as I saw it in most collections, and it held its own on all occasions. For pot work it is excellent. I should have liked to have seen Champion of England spoken of more highly. It does much better with me than Forty-fold, and is my main-crop Pea. On our light soil

it can always be depended upon, and it does not suffer from mildew so badly as some other varieties. I used to grow Veitch's Perfection in Staffordshire in great quantities, but here the soil is not suitable, and I find it very liable to mildew. On a good loam I think Veitch's Perfection the most useful Pea grown both as regards quality and quantity. Strange to say, another good late Pea that suited the same locality, namely, Sturdy, a cross, I believe, between Perfection and that well-known good kind Ne Plus Ultra, will not do in our light soil, and I much regret it, as in mild autumns all through November it could be gathered. Being dwarf, only 3 feet high, it was easily protected. I would advise its culture in ground that Veitch's Perfection succeeds in, as it is of splendid quality when cooked and of a beautiful colour. In light soils, unless sown in a trench of decayed manure and mulched, also well watered, late Peas do not do well, and even such well-known kinds as Ne Plus Ultra must have abundance of moisture and attention. There are also numerous varieties for late sowing that may be tried, as some succeed where others fail. The old kinds, such as Yorkshire Hero, Omega, and Walker's Perpetual Bearer, are well-known varieties, and may with confidence be given a trial for late work, sowing thinly in well manured trenches, making the ground firm, and leaving a good depth in the drill for watering after covering the Peas; this is especially necessary with tall late Peas, as they require a lot of moisture in dry seasons.

G. WYTHES.

Syon House.

Autumn Broccoli.—These raised under glass on a gentle hotbed should not be allowed to become overcrowded, or weak and spindly plants will be the result. Prick out into good soil on a hard surface, and a few boards on edge with the protection of a few mats will be all the attention needed to guard against bright sun or cold winds until they take to their quarters.

A good forcing Lettuce.—Veitch's Golden Queen, a comparatively new Cabbage Lettuce, forces admirably, or equally as well as the popular Early Paris Market. I sowed a pan of seed early in February, placing this in gentle heat to germinate; the seedlings were eventually stood for a fortnight on a greenhouse shelf. Some of them were dibbled out among Cauliflower plants, being gently forced, and at the present time (April 30) we have abundance of well-grown hearts, which are of excellent quality, and so tender as to require very careful packing. Plants of the same variety on an open border are also making good progress, and these will give an early supply of superior hearts.—W. IGGULDEN.

Seasonable plants for the house.—With a greater choice of flowering plants now at command, it will be possible to give a partial rest to those of the fine-foliaged section which most probably will have been doing good service for some time past, and consequently stand in need of a little rest, so that they may recuperate themselves. Azaleas (Indian) in small pots are very useful vase plants, lasting a considerable time in good condition with proper attention to the water supply. I have myself used plants some 2 feet or more in diameter for large vases, the pots being covered with green Moss and dry Moss around the sides when there was any vacant room. The chief point to guard against is that of using plants which are in any sense out of order at the roots. Plants which are pot-bound and take a liberal supply of water are the best to choose. These plants may be taken into the house as soon as the major portion of the flowers is expanded. *Spiræa japonica* is frequently used, and that with good effect. Of such material more use should be made on all possible occasions. As a safeguard against drought a pan should be placed under the pot so that water may be absorbed in an upward direction. This *Spiræa* has sometimes an excess of foliage as compared with the flower-spikes; some of it may be removed to make matters more equal. The Lyre Flower (*Dielytra spectabilis*) when kept in small pots will also be found a useful plant; its elegant foliage and arching spikes of flower are so distinct from anything else. The Forget-me-nots when grown in pots are beautiful plants for small rustic

baskets or vases. These will now be in good condition for use. They should be potted up in time to become established before coming into flower. *Myosotis alpestris* Victoria is the best one to grow for pot culture, being of such a compact habit, with fine trusses of flowers. In the open border we have this fine variety now in beautiful condition. If the supply is in any way short I would not hesitate to pot up nice tufts of Primroses and Polyanthus just now coming into flower. If done earlier they would of course be better as far as keeping is concerned. The alpine Auriculas also make a most pleasing change, and may be used without fear of injury. Mignonette in small pots is ever welcome; this, too, will now be in good condition with more fragrance than earlier in the season. Tufts of the common Musk can be lifted, grown for a week or two in a frame, and then turned to good account. The small rustic baskets now very much in use for pot plants are excellent, affording such a variety to the terra-cotta and china vases, although these are good in their way, but the former when provided with water-tight inner holders for the pots, if made of zinc or other metal, are serviceable in so many ways, seldom, if ever, coming amiss for use either in the boudoir or drawing-room.—J. H.

PUBLIC GARDENS.

Clapton Common.—The Parks and Open Spaces Committee reported that at present the western side of Clapton Common abutted on the highway without any railing, but the boundary was defined by a mound at the edge of the common. This mound was being gradually worn away by vehicles, and as the Hackney District Board were willing to lay a line of kerb next the common, they thought that the Council might then erect a boundary fence, and recommended that so soon as the Hackney District Board had constructed kerbing along the western side of Clapton Common, the Council should authorise an expenditure on capital account of £90 for the erection of fencing at such boundary of the common. This was agreed to.

A public recreation ground for Islington.—On Friday, May 1, the Duchess of Westminster opened Barnsbury Square, Thornhill Road, Islington, as a recreation ground for the use of the public. The square was until recently a shut-up neglected spot, but Mr. Thomas Smith, of Fleet Street, having become the leaseholder, transferred it to the Public Gardens Association, at a nominal rental, and they have just laid out the ground at a cost of £250. The Islington Vestry have undertaken its future maintenance, this being the third open space they have taken over from the association. Lord Meath stated that the association had added to the open spaces of London about 80 acres, at a cost of £26,000, and the Duke of Westminster expressed his warm approval of the objects of the association.

The Victoria Embankment.—In the House of Lords on Monday, May 4, the Earl of Meath asked Her Majesty's Government whether the lands at present leased as gardens to private owners and situated between the new Scotland Yard buildings and the Victoria Embankment public gardens would revert to the Crown in 1892; and, if so, whether Her Majesty's Government would undertake not to renew the leases, sell, re-let, or otherwise dispose of the land until the citizens of London, through their representatives on the London County Council, had had an opportunity of declining to purchase or rent these lands for the purpose of enlarging the area of the gardens at present open to the public. Lord Windsor, in replying, said Her Majesty's Government were not likely to minimise the importance of retaining open spaces in London for the public use. Some of the gardens referred to would revert to the Crown in 1892. It had been decided that a new road should be made opposite the Horse Guards from Whitehall to the Embankment, and for this purpose nearly the whole of the garden of No. 4, Whitehall Yard would be required. Negotiations had been going on with the London County Council, and an exchange of land necessary

for the making of the roadway had been agreed upon. No determination had been arrived at as to the future appropriation of the gardens of Nos. 7 and 8, Whitehall Gardens, but these gardens clearly could not be added to the existing public gardens on the Embankment, because the road he had mentioned would prevent this. Under the circumstances it would be impossible for the Commissioners of Woods and Forests to give any undertaking which would fetter their future action.

Open spaces for London.—A meeting was held on May 2 in the theatre of the Society of Arts for the purpose of considering what steps should be taken to secure future provision of open spaces for London. Mr. G. Shaw Lefevre, M.P., presided, and among those present were the Earl of Meath, the Hon. Dudley Fortescue, Sir Frederick Young, General Keatinge, and several members of the London County Council. The chairman said that the general interest in the subject before them was evidenced by the fact that four societies had been formed for the purpose of securing open spaces in the neighbourhood of London. The earliest was that known as the Commons Preservation Society, and largely owing to its endeavours the public rights and privileges had been preserved. The other societies were the Kyrle Society, the Metropolitan Public Gardens Association, and the London Playing Fields Committee. Many open spaces had been preserved, and in several instances private persons had given parks for the use of the people. It had now become very important to consider what could be done to secure additional open spaces before they are built upon. Mr. Robert Hunter, of the Commons Preservation Society, then read a paper on the subject, in the course of which he stated that, as the coal dues and grain duty had failed and the City charity funds had been diverted, a special fund ought to be created to provide open spaces. This he thought could be done by taxing ground rents. He would make the occupier pay the tax, and enable him to charge it to the owner, while the proceeds should be paid into the County Council and applied by it. After a brief discussion, the thanks of the meeting were accorded to the reader of the paper and the chairman.

OBITUARY.

Mr John Wilson, for some twenty-nine years secretary of the York Floral Fête, died at Maida Vale on the 1st inst. He was one of the founders of the fête, as also one of the original guarantors. He was early appointed secretary, and held that office up to within the last three years or so. Under his management the flower shows at York, in the month of June, assumed great proportions, and proved highly successful from a financial point of view. Failing health necessitated Mr. Wilson's leaving York, and he came south, resolving eventually to reside near London. Many horticulturists, and especially exhibitors, about the country will hear of Mr. Wilson's death with great regret.

Kerosene.—The leaves of your Vines look as if they had been scorched.

Names of plants.—*Flor de Mayo.*—*Disandra prostrata* (?). Send a better specimen to make sure.—*T. J. S.*—1, *Eleusine stricta*; 2, *Aira cespitosa* variety; 3, *Bromus tectorum*; 4, *Lagurus ovatus*; 5, *Setaria glauca*; 6, *Fervia* species (impossible).—*J. B. Dover.*—1 and 2, both forms of *Lycaste Harrisonæ*; 3, probably an *Anthurium*; we require to know something of the habit of the plant.—*B. D. F.*—1, *Lycaste plana Mearesiana*; 2, *Oncidium Forbesi*; 3, *Ondotoglossum Andersonianum*.—*T. Appleby.*—1, *Gleichenia dicarpa*; 2, *Anemia Mandiocana*; 3, *Cheilanthes viscosa*; 4, *Dictyopteris Camerooniensis*; 5, *Elaphoglossum muscosum*; 6, *Ondotostoria aculeata*.—*J. T. W.*—1, *Alocasia Lowi*; 2, *Haworthia papillosa*; 3, *Haworthia margaritifera*; 4, *Sarracenia variolaris*.—*Adun.*—1, *Saxifraga quinquefida*; 2, *Bauxbaumia aphylla*.—*W. F. M.*—Leaves of the Silver Tree of the Cape of Good Hope (*Leucodendron argenteum*).—*G. D. H.*—1, *Cattleya amethystoglossa*; 2, *Lelia grandis*; 3, *Cattleya intermedia*.—*J. Crook.*—1, form of *Schomburgkia undulata*; 2, *Lonicera fragrantissima*.—*J. Hutt.*—Send better specimen.—*M. E. Champion.*—*Rhododendron campanulatum*,

WOODS AND FORESTS.

THE BARKING SEASON.

As soon as the bark can be removed from the wood with facility barking should be commenced, as early saved bark always commands the highest price in the market. The tanning properties of bark that has been saved after the trees are in full leaf is reduced about one-half in comparison with that which has been harvested when the leaves were beginning to expand. The tools used for peeling the trees are few in number, and should be overhauled and put in a proper state of repair, so that no time may be lost at the commencement. The tools may vary a little in shape and size in different parts of the country, but the principal consist of a light and a heavy axe, a cross-cut and a hand saw, a short hand-bill for cutting the bark into sections, barking irons of different shapes and sizes, such as duck-bill-shaped chisels, flat on the one side and rounded on the other, a strong scraper, in form like a common draw hoe with a short handle, a carpenter's adze for dressing the stools to prevent the lodgment of water, and a wooden mallet, used for tapping the branches on a flat-faced stone to loosen the bark. These are the principal tools used, and, of course, they will have to be provided in suitable numbers to meet the requirements of the hands to be employed. There are two species of the Oak to be found growing in a mixed manner in most plantations, namely, *Quercus robur pedunculata* and *Q. r. sessiliflora*, and as the former yields the best timber, the latter should be cut out as far as possible in the course of thinning. When the trees are in full leaf and fruit they are easily distinguished; the leaves of *Q. r. pedunculata* are sessile, while the fruit is supported on footstalks. The leaves, again, of *Q. r. sessiliflora* are supported on pretty long footstalks, while the fruit is sessile. These distinguishing characters, however, are of little use as a guide when marking the trees to be removed in early summer before the leaves expand, but at this season of the year *Q. r. sessiliflora* can easily be known from the other by its larger and more developed buds at the points of the terminal twigs and branches.

When felling the trees a section of the bark 2 feet in length should first be removed from the base of the stem; a notch some 2 inches deep should then be cut with an axe all the way round the stem, and the work of felling finished by introducing the cross-cut saw. When felling the trees the workmen should be very careful not to allow the trees which they have cut to crash into others in their proximity. The branches should then be pruned off the tree, cut into convenient lengths of some 2 feet or 3 feet and carried to the roads to be peeled. Some of these branches will likely require to be tapped with a wooden mallet upon a smooth stone to loosen the bark from the wood, but the less hammering in this respect the better, as it bruises the bark and reduces its value in the market, not to speak of the extra cost for labour. The stools should then be dressed around the margins with a sharp adze in such a way as to prevent the lodgment of stagnant water on the surface. The trees and material of all kinds should be removed to the roads as soon as possible, otherwise the young suckers springing from the stools are apt to be damaged. If possible the bark should be removed from the trees and branches as soon as they are cut. The bark on the stems and large limbs of the trees should be removed in sections of about 2 feet in length and kept by itself, while smaller stuff obtained from the branches should be arranged by itself

to facilitate its removal to the drying ground. In some open airy place wooden hurdles should be erected from 3 feet to 4 feet high, on which the bark should be placed to season and dry. In placing the bark upon these hurdles the small stuff should be arranged first, then covered with the larger sized pieces, outside uppermost, to protect it from wet. It should then be occasionally turned, but the inside of the bark should never be exposed for any length of time to the sun, as such is found to reduce its tanning qualities. In saving bark of any kind, the great point is to prevent it from becoming mouldy or contracting black inky spots. I have never saved bark better nor with less trouble than by placing it upon the top of a 4-feet high Thorn hedge in the vicinity of the plantations. As soon as the bark is thoroughly dry not a day should be lost before delivering it at the tan-yard to prevent risk from wet and extra trouble and expense. When it cannot be delivered at once it had better be placed in a dry open shed.

J. B. WEBSTER.

Lopping and topping trees.—The reversal the other day by the Master of the Rolls and Lord Justices Fry and Lopes of the decision of Mr. Baron Pollock in the case of *Unwin v. Hanson* will commend itself to most people. By a Highway Act passed about fifty years ago, the local authorities, as is pretty well known, have power to lop trees which overhang the highway. In this case the defendant (the county surveyor) appears to have considered that lopping included topping, and in pursuance of this view to have mutilated the plaintiff's trees. The Master of the Rolls in reversing this decision of the court below said, "Now it would be mere pedantry for the court to pretend not to know that lopping was always understood by people who had anything to do with trees as meaning the cutting off of the lateral branches, and that cutting off the head of the tree was called topping it. There was abundant evidence to show that lopping and topping were entirely different, and that lopping did not include topping. The defendant, therefore, when he topped the plaintiff's trees exceeded the power given him by the Act, which only authorised him to lop them, and he must therefore be held liable." This judgment, I take it, is of considerable importance to owners of property adjoining highways.—D. J. YEO.

Rhododendron ponticum.—I quite agree with all that Mr. Wythes (p. 424) says in favour of this plant. I must, however, differ from him in the remarks he makes that the *Rhododendron ponticum* thrives in wet clayey ground and bog, as I find it and all the *Rhododendrons* object to stagnant moisture, and do far better in light, well-drained land that is sandy and contains a fair amount of vegetable matter. For planting in woods as game covert the *Rhododendron* is unrivalled, as it grows freely under trees, and pheasants can run in and out below its branches and find the shelter they want without meeting any obstruction. In planting, however, it should be borne in mind that the clumps must not be over large, as otherwise it is almost impossible to drive the game out, as beaters cannot get through owing to the tangle of the branches, and have to content themselves by brushing the sides. In the woods here I have had to cut drives through these shrubs, so fast and freely had they grown, and though rabbits are plentiful and they have attacked the bark of almost everything else last winter owing to the long continuance of the snow, they never touched the *Rhododendrons* in either leaf or stem. Near drives I should certainly advise planting some of the better kinds, as they are much more effective than *Rhododendron ponticum*, and will grow where it thrives. The way I manage to produce quick effect is to plant the good sorts at wide intervals and in masses of one variety, as they are more telling in that way, and then fill in between, leaving the *ponticum* till the whole get together and require more room. The

common kind is then moved if wanted elsewhere, and if not, the plants are chopped out and destroyed. This has been the fate of hundreds this year, and many more must follow, as they are becoming so thick that they will soon crowd out the others.—J. SHEPPARD, *Woolverstone*.

WOODLAND BEAUTY IN MAY.

MAY—the month when Nature puts forth her first promise of the glory that shall follow in the leafy days of summer—comes, I fear, to the pent-up multitudes in great cities only with its lengthened days and warm blinks of sunshine. How little do the vast majority of townspeople know or see of the beauty of our English woodlands, lanes, and parks at this enchanting season? Nevertheless, there is in the heart of most townsmen a deeply ingrained love of rural scenery, and it is a hopeful sign of the times in which we live that we have amongst us men with means and sufficient generosity to part with their money to provide that most elevating and rational of all enjoyments, namely, a public park or garden. Although such places may be wanting in some of the bright features and surroundings of the fine English parks far away in the country, yet they are, to the artisan and toil-worn multitudes that frequent them, a very paradise; and not alone to them, but to the children of the rising generation in our towns, what the lanes and woodland meadows are to our country children, a place of healthful resort, where they become acquainted with Nature in all her various and wonderful productions.

The Pine copse, on which, during the short and stormy days of winter, the eye delighted to rest, becomes comparatively dark and sombre when the Larch puts forth its exquisite green and lovely rose-coloured catkins. Than the Plane, too, no tree in our English woodlands or parks is, at this season, more ornamental, its varied tints being most remarkable; some trees look as if clothed in dark bronze, others in the deepest olive-green. The perfect symmetry of outline of the Plane, too, makes it one of the most striking objects in our landscapes. The Gean and double-blossomed Cherry are likewise lovely objects, perfect in outline, and being covered, as it were, with a sheet of purest snow, contrast strikingly with their green surroundings. It is a matter for regret that the Birch does not occupy a more prominent place than it does in our parks. All who have seen it in its natural habitat, on mountain passes and wild gorges, will, I feel sure, like Sir Walter Scott, term it "the lady of the woods." Even in winter we have no native trees to equal it in gracefulness, and when clothed with young leaves, the perfume which they exhale when refreshed by evening dew or a passing shower is most delightful. Of the tree "with boughs that quake at every breath, we can hardly have too many," says Sir Walter Scott; and he planted about 100,000 Birches round Abbotsford.

The Hawthorn is so indispensable that few parks or woodlands are without it; next to the Yew and the Oak, it is the most durable and long-lived of our native trees, and, perhaps, more historical and poetical associations cluster around it than surround all our other trees put together. About the durability of our native Hawthorn there can be no doubt; Scott set the age of the "Whitehope tree" at 300 years. It had ceased in his time to put forth leaves, and it stood long afterwards a leafless trunk, giving character to the landscape around it. In early spring as well as in the months of autumn, colours blend most harmoniously; yet each tree may be known in the distant landscape by its outline. Distinctness of form as well as of colour is, therefore, a point worth the attention of planters.

T.

WHAT is the value of Larch poles each 20 feet long, quarter girth 4 inches?—FOREST.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

KITCHEN GARDEN.

TOMATOES FOR THE OPEN AIR.

It will no doubt depend largely upon the character of the season whether Tomatoes when grown in the open air will turn out satisfactorily. In some seasons large crops may be ripened in the open air by growing the plants against sunny walls or fences, and especially is this the case during a fine season. It is mostly, however, during cold and wet seasons that the dreaded disease appears. The disease attacks those plants the most readily which are planted in rows in the open, but this system is rarely now practised in private gardens. In the warmer districts Tomatoes are still largely grown in the open for market. However, the main supply of Tomatoes is still depended upon largely in many private gardens from plants growing in the open air, and whether such supply is favourably maintained will no doubt depend largely upon the subsequent treatment the plants will receive.

One of the most important points to ensure a successful issue is to put out strong and well matured plants, as these are more likely to resist the disease. Strong plants with the earliest fruits already set soon advance to maturity with the assistance of genial weather, but not so those plants which are very small, as the season is far advanced before any fruit set, let alone come to maturity. The best results I have ever seen with Tomatoes growing in the open air were where strong plants were placed out in a narrow border against a warm south wall. Although it may not be convenient to provide narrow borders, as more generally these are of a large size, yet much might be done to concentrate the feeding material close to the plants, not that a rich root-run is necessary when the plants are first set out, as this tends to over-luxuriate at the expense of the setting of the fruit. The time to feed the plants is when the fruit is set, as at that time the plants have a strain upon them. The rooting medium should not be of a loose character, as the firmer in reason the root-run the more fruitful will the plants become. The plants having been raised early in April and grown on in a light position in a warm greenhouse should ere this have been potted into 7-inch pots, and the first fruits already set. As it will not be safe to plant out before the first week in June, the plants must be prepared beforehand by being placed in frames or pits and gradually hardened off. Towards the latter end of May the lights could be entirely dispensed with. By the first week in June the plants should be set out in their respective positions. In my own case the low walls in front of the forcing houses and such like positions are made available for the growth of open-air Tomatoes. Temporary wooden boardings are well adapted for training Tomatoes against, but the boards must be close together, for where a space is left between, the draught blows through. Although the feeding of the plants must have due attention to ripen the fruit, the manipulation of the growing shoots has a greater bearing towards a successful issue. Good results cannot be expected when the plants are allowed to grow into a tangled mass, for when such is the case the blooms will most surely fail to set. Whether the plants are trained as

single, double, or triple cordons, the growth must be concentrated in the single stems, and not frittered away into useless spray. As the plants are growing in the pots, all side growths must be rubbed out as soon as perceived, and the same must be persevered with right throughout the growing season. Confining the plants to single stems and growing them with full exposure to the sun, the plants cannot help but set a fair quantity of fruit, and should give a success in a favourable season until frost comes. In planting, the soil should be firmly pressed around the balls. The majority of soils will no doubt be sufficiently fertile to ensure a successful start, and, beyond well stirring the ground, little else will be needed. In those cases where the soil is not very fertile, well-rotted manure and either wood ashes or burnt garden refuse should be added to make up any deficiency.

Firm and clayey soils are the worst to deal with, and in these cases stations must be prepared by removing the natural soil and filling up with a richer and lighter medium. After the plants are put out, watering must be attended to as occasion requires, as the position close up under walls or fences with a sunny aspect generally becomes very dry. Two or three weekly soakings will be better than daily dribbles. The time to commence feeding with either liquid—which I much prefer—or any of the approved artificial manures will be after a fair quantity of fruit has set. Those manures which are very quick in action are not the best, as they are apt to cause a gross and soft growth, without sufficient stamina to guard against disease. The stems, as they grow, must be fixed firmly to the wall or fence, so that the plants receive the full benefit of light and sun. Very often the plants are allowed to trail on the ground, as well as being allowed to grow otherwise untended, and then the grower cannot understand why he has but little or no fruit. Towards the autumn the larger leaves, where at all likely to overshadow the fruit, may be half cut away, this exposing the fruits to the beneficial influence of the sun and not harming the plants in the least. When the plants are arranged together on walls, and if the fruits are not very quick in ripening, this process may be assisted by rearing any spare lights over the plants. Planting in the open quarters is not much practised now, unless by a few growers for market. The best position is on light and well-drained soils with a southern slope. The Orangefield is generally selected as being dwarf and fruitful. The plants are set out in rows from north to south 4 feet apart, and each plant is secured firmly to a stout stake.

A. Y. A.

Tomato The Conference.—This has fully realised all that was anticipated of it. With me it proves one of the best for open walls, and it is also unsurpassed for pot culture. The fruit is not large enough for exhibition, and market growers seem, unwisely so, I think, to prefer varieties that produce larger samples; but for home use a better Tomato could not well be had. Smaller fruits for home consumption are preferable to those of larger size, and when, as in the case of the variety under notice, they are also of good form, of a rich red colour and excellent quality, most tastes are satisfied. The Conference is a moderately strong grower, and sets numerous clusters of fruit without much extra trouble being taken with the setting. As far as my experience goes, it is the most profitable variety in cultivation.—M. H.

Spring-sown Onions.—These have come up capitally, and are also making satisfactory progress. Where thinning out of the young Onions is practised this should now be attended to. I do not practise thinning unless the plants are growing too thickly together. The seeds being thinly sown,

the young Onions come up at a fair distance apart, and as they grow they push each other on one side, and if they do not equal the thinned produce in point of size the crop is far heavier and the keeping qualities better. The bulbs being of a medium size, they ripen up more quickly than the larger ones. Where thinning is still practised it should commence early, for when allowed to grow thickly together for any length of time those that have to remain have their root-hold considerably loosened, thus militating against their well-doing. As soon as the best placed Onions can be seen, thin out to 6 inches apart.—A.

SPRING VEGETABLES.

OUR market growers are just now beginning to fee the real nature of the blank in the green crops which the winter has created. The hardy greens, sprouting Broccoli, Turnip-tops, &c., left alive have all been cleared off, and so too has the winter Spinach. This latter having been well buried in the snow stood the severe weather well, and it will not be a matter for surprise if the Spinach breadths be much larger next winter. No green vegetable has paid so well, and therefore none seem to be more profitable. So much has this fact been realised, and so desirous have some growers been to have something to market as early as possible, that sowings of summer Spinach were made last month, and these are now well up and covering the ground with leafage. I do not find that anyone ventured on sowings of early Turnips. The weather had long been so dry that the seed would perhaps have germinated indifferently. Still, sowings would now have benefited from the recent rains, and on well manured soil there might have been found considerable pullings by the end of May. When it is understood that at present it does not seem at all probable there will be any appreciable gathering of early Peas before the 10th or the 12th of June, it is very obvious that any kind of catch crops which would help to fill up the void created by the winter and the long cold spring should prove very paying. Cabbage plants which have stood the winter either planted out or in exposed seed beds are not in good form, and probably, because rather injured in the stems by the severe weather, seem to be bolting. In all such cases there is no other course but to gather the tops and plough in the stems. Those who were thoughtful enough to have considerable quantities of late-sown Cabbage plants in frames would find the advantage now in having them to fill up vacant soil. That this planting should have been done earlier there can be no doubt, but the exceedingly cold winds and long-continued drought rendered the planting out of anything very risky. Recent rains, though none too plentiful, have, however, moistened the soil somewhat, and planting may proceed with greater safety. For several days a strong harsh east wind prevailed, drying the soil and causing everything to flag in the day; then the wind shifted to the north-west, and from that milder quarter it blew for a week at least half a hurricane, so that the weather has been anything but genial for planting out. It is very much to be regretted that market growers do not lay down a few acres of Seakale every year. If planted in good deeply stirred soil, in rows 24 inches apart, between which the horse-hoe could be well worked, the soil would be so loose and light, that it could be thrown up over the Seakale crowns easily by the aid of an ordinary Potato moulder. Of course, were one-half of the entire breadth of plants lifted and forced, or even blanched mildly in close mud wall or concrete and thatched stores, the season for Seakale would be earlier and more prolonged, and might well last from the beginning of April till the end of May. Just now a good crop of blanched Seakale, which produced cheaply could be sold at low prices, would pay well, and do much to recoup the grower for the loss of his green stuff. Seakale is so hardy, it is so easily raised and grown, and proves to be such an excellent foil crop to the common ones of green stuffs, Potatoes, Peas, Runner Beans, &c., that it is indeed wonderful more is not produced for the market. It will be well for the market trade if the lean season we are now experiencing should induce

those engaged in market gardening to study how in the future to be prepared for similar contingencies. A. D.

BORECOLE OR KALE.

BORECOLE, or Kale, as it is generally termed, is ranked amongst the most hardy green vegetables in cultivation. In very few instances was it killed last winter, and in these cases possibly the treatment it had received did not exactly suit it. I am well aware that in many gardens of a small size, close, or rather what I may term double cropping has to be resorted to, but considering that Borecole has to be depended upon largely during the winter and early spring months, it should never be hampered by other vegetables. Walled-in gardens again, and especially where these are overcrowded with fruit trees, tend to cause a very soft growth, and vegetables of this description cannot be expected to pass through the winter uninjured, like others which are more exposed. Too early sowing must be avoided, for very often when the time arrives for planting, the ground may not be ready; consequently the plants are allowed to remain in the seed-bed longer than is good for them. True, the plants might previously have been pricked out, and the check so received would keep them from getting too forward, but such work as pricking out Borecole is not generally adopted, neither is it necessary where thin sowing and timely planting out are adopted. Where the planting out between rows of Potatoes is practised, the rows should not be less than 40 inches or even 4 feet apart in the case of strong growers. The seed-beds again are also often too much crowded up, and instead of selecting an open spot, a position close up against walls is more often than not the site chosen. Broadcast sowing is another evil to be avoided, as unless the seed is spread over a large expanse of ground, the plants will surely become overcrowded. Sowing in drills should be the course adopted, and the seed sown thinly in rows 15 inches or 18 inches apart. The seedlings will then have free exposure from the first, and will form sturdy plants when the time arrives for planting. When the plants are ready for planting out they should be put out at once. During a dry time the best course is to dip the roots in what is termed a "puddle," this wonderfully preserving them against drought. The distance apart of the rows must have due consideration, as the plants will grow a deal stronger on some soils than others. A space of 30 inches apart both between the plants and between the rows is not any too much on strong soils. The ground must also be in fairly good heart, but if the ground had previously been well manured, it will not be necessary for the Kale, a dressing of either lime or soot being sufficient. With the exception of a watering to start the plants into growth, it is rarely this operation is afterwards necessary, unless in an exceptionally dry time. None of the artificial manures should be applied to Kale, this causing a too soft growth. It must not be inferred that I favour planting out on poor land without previously manuring, as it is absolutely necessary to manure that of a sandy or gravelly nature to cause a profitable growth. The Green Curled is the earliest, and if the heads are cut during the winter the stems will soon branch out into side sprouts. This season these are being thrown out wonderfully late, and very acceptable they prove. Cottager's Kale and also the newer Read's Improved Hearting follow. This latter is a capital introduction, and well worthy of extended culture. Asparagus Kale is another excellent hardy variety, and very prolific in forming sprouts; I find this variety exceptionally hardy, the past winter not having harmed it in the least. I have not had a single variety mentioned above injured in the least, and have not missed a day in gathering throughout the winter from one variety or another.

VARIEGATED KALES.—These are both ornamental and useful, although they do not throw out side sprouts so abundantly as the green-leaved varieties, neither do they grow so strongly. A rather poor soil is necessary in order to bring out their high colouring, as when grown in a strong soil this

is not so pronounced. In many gardens the variegated Kale is used for winter decoration, the colours at this time showing up well. When used for this purpose it is necessary to plant them down deeply in the early autumn so as to bring the heads nearer the surface. There are now some excellent highly coloured strains cropping up, and in course of time they will no doubt form an excellent feature for outdoor winter decoration. A few words of caution are necessary against the practice of leaving the old stems on the ground after being fit for use. As soon as they are past their best and commence to run to flower, the old stems should be removed as quickly as possible, as the formation of flowers has a very exhausting influence on the ground. In several gardens I have been in, the old stems are a mass of bloom before any trouble is taken to remove them.

A. Y. A.

MUSHROOMS FOR SUMMER.

IF I were building a Mushroom house now and had any choice in the matter I should prefer it sunk in the ground if there was no difficulty about drainage. The best possible position, if it could be obtained, would be to run a sort of tunnel in a hillside, the crown of the arch to be covered with earth or turfed over if desired. The expense of such a building would not be great, and it would require no artificial heat, as the warmth from the fermenting beds would keep up the requisite temperature in winter, and it would be much cooler in summer than in the open air. The great difficulty with Mushroom beds in buildings in summer is to keep the atmosphere sufficiently cool and moist; indeed, in very hot weather the Mushrooms produced in such structures are very likely to be useless from the presence of maggots, but in a brick-lined cave or cellar the temperature and atmospheric humidity will be equable and regular. Such places will do well for forcing Seakale, Chicory, and Rhubarb in winter. Failing such a building, the best position for Mushroom beds now is in the open air on the north side of some lofty building. A rough framework might be put together with boards, though this is not absolutely necessary. Where it can be done and shutters made with feather-edged boards to cover the beds there is no bother with straw or litter; and such places, if sunk in the ground 1 foot or 2 feet, will be useful for bringing on Seakale and Rhubarb in the winter and early spring. Covering beds with litter or mats is very cumbersome work, and I have seen the small buttons dislodged frequently in uncovering the beds to get at the larger Mushrooms. I have had good Mushrooms in summer by filling a trench 3 feet or 4 feet wide and 18 inches deep with stable manure, treading it down as firmly as possible, and spawning as soon as the temperature became steady at 90° or so. The position for the trench should be shady and cool. I think it is bad policy to use the spawn grudgingly. Sometimes beds are entirely spoiled from mistaken notions of economy either in manure or spawn. In preparing the manure there is no necessity to remove much of the litter, only the long straw should be taken out, and this may be placed in the bottom to make a foundation. Some of the most prolific beds I have known have, from motives of economy, been made up in the bottom with long litter. It tends to keep the bed warm and forms a sort of natural drainage for the mass. After the longest of the littery manure has been placed in the bottom and well trodden down, add a fourth or fifth part of dry loamy soil to the remainder of the manure according to its freshness, and turn it over two or three times until it is thoroughly mixed; then make the bed up as firmly as possible. The spawn may be safely inserted as soon as the heat rises, as the temperature will not rise high enough to injure the spawn. The crop of many beds is a small one, through spawning not being done till the heat declines, and the bed gets cold before the spawn has had time to run properly. It would be perfectly safe to spawn a Mushroom bed at 100°, provided we were sure it would not rise any higher. What is the use of waiting till the manure has spent itself before putting in the spawn? and if the

proportion of soil I have named be added to manure fresh from the stable, provided it be made thoroughly firm, the bed may be spawned as soon as the heat rises, and much valuable and working force saved. If there is the least reason to fear the heat may rise above 100°, leave the holes in which the spawn has been placed in a loose condition for a time. A day or two will show how the heat is progressing. E. H.

Seakale and seaweed.—I have lately had a very practical reminder of the excellence of Seakale grown on the seashore, where it is drenched with salt water and covered with seaweed, by receiving a box of prime heads that averaged about three to the pound. A few of the largest were quite half a pound each, very solid and excellent when cooked. Several correspondents have lately written on the question of blanching Seakale with seaweed, but in the case of this wild Seakale it is not blanched with seaweed, but with something much cleaner—the shingle and sand that are washed up just above high-water mark and left by the receding tides. This is always packed up over the crowns before any sign of growth is visible, for if it once starts to grow and gets discoloured, no amount of covering afterwards will blanch it properly. If heavy gales bring up the waves high enough to displace the covering, it is replaced as quickly as possible, as the Kale is claimed by the owners of the shore whose property abuts on the sea. It is mostly found on the shores of the creeks and arms of the sea, and is really a very valuable native product, as in ordinary seasons it sells readily at about 6d. per lb., and in a season like the present, when good vegetables are scarce, anyone having a good supply of the easily grown native plant can sell it to advantage. The idea that seaweed is necessary for blanching the tops is quite erroneous. It makes an excellent dressing for the roots, but I doubt if anyone who has been in the habit of covering it with the clean shingle will be inclined to try seaweed for blanching. I may add that the plantations I have seen of native Kale in Southampton Waters have old stools that are like the stumps of Hazel in a coppice, as they have been cut back for at least twenty years.—J. G., *Hants.*

Late Broccoli.—If the advantage of the late sowing of Broccoli was ever apparent it has been so this season, when on every side we hear of the almost total destruction of the crop. As a consequence of the late sowing of Model and Ledsham's Latest of All, I have at the present time quite 80 per cent. uninjured. The seed having been sown during the third week in May the plants were late in being planted out, and what after growth was made was very sturdy. The lower leaves resting almost on the surface of the soil, there was no length of exposed stem to become injured. Such late sowing may not be of much benefit during ordinary winters, but as we never know what will happen it is as well to be prepared.—A.

Spring Cabbages.—In ordinary seasons young Cabbages would have been had long ere this, and even where not killed by the frost, the late spring has kept the growth back considerably. In this garden we have been very fortunate, as not a single Cabbage was killed, and Mein's No. 1 is now commencing to give useful heads. In those gardens where the plants are still very late, and also where Cabbages had to be depended upon from seed sown early in the year, and these are far behind the usual autumn planted, a sowing of nitrate of soda over the surface would be very effective. A handful of guano to about three plants will also help them considerably.—A. YOUNG, *Abberley Hall.*

SHORT NOTES.—KITCHEN.

Broccoli April Queen (Hartland's).—A quantity of the above-named Broccoli is now being shipped from Cork to the English markets. This variety is not so much known as its merits deserve; I saw a head to-day that weighed over twenty-two pounds, and was perfectly white and close when cut. The leaves are so closely folded around the head, that both the minor leaves and flowers are white and tender and of excel-

lent flavour. Unlike many large-growing kinds, it is perfectly free from any strong taste, and I think cannot be too highly commended as a late Broccoli.—W. O., *Fotti*, May 9.

Late Savoys.—The earliest sowings generally come in too early to withstand severe frosts, and heads that are later in coming to maturity are much appreciated on the dining table. For sowing at this date Tom Thumb is the best variety. Being of a small size, the plants may be put out thickly.

American fruit and vegetables.—A telegram, dated Washington, May 10, states the Department of Agriculture has issued a bulletin regarding the effect upon crops of the frost which occurred on the 5th inst. "This frost," says the bulletin, "has caused widespread damage to Strawberries, Grapes, Cherries, Peaches, and early vegetables."

NOTES OF THE WEEK.

Polyanthuses from Newry.—I send trusses of Polyanthuses Alexandra (orange) and Old Gold, in which the orange-yellow flowers are rosy tinted on the margin. The flowers of Marvel, a seedling from the latter, are orange, edged with crimson.—T. SMITH.

* * Very beautiful, and in a mass no doubt effective.—ED.

Iberis jucunda.—This is one of the interesting things flowering in Mr. Thompson's garden at Ipswich. It was only a small recently imported plant, so that much cannot be seen of its habit, whether vigorous or otherwise. An Iberis with deep rosy flowers, such as this kind has, is certainly an acquisition, and if it proves as free and hardy as other species, it will be one of the spring gems of the alpine garden.

Tufted Pansies from Rothesay.—Herewith we beg to send you two small sprays of tufted Pansies Sunlight and Moonlight for your opinion. They are quite a new departure in their way, very free-flowering, and extremely hardy, as they have been outside all winter.—DOBIE AND CO.

* * Two varieties with rather small flowers. Sunlight has the lower half of the flower yellow pencilled round the eye, the top petals splashed blue. Moonlight is in the same way, but with yellow instead of the white in the upper petals. Sunlight is, we think, the more effective of the two.—ED.

Grape Hyacinths in the wild garden are no novelty, and although some few of the kinds that have been tried have not been a success, *M. neglectum* and *M. racemosum* have made themselves quite at home. In spots where the herbage is thin their chances will be much greater, and the brilliant blue-black flower-heads are seen to much greater advantage in spring. In addition to their free-flowering habit, these two species increase very rapidly both by bulbils and seeds, and when once fairly established take care of themselves. The white and flesh-coloured *M. botryoides* may also be naturalised, and when grouped in any quantity makes a very telling picture.

Flowers by post.—Mr. C. L. Snell, the Post Office, Tiverton, in a letter to *The Standard* says: "Before the English Post Office grants further facilities for forwarding flowers by post it would be well for the English public to learn that cardboard boxes are not suitable for packing flowers for this purpose. This seems to be the favourite method of packing them in this country. The consequence is that, as the flowers are generally posted damp, very frequently all that reaches the destination is a moist pulp of cardboard and a few spoilt flowers. The French use chip boxes, and I have rarely seen them broken."

Orchids from Llandudno.—I have sent a box of flowers of *Cattleya Mossæ*. No. 1 measures 8 inches across, the petals being $2\frac{1}{2}$ inches wide; No. 2, 8 inches across, the petals 3 inches wide; No. 3, $9\frac{1}{2}$ inches across, petals $2\frac{3}{4}$ inches wide; No. 4, $8\frac{1}{2}$ inches across, petals $3\frac{1}{2}$ inches wide. These are the first blooms this year, and I have a good many to follow. This is the third year of blooming. They are from a lot imported from Brazil about four years ago. With the *Cattleyas* is also sent a flower of *Odontoglossum vexillarium*. The plant has forty-five flowers and looks delightful. Also a bloom of *Dendrobium Falconeri* from a plant with thirty-five flowers. We have a grand plant of *D. Devonianum* with 2000 flowers upon it. I never

saw anything like it before. We have no smoky fog here; the air is pure, and more or less sunshine every week all the year round. In the outside garden the Primroses (all shades of colour), Anemones, Wallflowers, Primulas, &c., are now grand. Orchids do much better under these favourable conditions.—J. BROOME, *Sunny Hill, Llandudno*.

* * The forms of *Cattleya Mossæ* are very fine. No. 4 is the richest coloured in every way.—ED.

Hutchinsias.—The difference between *Hutchinsia alpina* and *H. gracilis* is very small—at any rate I have not been able to distinguish the one from the other growing side by side, and both from what I believe to be authentic sources. Whether they be identical or not, they prove of great use in the rockery and form very attractive and picturesque patches. They do best when grown on rugged boulders, and so close do they cling, if the stones are of a porous nature, that almost every line can be traced, the uneven surface adding much to their beauty. In *H. brevicaulis*, which I have lost sight of lately, we have a distinct and beautiful species. It grows taller and has much larger flowers.—K.

The May Apple (*Podophyllum peltatum*), a native of North America, is in full flower now, and although curious and almost unique, it is when the bright orange drupes appear in autumn that the plant may be called beautiful. Its glossy green umbrella-like leaves are always attractive. *P. Emodi*, the Himalayan species, of quite as easy culture, is also in bloom now. The flowers are large, white, Poppy-like, and are followed in autumn by bright orange-red fruits, which last a considerable time. The large leaves of this species are very handsome, green and bronze, and the plant may well be classed amongst the ornamental foliage subjects. Another species, *P. pleianthum*, with bright deep purple flowers and curious peltate leaves, is a native of China, but not, we believe, yet in commerce. It is, however, a plant to note as worth possessing.

The Cyclamen-flowered Daffodils (*N. cyclamineus* and *N. triandrus*).—I do not think that amateurs need be discouraged about these varieties. I have had no trouble with them except that they flower weakly the first year. Bulbs of *N. cyclamineus* planted three years ago next autumn are far stronger than those planted more recently. *N. triandrus albus*, also flowering for the third year, is near by, and I enclose a flower. I can claim no credit for their culture. They were planted at the foot of my rock garden. The subsoil is heavy clay above. I have mixed with the loam millstone grit and sand. They both like to be left alone, to have plenty of sun, and a cool subsoil. I never could grow the double *Narcissus cernuus* until I planted it on a slope under the shade of an old Scotch Fir. My last bulb, by no means healthy, was placed in the poor soil there and I have now six fine flowers from it, and no doubt considerable increase at the root.—GEORGE H. CAMMELL, *Brookfield*.

* * Beautiful flowers came with this.—ED.

Daffodils for naturalising.—I am sending a few Daffodils at present in flower, and also enclose a list of a few varieties now past their best, comprising in each case those sorts most at home in our soil. This, it must be understood, is not a question of a few in garden borders, but relates to those planted largely on Grass in the pleasure ground, and which, having now been established three years, may be said to be thoroughly at home. The best in point of freedom of flower and vigour of growth are the old double trumpet, aurantius plenus, obvallaris, Golden Plover, Golden Spur, and a chalice-cupped variety which I have labelled sulphureus. Please give me correct name of this, as it is the Daffodil for naturalising in this soil, wonderfully strong and free-flowering, the blooms lasting a long time in perfection. Other sorts not so vigorous in habit, but which seem quite at home and have been or are flowering well, are the Scotch Garland Lily, pallidus præcox, Stella, and many varieties of the Leeds section. The soil where most of these are flourishing is a very sandy loam, changing to a moist sand a few

inches below the surface. The two doubles, however (trumpet and Butter and Eggs), are at their best in rather stiffer soil in low-lying ground near the lake; whilst Leeds and the Ajax section throw the best flowers on a slope facing south-east, lately cleared for flowering shrubs. I have tried most of the above in different aspects, but have not found the several situations answerable for any great difference, either in freedom of flower or in the quality of individual blooms, and have come to the conclusion that in the naturalisation of Daffodils in our pleasure grounds, suitable soils must be a far more important consideration than variety of aspect. Not many sorts flourish under heavy shade, as furnished, for instance, by Cedars and Evergreen Oaks. The best for this purpose are the doubles already named, obvallaris, and the chalice-cupped variety.—E. BURRELL, *Claremont*.

* * Your Daffodil is incomparabilis Figaro.—ED.

Linaria alpina alba rosea nana.—It is unfortunate that a plant so pretty as the one bearing the above name should have been so christened. The true alpine Snapdragon is in its most vigorous state a dwarf plant. Whether the kind under notice is of smaller proportions time will shortly prove. Meanwhile, as now in flower with Mr. Thompson at Ipswich, it is a lovely thing, a worthy companion to the typical species, and a most charming variety. Mr. Thompson suggests the name of *Linaria alpina carnea*, and this would be at once simple, expressive, and all that is needed, as the flower, instead of bearing the usual bluish violet tint, is of the most delicate flesh-pink hue, but has the same two characteristic rich orange spots upon the two lower divisions of the flower.—A. H.

Saxifraga Kolenatiana is a new species, I believe, from Asia Minor or adjacent countries, and from its free habit and charming flowers is sure to be much sought after. It belongs to the crusted section, and comes nearest to a plant known in gardens as *S. aizoon* var. *pyrenaica*; the rosettes are medium-sized, the leaves bright green, serrated, and crusted with white dots. The flowers, which are borne in the greatest profusion, are of a very pretty pink. The buds are bright red, the flowering stems much branched, and very light and graceful. It does best with me on a small rockery fully exposed to the south in a light sandy gritty soil, the plants forming dense cushions. It may be increased as easily as any of the *Aizoon* section either by division or seeds, which ripen freely.—K.

The Foam Flower (*Tiarella cordifolia*), a native of North America, and perfectly hardy in our gardens, is one of the most charming plants we have seen when well grown. A patch in our garden in full flower answers well to its name. This year it is flowering more freely than heretofore, the plants are thriving and vigorous, and apparently getting all their sustenance from a decaying tree stump on which they are growing. The way this plant runs about is delightful, forming in a short time the most natural groups, and always even when not flowering of a fresh attractive appearance. There is a fine form with purplish leaves and also another with purplish flowers. We, however, prefer the white one; it is much prettier, and may be had without trouble and at very little expense.

Plants after the winter.—At last signs of summer are upon us, for this (May 12) has been a mid-June day. Many of us have grumbled about our winter losses, but I take it that any plant that has stood the past season may be considered safe in future. Personally I have had very few losses beyond some of the *Cistus* family (one large plant of *Helianthemum formosum* is uninjured, and, of course, all the Rock Roses are safe), but I am more than surprised at the unexpected survivals. The old plants of *Pentstemon* are shooting from the ground, although they were quite unprotected. A large plant of variegated New Zealand Flax, although badly burnt, is growing well, and *Diplacus glutinosus* (planted out three years ago) is shooting from the ground. Both these plants are on the lawn and were well protected with Bracken. Against the

house the Roses (including Maréchal Niel) are uninjured. *Bignonia radicans* is starting well. In the most sheltered corner *Solanum jasminoides* is only cut to a foot from the ground. Two plants of *Ficus repens* (specially protected) are growing well. The *Ceanothus* family are absolutely uninjured, and *C. azureus* will be one mass of flower in a fortnight. *Carpentaria californica* does not seem to have heeded the long winter at all, and *Azara microphylla* away from the wall, but sheltered, is now in bloom. The white *Agapanthus* had a few inches of ashes over the crown, and now has strong foliage 6 inches to 9 inches long. On the rockery which just had Nature's protection of leaves and snow and none other I have only lost one large flowering *Statice*, and some of the *Veronicas* are badly cut. *Lewisia rediviva* is for the third year showing bud, and in a fortnight will be in bloom (I brought the plants 6000 miles in 1887). Naturally, *Linnaea borealis* and the other Norwegian plants collected last year have enjoyed themselves. I have to-day (May 11) gathered the first Iceland Poppies. From memory I add the names of a few plants on the rockery that occur to me as interesting through having proved their hardiness—*Fuchsia procumbens*, *Crinum Powellii*, *Francoa ramosa*, *Calceolaria plantaginea*, *Iris stylosa* (now in flower), *Anemonopsis macrophylla*, *Opuntias* in variety.—A. K., *Stammore*.

Landscape and garden at the Academy.—We have been to see this garish show without being able to see much that is beautiful or instructive from our own point of view in garden, landscape, or flower painting. The artists are driven by competition, or perhaps by the very nature of the show system itself, to "paint up" against each other, so as to be seen at any price, rather than to give us faithful expression of just observation in Nature. The whole thing is for exhibition and against true art, making a vulgar show to catch the ignorant public, who look a good deal more at shows of this kind than at Nature. The whole thing is a fraud against art and against truth. It is extremely difficult to see any pictures that are at all instructive or delightful, and the few there are are skied. The delightful and sober work of artists who care more for truth than for outcolouring their rivals in the show is scarcely seen in the glare, as, for example, John Swan, Hitchcock, Adrian Stokes, and Wm. Stott in his early work.

PUBLIC GARDENS.

Golf on Hampstead Heath.—Mr. Clarke presented a petition signed by a large number of inhabitants of Hampstead, asking the permission of the Council to play golf on the recently acquired portion of the Heath. The petition was referred to the Parks Committee.

Parks and Open Spaces Staff.—The Parks Committee submitted a scheme for the better classification of the Parks and Open Spaces Outdoors Staff, and of revising the wages of the staff, and giving them shorter hours of work. It was proposed to limit the regular working hours in the winter to forty-eight, and fifty-four in the summer. The change would increase the expenditure in the Open Spaces Department by about £2300 a-year. The scheme met with strong opposition, but was ultimately carried.

Kensington Palace Gardens.—The Highways Committee reported that they had considered the reference made to them by the Council on January 20 last to report the circumstances under which this road is closed to the public, and as to whether any steps could be usefully taken by the Council to secure the partial or entire opening of the road for public use. They had ascertained that the road was formed on Crown land, had always been maintained as a private road at the cost of the Crown and of the lessees of the adjoining houses, and was, therefore, not a highway dedicated to the public. With a view to the whole or partial opening of the road, as suggested in the reference to them, they inquired whether Her Majesty's Commissioners of Woods and Forests would, having regard to the public convenience which would probably be afforded by the use of the road as a means

of communication between Uxbridge Road and Knightsbridge Road, favourably consider an application, if made by the Council, for the opening to traffic, wholly or partially, of the carriage-way. To this inquiry the Commissioners had replied that, under the engagements which had been entered into with the lessees of the houses abutting upon the road, the Crown was bound to keep the road as a private one, and that the Commissioners had no power to entertain an application to convert it into a public road. They reported these facts for the information of the Council, and recommended that the reference be discharged. Mr. Alderman Arnold moved that the report be referred back to the committee with an instruction to confer with the Parliamentary Committee with a view to the preparation of a Bill to secure the opening to the public of Kensington Palace Gardens. A long discussion ensued, after which the amendment was agreed to.

The Tower Wharf.—Mr. Montagu, M.P., to whom East-enders owe the privilege of entry to the Tower Gardens, has now succeeded in obtaining for them the use of the Tower Wharf, a riverside promenade which had been closed for many years. The wharf is open from 10 o'clock on Saturdays, and from 2 p.m. on Sundays until half an hour before sunset. At present there are no seats, except in an enclosure to which the visitor is not permitted access, and people coming from the east by way of the riverside may not enter by the gate near the Tower Bridge, but must go all the way round the moat to the entrance at the opposite end. Then, too, the hour of opening on Sunday is so late, that strangers attending the old chapel of St. Peter ad Vincula on the Tower Green cannot go on the promenade unless they wait about for something like an hour. Surely there is room for modification in the arrangements.

The Sunday League band.—The Parks and Open Spaces Committee reported that the National Sunday League had applied for permission to place a band on Hampstead Heath on Sunday evenings during the summer. The Council granted permission for this on April 1, 1890, and it was not necessary to repeat the resolution, but they proposed to erect a temporary band-stand, and surround the same with iron hurdles as last year, within which chairs would be placed during the performances. No exclusion of the public, however, would take place, and under the authority obtained by the Various Powers Act of 1890, the Council was authorised to provide any necessary protection for bands playing at places under its control. They recommended that the Council approve the above arrangements.

New open space for Hornsey.—Mr. H. R. Williams, the chairman of the Hornsey Local Board, who is well known as a great advocate of open spaces, and to whom the withdrawal of the Bill to give power to build upon the Alexandra Park was due, is arranging with the owners of several large and well-wooded fields in the Middle Lane, Hornsey, to purchase them on behalf of the Hornsey Local Board for the purpose of recreation grounds. He has succeeded in purchasing for £3200 seven out of ten acres required, and proposes to raise the money by loan, to be redeemed by stock issued by the Board at 3 per cent. This is said to be the first local board in the kingdom to adopt the power given to local boards under the Public Health Amendment Bill to raise consolidated stock. The population of the district is now double that of ten years ago.

Recreation grounds and vestries.—The Parks Committee of the London County Council reported certain cases in which vestries which had agreed to jointly purchase land to be laid out and maintained as recreation grounds had failed to give effect within a reasonable time to the proposals for which the money was promised. The committee therefore proposed the following recommendations:—

(a) That, in future, no contribution to the purchase of land for the purposes of a recreation ground be voted except with a proviso in the resolution that the ground shall be laid out by a specified date, the failure to comply with such to nullify the vote, and that no

payment of a contribution be made without a certificate by the architect, or other approved officer, of the satisfactory completion of the work. (b) That a communication be addressed to the Vestry of Kensington, requesting them at once to lay out and open to the public the recreation ground in Pottery Lane, Notting Dale, to the purchase of which the late Board agreed to contribute on the 25th of January, 1889; and also to prevent children getting access to the dust deposits on such ground. (c) That the Vestry of Hammersmith be requested to take immediate steps for laying out the land in Great Church Lane, Hammersmith, as a recreation ground, for which purpose the Council agreed to contribute £800, one-half the cost, on the 1st of April, 1890, and not to remove any of the gravel, sand, or ballast from the ground; and that until the architect has reported the satisfactory completion of the works, the promised contribution be not paid to the vestry. The recommendations were approved.

Proposed new park for Chiswick.—The Chiswick Local Board have decided to ask the Duke of Devonshire at what price and under what conditions he is prepared to let them (the Board) have Chiswick House and grounds for parochial and public recreative purposes. It has also been decided to consider the advisability of applying to the Middlesex County Council and the Corporation with a view to raising the funds that may be required for its purchase. The estate comprises sixty-six acres of fine park land.

Waterlow Park.—A report was brought up by the Parks Committee stating that the freeholders of Fairseat House and grounds, which formed part of Waterlow Park, had refused to dispose of their interest, consequently the Council must at present keep the house as a private residence, and they recommended that it be let on an annual tenancy. The Council were in possession of £6000, given by Sir Sydney Waterlow for the purchase of the reversion. The proposal was agreed to. The committee also recommended that the Council should offer £7200, being forty years' purchase, for the freehold, and failing an acceptance of the offer, that the Parliamentary Committee should report as to what steps could be taken to obtain compulsory power to purchase the freehold or the ultimate reversion. Lord Lingen suggested a postponement until the Finance Committee could report how the cost could be provided for in the money Bill, and the suggestion was agreed to.

Highbury Fields.—The Parks Committee submitted a report recommending the Council to contribute £3000 towards the cost, estimated at £7000, of purchasing, for adding to Highbury Fields, the land abutting on the northern portion of the terrace field. The land was about two acres in extent, and was at present in the market for building purposes, and a committee of residents had paid a deposit of £200 to secure its purchase. The Vestry of Islington had consented to contribute £3000 provided the balance was obtained within six months. Lord Lingen moved as an amendment that the report be postponed until the Finance Committee had reported the changes in the next money Bill of the Council which the adoption of it would require. Mr. Elliott said any such postponement would mean this land being covered with model lodging houses, and the consequent deterioration of the property all around, besides the loss to the public of a most desirable open space. On a division the amendment was lost, and the report adopted.

Moving Araucarias.—Has any correspondent moved specimens of the above on a very sandy soil, and if so, will he kindly give me the benefit of his experience in the matter? In common with doubtless many readers of THE GARDEN, I have several times managed the operation successfully when dealing with a fairly holding, or indeed an average garden soil, but the above question is suggested by the preparation for removal last winter of a tree some 25 feet high, and the discovery that we had here to contend some 12 inches below the surface with nothing but a loose sand. The tree in question was to occupy a prominent position after the lifting process, and I would rather forego the operation than move it to such a position and see it fail.—E. B.

TREES AND SHRUBS.

WEeping TREES.

PLANTING these with a niggardly hand is, after all, not what is wanted, that is, if we are to derive pleasure from their presence in combination with the general run of our park and woodland trees. Single specimens dotted about here and there, and planted ever so wisely, are by no means to be compared with those clumped or massed in threes or fives, and at irregular distances apart, a fact the truth of which dawned forcibly upon me when visiting a well-managed and well-planted estate in the south of England.

Generally, as seen, weeping trees like those of upright habit are planted singly, perhaps in appropriate enough situations, but in such a way as to give one the idea that the planter had this rigidly before him, that such a class of trees

this clump, which covered nearly a quarter of an acre, but yet did not look out of place, the size and outline of the grounds being boldly laid out and quite in keeping with the broad sheet of water. Within sight of these, but several hundred yards away, a mass of the red-stemmed Dogwood quite enlivened the end of the lake; while in a recess, where the margin of a plantation came nearly down to the water-side, were three fine old trees of the Hemlock Spruce, or rather what to me appeared to be a weeping form of this Canadian Conifer. These with their rich background of Scots Firs had a truly imposing appearance, the long, cord-like twigs hanging gracefully down for more than a couple of feet. Even at their advanced size and age the trees were by no means cramped for room, although when viewed from the opposite side of the lake the trio seemed as if but one gigantic specimen. For small places such a

be seen from the accompanying illustration, which, however, represents an unusually large and well-developed example of the Weeping Ash (*Fraxinus excelsior pendula*), a tree that, when suitably placed, ramifies to a great extent, and is, perhaps, the best weeping tree for using as a single specimen, few others covering an equal or greater space of ground. All over the country are to be found fine old trees of the Weeping Ash, but the largest I have yet met with is at Gwydyr Castle, in Wales, the stem of which girths 8 feet at 1 yard up, and the branches cover an unusually wide space of that damp rivulet bank on which the remarkable tree is growing. Kent is abundant in weeping forms of the Ash, and a drive from London to Chislehurst is well repaid by the quantity of these as well as other rare ornamental trees that are to be found in the gardens and grounds. A tree of the Weeping Ash hardly 30 feet high might be pointed out, the spread of whose pendent branches is 50 feet in diameter, and that is not unusual when the tree is growing on rich damp loam. The golden form of the Weeping Ash (*F. excelsior aurea pendula*) is not desirable, at least I have never seen a specimen that would not have been the better of removal, so far at least as the appearance of the surroundings were influenced by it.

To sum up concisely, I may say that, generally speaking, weeping, upright, or other peculiar-habited trees and shrubs look better in clumps of irregular size if the grounds are boldly laid out, while at the same time a few species, such as the Ash in question, which ramify extensively can with all appropriateness be used as single specimens. A. D. W.



The Weeping Ash. From a photograph sent by Mr. F. M. Ramell, Milsted Rectory, Sittingbourne.

spoils the landscape, and requires to be very carefully dealt with and in unusually small numbers. Such ideas may have done well enough for the old school of planters, but now-a-days hard and fast lines are not tolerated, and the departures from the strict routine of century-old ideas are nowhere more prevalent than in matters connected with trees and shrubs, their planting and after management.

A group of the Weeping Willow, some eight or nine in number, planted in no cramped or confined spaces, by the side of a fair sized lake has a most pleasing and effective appearance, but they are planted far from any other trees and shrubs, and on the gently sloping, grassy bank, thus, I fancy, adding much to their charm and beauty. No single specimen of the same tree could have produced such an effect as

method of planting would never do; although even then it is wise policy to have only a few well laid out clumps in preference to single specimens dotted about here and there, and which latter are hard to place so that they may look well and be in keeping with their surroundings.

To those with plenty of ground space I would say plant no, or very few, single specimens, but instead, clumps or masses, particularly of weeping, fastigate, or brightly tinted trees and shrubs, and these, if well arranged, will afford an infinitely greater amount of pleasure than single subjects, be they dotted about ever so thickly, and planted with more than a usual amount of care and attention.

That there are exceptions to the effect produced by single specimens generally will readily

Acer rubrum.—Several of the Maples are among the most ornamental of our deciduous trees and shrubs, but in very few of them are the flowers attractive, though the keys or seed vessels of some form a conspicuous autumn feature. The Red Maple (*Acer rubrum*), on the other hand, produces blossoms of a bright red colour, which, though individually small, are borne in great profusion towards the ends of the branches, and expand while the tree is leafless. So numerous are the bright-coloured flowers, that seen during the sunshine of a spring day the head of the tree appears to be enveloped in a cloud of red. The Red Maple, which was introduced into this country over 200 years ago, reaches here a height of 30 feet to 40 feet, and, apart from its bright coloured blossoms, it also passes through other phases of beauty, as in the autumn the leaves die off tinged with red. The keys when ripe are also of this latter hue. It is by no means a common tree, owing, doubtless, to a certain extent to the fact that good seeds are not readily obtained.—T.

The Winter Heath (*Erica carnea*).—This pretty little plant well deserves the name of the Winter Heath, as the earliest of its bright-coloured blossoms will, during a mild winter, be expanded by Christmas, and a display of bloom is often kept up till nearly midsummer, though, of course, its most attractive stage is throughout the spring months. Many pleasing spring pictures may be formed by employing this Heath in conjunction with other early flowering subjects; thus, it may be planted as an edging to some of the larger *Ericaceae* that bloom naturally in the spring. The beautiful white blossoms and rich deep green foliage of *Andromeda floribunda*, for instance, are even more attractive when edged with a belt of this Winter Heath in full bloom, while a bed filled with this little Heath itself, with a few Crocuses and Scillas cropping up here and there, forms a very pleasing and uncommon picture. The first time I saw an arrangement of this kind, the formality of an even mass of this Heath was broken by a few scattered flowers of the yellow Crocus, which just overtopped the dense clusters of Heath. A considerable amount of varia-

tion is to be found in the flowers of this plant, according to the position they occupy, as in shady spots, or even where partially shaded, they are not nearly so bright in hue as where fully exposed to the sun. It is in no way particular as to soil, provided the roots are not dried up, and besides its value in the open ground it may also be employed for flowering under glass, where in the cool greenhouse it forms a pleasing winter feature. For the lower parts of rockwork, too, it is well suited. This little Heath, which is a native of various parts of Europe, is also known under the names of *Erica herbacea* and *Gypsocallis carnea*. There is a white-flowered variety of it which is by no means common. It is very pretty, but at the early part of the year in which it flowers the blooms are often splashed by heavy rains, and a good deal of their beauty is consequently lost.—T.

CYDONIAS.

AMONGST the whole range of flowering shrubs there are none more effective than the different varieties of *Cydonia japonica*, yet in few gardens are they made the most of. Even the original red variety, introduced early in the century, is more often than not seen attached to a wall, where, through insufficient sustenance and want of moisture at the roots, it is in a half-starved condition; whereas, if planted in a shrubby border, where it will not be smothered by trees or coarse-growing shrubs, which, in addition to overhanging it with their branches, starve it at the roots, it stands a far better chance of being seen in the best possible condition. The only advantage, if advantage there be, in its being trained to a wall is that in mild winters, when the flowers begin to open early, they sometimes escape being cut off by frost through the protection which the wall affords. But, as against any gain in this direction, especially when the plant is grown on a wall having a southern aspect, the influence of the wall brings the flowers on earlier than they would come in the open, and in this way they are far more liable to suffer from frost. Amongst the red or scarlet forms of the plant there are several varieties sufficiently distinct in colour to give an effective contrast. *C. atropurpurea*, *C. coccinea*, and *C. rosea* vary considerably in their shades of colour. *C. nivalis* is much the purest of the whites, though *C. alba* is worth a place, its ivory-coloured flowers being distinct from those of *C. nivalis*. *C. Maulei* is a weaker and smaller-growing plant than the kinds already mentioned, differing somewhat in the character of the growth. The flowers are a lovely shade of scarlet and are produced in the greatest profusion whilst the plants are yet quite small. After the bloom of this variety is gone, the fruit, which it bears in quantity, gives the plant an interesting appearance.

The right position for these plants is in the front or the second row from the front of a shrubby border. They are comparatively slow growers, so that they do not encroach upon other things if the planting is not overdone to begin with. All the varieties of these *Cydonias* are more or less inclined to a prostrate form of growth; for this reason an iron stake should be put to each plant at the time of planting, to which the branches should be tied, not so closely as to give a formal appearance, but to secure them in a position to form a cylindrical bush. The stakes should consist of $\frac{3}{4}$ -inch round iron, about 6 feet in length, so as to admit of their being driven 2 feet into the ground, leaving 4 feet above, which is quite enough. They should be well painted before being used. I have tried stakes made of heart of Oak and of iron for this purpose, and find the iron much the better, on the score of the lengthened time it lasts, for even if the most durable wood is used, and thick enough to last some years, still it decays before the plants have sufficient solidity to support themselves, and thick stakes have a clumsy appearance. No pruning or trimming should be attempted, further than shortening any branches that take an undue lead after the plants have extended above the support. Like most other things, *Cydonias* are fond of good soil, and make much more progress in it than in poor

ground. Rotten manure is a great help to them in the early stages of their growth, as it enables them to attain an effective size in comparatively little time. So naturally free are these *Cydonias* in blooming, that there is no danger of their making over-strong flowerless wood. Where the planting is done so as to distribute the different varieties right in their respective colours, there are few things in the garden that produce so telling an effect, particularly in seasons like the present, when the long-continued cold weather has retarded the blooming. T. B.

SHORT NOTES.—TREES AND SHRUBS.

Griselinia littoralis.—I shall be glad to know when and whence this shrub was introduced; what size it grows to; what soil suits it best; if quite hardy, both as respects frost and cold blighting winds; also if it blossoms, and anything further that is known about it.—A PLANTER.

Prunus triloba.—This is one of the very best of present-flowering shrubs. Its slender shoots are studded with rosy-crimson buds, which open into delicate pink blooms. It is graceful as a bush and pretty when trained upon a wall, but it is to be hoped that those who plant it will insist upon having own-root plants. We intend to plant more of it if we can obtain own-root plants, but not unless, as those now flowering are upon some common and exceedingly vigorous wild Plum stock, which does not infuse an atom of additional vigour into the naturally slender-growing scion. From the point of union and from the roots around suckers continually spring, in spite of constant, systematic, and thorough removal.—A. H.

Viburnums.—Can any of your readers tell me the cause of the very characteristic and most offensive smell of the *Viburnum* family? A few days since I pruned some shrubs of *Viburnum Tinus* (interesting to me as having been raised by myself from seeds gathered on the ruined walls of the palace of the Cæsars on the Palatine Hill, in Rome), and I threw them on the fire when I came in; very soon the room was filled with a most fetid odour from the burning leaves and twigs, exactly like the smell of the berries of our English *Viburnum Opulus* when bruised.—R. MILNE-REDHEAD, *Holden Clough, Clitheroe*.

ORCHARD AND FRUIT GARDEN.

MELONS UNDER COOL TREATMENT.

MELONS will never be grown in the open air to perfection in this country, no matter how favourable circumstances may be. I, and doubtless many others, have tried what could be done with varieties presumably specially adapted for the purpose. With the benefit of a slight hotbed to give the plants a good start early in June, fairly good progress will be made. In a very wet, sunless summer failure is inevitable, the plants collapsing much the same as ridge Cucumbers frequently do in a bad season, while if a hot and dry summer be experienced, the Melons will grow strongly and swell fruit to as much as 3 lbs. in weight, though I have never yet cut one fit to eat. If Melons cannot be grown and ripened successfully in the open air, that is no reason why satisfactory results should not be possible by growing them in cold frames and pits. I do not say that fruit equal in quality to the best Melons grown in more heat will ever be cut from cold frames, but I maintain that half that are produced by the aid of hothouses are inferior in quality to many that have been cut from plants in cold frames. As a rule, the English people eat Melons either with sugar or without any adjunct, but in France, more, I am informed, are eaten with pepper and salt than with any other addition, and in this case it is not difficult to understand why the Cantaloup type is popular with the French and not with us.

Early in the present century the Cantaloup

Melons were principally cultivated in this country, but they had to make way for the thinner skinned, more delicately and sweetly flavoured Persian types. For a time the Cantaloup Melons would appear to have been quite discarded, but were reintroduced by the Bourbon princes when at Claremont, and in those famous old gardens they were very extensively cultivated. It was from the Claremont stocks that the seed I at one time grew was indirectly obtained, but though I had abundance of fine fruit, the Melons were not appreciated by my employers. Soon after our success, and which must also be termed a failure with the Cantaloups, Monro's Little Heath caused quite a sensation among fruit growers, plants of this variety having been found to succeed admirably under much cooler treatment than the ordinary Melons then in cultivation. I saw the grand displays of fruit of this novelty made by the introducer at Kensington and elsewhere, and at once concluded it was either one of our old friends under a new name, or else it was a cross largely partaking of Cantaloup blood. Nor was I surprised to learn it did not long remain popular, but whether gardeners generally were wise in discarding such an easily grown variety, and which in some instances proved of sufficiently good quality to win prizes at flower shows, is questionable. One peculiarity of the Cantaloups is the fact that they, with very few exceptions, will not force. In a strong heat quite young plants positively refuse to grow, and seeing that houses have largely superceded frames for Melon culture, the disappearance of Little Heath may be accounted for.

Forced in either houses or frames, the Cantaloups are almost certain to fail; whereas if planted now, or by the first week in June, in pits or frames on partially exhausted hot-beds, they would grow rapidly and mature very heavy crops of fine fruit. Span-roofed frames would appear to suit them admirably, the soil being either at first or gradually brought up to just below the level of the woodwork. Failing this, any other kind of frame or pit may be used, care being taken to arrange these in a sunny position, and to bring the plants well up to the glass by the aid of decaying and gently heating leaves and manure and heaps of loamy soil. These Melons would do well in pits and frames newly cleared of Potatoes or Beans, no additions being made to the soil, unless for the purpose of raising it nearer the glass. The seed may either be sown where the plants are to grow Vegetable Marrow-fashion, or else singly in 3-inch pots and placed in a slightly heated frame, planting them out before becoming root-bound. In no case should the young seedlings be exposed to a strong heat, or they will quickly present a diseased appearance and refuse to grow. They must be assisted by gentle heat without actually being forced. This can be accomplished by keeping the frames quite close till the plants are ready to go out, the sunshine and heat thus enclosed well warming the soil to a good depth. After the plants are firmly planted, one, or at the most two going to each light, a gentle watering with warm water should be given. Keep the frames somewhat close—that is to say, treat much the same as ordinary Melons in heated pits and frames, a little air being given soon after the sun shines well on the glass, and more freely as the day lengthens out, closing and syringing early in the afternoon. The heat thus enclosed and further preserved by the aid of mats thrown over the frames every night promotes a healthy growing temperature, and suits these Melons well. Stop the plants once or twice, about three leading growths being required for

training to the front and a similar number to the back in each light. These being duly stopped, fruit will be produced at nearly every break. As a rule, bees do all the fertilising necessary; but if they are not present when the female flowers are open, go over these every morning or towards midday and artificially impregnate. The plants are capable of swelling off a heavy crop of large fruit, especially if assisted by occasional supplies of liquid manure or surfacings of special manure of some kind—guano, for instance. Pinch out the points of side shoots at the first joint beyond the female flowers, and otherwise prevent the crowding of the haulm. Keep the plants much drier at the roots during the ripening period, but they must not be dried off sufficiently to kill the foliage, or the quality of the fruit will suffer.

Some of the more robust varieties generally grown in this country will sometimes succeed fairly well under this comparatively cool treatment, among these being Golden Queen, Blenheim Orange, Hero of Lockinge, and Beechwood; but, as a rule, the Cantaloups only can be relied upon to do well. Probably some of the latter might agreeably surprise those who try them for the first time, especially seeing that the list of varieties is being increased by the addition of superior novelties. Thanks to the kindness of Messrs. Vilmorin, of Paris, I have had good opportunities of testing some of the newer as well as older varieties, and hope to grow them even more extensively this season. They vary very much in form and appearance. Some are oval, others round; some much mottled, and some very light in colour. The Black Portugal is thickly covered with warts, while all are coarsely ribbed and have somewhat thick rinds. The red-fleshed forms are the best, none surpassing Bellegarde and Vacluse, and the comparatively small-fruited Prescott varieties are good. Noir des Carmes is said to force well, but of this I have had no experience, while Cantaloup Sucrin is somewhat sweeter than the other forms. W. IGGULDEN.

Dressing Vines with paraffin.—In December last my gardener, finding the Vines infested with mealy bug, unfortunately painted them with pure paraffin, with the result that, though they have begun to break in places, the shoots are weak and yellow and in some cases have died off. Is there any remedy for this state of things, or must the rods be cut back? I should be glad of any information on the subject.—W. G. R.

* * As a dressing for this purpose, pure paraffin is far too strong. Unless there are any symptoms of improvement in their condition, the better plan now will be to rub off the eyes upon the old rods and encourage a young shoot, or shoots, to push forth from the base. It will not now be advisable to cut down the rods, as this will cause bleeding and consequent exhaustion. As soon as the young shoots, which are secured from as near the ground as possible, or at least from the point of coming into contact with the trellis, are about 2 feet long, then the old rods may be safely cut away from within a few inches of the young shoots. Some wadding might be tied around the rod where the young shoots push forth to prevent, as far as possible, any bugs from below crawling up into the new wood. There may be a few stragglers about still, in spite of the radical means of dressing that was adopted. If any are seen, my advice is to paint the old wood with water as hot as the hands can bear it. This hot water penetrates deeply and makes it easier for an insecticide to do the same. After the using of the hot water down to and even a little below the ground line, my practice has been to dress the old wood carefully all over with a well proven insecticide. Of these there are several good kinds to be had, but the one with which I exterminated the mealy bug is the Chelsea blight composition. Having proved the efficacy of this, I can

speak as to its value. When used in this manner, I would advise half a pint of mixture to be added to the same quantity of hot water; then paint over all the old wood, but none of the young, for which it will be a deal too strong. This will kill all the bugs with which it comes into contact, but should any perchance escape it, they may be disposed of afterwards by just dipping a small brush into the composition as taken from the bottle. By merely touching them with this, they will be killed at once and any young ones surrounding them. Whenever means are taken to attempt to exterminate this pest of plant life under glass, it is quite a mistaken idea to suppose that after some severe means have been adopted no further attention will be needed. The omission of after-examination for any which perchance have escaped is of the utmost importance. These, if they escape notice, will cause the same labour over and over again. Labour spent in bug-hunting, even if only one were found during a day, would amply repay itself. With the vast amount of annoyance caused by this insect, it behoves all to do the utmost in their power to completely overcome it. In plants it is bad enough, but in Vines the case is greatly aggravated.—H.

QUALITY IN GRAPES.

OF late years there has been a marked tendency to study size and appearance rather than the eating qualities of Grapes, this remark applying quite as forcibly to what are grown for private use as to any produced specially for the markets. Much of this is probably due, most probably I think, to the important part which fruit generally plays in the decoration of the dining-table, the end dish of Grapes being particularly conspicuous. Now, if this happens to be of a variety that cannot possibly be grown to a great size, it will either be completely ignored, or, what is more likely, be actually found fault with, no matter what the quality may be; whereas if the bunches are massive and the berries of an imposing size, the comments are complimentary, both the owner and grower sharing in the honour gained. All this is very well as far as it goes, but the effect is bound to be more or less pernicious, as varieties of a showy appearance must inevitably oust those superior in quality, but inferior as regards great size of bunch or berry. Already this result is apparent enough in the markets, trade growers naturally producing what sells best, and private gardeners are rapidly following in their footsteps. Nor are the latter, as I have already shown, altogether to blame in the matter; but sooner or later the reaction must come, and growers will do well, therefore, to be on their guard, that is to say, be not in too great a hurry to discard old favourites in favour of others that will not be long all the rage. At present everything points to the likelihood of such showy, yet coarse, poorly flavoured varieties as Gros Maroc, Gros Colman, Alnwick Seedling, and Alicante superseding Black Hamburg, Madresfield Court, West's St. Peter's, Mrs. Pince's Black Muscat, and Lady Downe's; but, as I shall attempt to prove, not one of the last five mentioned ought to be discarded. Fewer Vines of them might, for a time at any rate, be grown, but if cut entirely out the time may come, and that even sooner than anticipated, when they will be wanted again.

The Black Hamburg, if properly grown—the bunches being fairly large, the berries near 1 inch in diameter, well coloured, and thoroughly ripened—is really a noble Grape and of superior quality. It is the inferior samples, produced by over-cropped Vines, that bring the variety into bad repute; and if private gardeners attempt to rival the market growers in producing a great weight of fruit from a given length of rod they must, as a rule, fail signally in finishing the berries properly. In Madresfield Court we have a variety that will force quite as readily as the Black Hamburg, and in some growers' hands it is really the better Grape of the two. If over-cropping is avoided, and a good circulation of air maintained both during the ripening period and at all times subsequently, it will not be possible to find fault with the size and

colour of the berries, cracking (a great failing of the variety) will be prevented, while the substance and quality will be first-rate, a pleasant Muscat flavour being discernible. Madresfield Court travels better than the Black Hamburg, and that is another point in its favour. The only possible rival of these two popular varieties, and that a somewhat formidable one, is to be found in Gros Maroc. This variety forces fairly well, is very productive and free setting, the bunches being of good form, and the berries extra large, also colouring very surely. Of the quality of this attractive black Grape the less said the better, and as far as keeping properties are concerned, it is but little superior to the Black Hamburg. Alnwick Seedling is somewhat later and a rather shy setter, but with the aid of artificial impregnation it is by no means difficult to produce large bunches, the berries being of a great size, as black as Sloes, but of poor flavour. It does not keep well.

It is a somewhat strange, yet undeniable fact that early white Grapes are seldom seen in the markets, and are not extensively grown in private gardens, this probably being owing to there being no reliable large-berried varieties available for forcing. Buckland Sweetwater at its best is of noble, attractive appearance, the berries being large, of a rich clear amber colour, and the quality fairly good. More often than not, however, the bunches are loose, the berries either green in colour or badly spotted, and little better than bags of sugar and water. Foster's Seedling is far more productive, and a very easily grown variety, but not till it is fully ripe is it presentable, and although the colour improves by hanging, the berries decrease in size considerably; hence its unpopularity in the markets, and in all cases where showy Grapes are desired. The Frontignans, of whatever colour, are excellent, but owing to their smallness of berry and unattractive appearance generally, they will never be much cultivated by other than enthusiasts. Very different are the Golden Champion and Duke of Buccleuch, and if only lovers of showy Grapes could have these in perfection they would be happy. Very rarely, however, are they to be seen in a presentable condition, many more failing than succeeding with them; but if Mr. W. Thomson had continued his labours in a similar direction, he might ere this have given us a large-berried yellow Grape to accompany the Black Hamburg. He might have further benefited himself, and many more, by raising a golden or "white" companion for Gros Colman, or such, for instance, as the new Lady Hutt is said to be for Lady Downe's.

The Muscat of Alexandria, being the best of all Grapes, merits a separate paragraph. No other variety combines in itself so many good qualities or gives such general satisfaction. It possesses an excellent constitution, is very productive, and, if treated liberally—starvation treatment being one of the principal causes of failures that occur—no difficulty is experienced in setting the berries nearly as regularly as any other variety sets. The bunches and berries are often very large, colour beautifully if not either unduly shaded or too much exposed, while the quality is unimpeachable. It can be had ripe fairly early, or in June, is plentiful enough in August, and keeps well till midwinter and after. No wonder houses are devoted entirely to this the most valuable Grape in cultivation.

Mrs. Pearson is by far the best of the other late white varieties, this being of productive habit, the bunches of medium size, and the berries fairly large and colouring well. The quality is good and it will keep in the fruit room till March. Trebbiano, Calabrian Raisin, and White Tokay are all coarse, and Golden Queen is but little grown, owing to the muddy appearance of the berries, but the quality is good. Of late black Grapes, the most valuable, from a market grower's point of view, is the Gros Colman. It certainly is a noble Grape, and, as far as appearance goes, particularly popular; but, unless well grown, the quality is not good, it being a difficult matter to get rid of its Ivy-like taste. Alicante is also a decidedly showy variety, and occasionally the quality is really good. As a rule, however, it is second rate; but the sort will always be largely

grown, owing to its free-bearing habit and the ease with which the berries can be coloured. Gros Guillaume is of a very different character, this being somewhat shy-bearing, while the bunches frequently attain a large size. If not overcropped it colours well, and the quality during December and January is far better than many Grape growers are aware. Another old and but seldom seen variety is to be found in West's St. Peter's, this being rightly considered the most refreshing late black Grape in cultivation, and is much liked by invalids. Nor ought Mrs. Pince's Black Muscat to be discarded simply because it sometimes fails to set well, and in other cases owing to its colouring badly. It keeps better than any of the varieties yet named, and is superior to all, with the exception of the Muscat of Alexandria, in point of quality.

At the present time of year, this being when Grapes are scarcest, a good supply of Lady Downe's is simply invaluable; yet, owing to the craze for more showy varieties, not half enough of it is grown. It promises to keep sound this year to the end of May, and very plump, crisp, and refreshing it proves, no early forced Grapes being at all equal to it. It is not yet too late to change and improve the character of some of the least valuable varieties by grafting and inarching others on to them; and young Vines can be planted up to the end of May with every prospect of their doing well.—*Field*.

FRUIT TREES ON OPEN WALLS.

FRUIT trees on open walls now require attention, and whether the various subjects will turn out satisfactorily as far as a healthy growth is concerned will depend upon subsequent treatment. The trees at the time I write are now advancing into bloom, at least such subjects as Pears, Plums, and Cherries, the Apricots along with the Peaches and Nectarines having preceded them with so far very satisfactory results. Certainly the weather was very ungenial at the time these were in bloom, especially in the case of Apricots, but when efficiently protected the later blooms apparently appear to have set satisfactorily, or at least sufficient for a crop without a deal of thinning having to be practised. When the fruits are too thickly placed, by all means thin out early, not leaving an undue amount for making pies. Certainly a few may be left for this purpose, but not to overtax the trees during the stoning period. The formation of the stone, or rather seed, has a far more exhausting influence upon the tree than the flesh-forming when the second swelling takes place. As the trees go out of bloom insects generally appear on the young and expanding foliage, and in the case of Apricots the well-known caterpillar whenever it appears causes dire destruction. Upon the first appearance, and which is easily noticed by the foliage being rolled up around the grub, hand-picking must be followed up until the whole are exterminated. This may seem a slow process, but it is the surest. Pinching off the laterals where not required for the furnishing of the trees must be attended to. Where the shoots are too thickly placed a few may be thinned out, not removing them roughly by pulling off, but by carefully paring them off with a knife, the wounds thereby more quickly healing over. As Apricots very quickly feel the effects of drought, a mulching over the surface of the border to the extremity of the roots is of untold benefit and will assist them considerably. As the borders become the more quickly dry close up against the wall, a soaking of water would be of marked benefit to the trees. The set on the Peaches and Nectarines is very heavy indeed, and the early thinning of the young fruits must be performed with no niggardly hand. Commence by removing all fruits where there are duplicates, leaving all the others about 2 inches apart. In the course of a week the most promising will be swelling ahead; these may be thinned out by degrees, and by the time the fruits are as large as marbles they should be 9 inches apart. I generally allow 1 square foot of surface to each fruit. A healthy and early growth being very essential, insects must be guarded against. To keep the trees clean and ensure a healthy growth as they go out of bloom they must be syringed with an approved

insecticide, and such as will not injure the foliage. Suds from the laundry, tobacco water, Gishurst compound, Quassia chips, the last mixed with soft soap, are one and all equally adapted for the destruction of green and black aphids, that is when sufficiently diluted with water and put on when the sun has gone from the trees for the day. If well syringed the following morning before the sun reaches the trees, there will not be the least injury to fruit or foliage. Quassia chips is as good as anything, and, moreover, it is perfectly safe and very cheap. I prepare it in the following proportions: Place four ounces of the chips and two ounces of soft soap in a vessel containing one gallon of soft water, and boil for ten minutes. It is then strained off and added to four more gallons of soft water, when the mixture is fit for use. Take care in syringing over the tree that all parts are wetted, and the following morning, as previously stated, do not neglect syringing with clear water. I have used tobacco-water properly diluted, and also Gishurst compound, and even the two combined. The syringing must be followed up at intervals, when with drenchings from the garden engine the trees will be kept perfectly clean, and with other details carefully attended to, such as watering and disbudding, the result should be an even crop of well-finished fruit. It does not do to be in too great a hurry to disbud, merely removing the most vigorous shoots first, and if against a fruit, pinching back to two leaves. The disbudding must be carefully followed up until the growth is equally regulated, and as soon as the shoots are long enough commence to heel in. When the shoots are allowed to grow too long before they are tied in, there is a danger of breaking the growths off at the base.

Both the caterpillar and aphid attack the Plum. The former must be destroyed by hand-picking, and the latter by the mixture previously advised. The manipulation of the shoots is similar to that advised for the Apricot. Caterpillars sometimes attack the Cherry, but black aphid is the worst pest to guard against. Like the Apricot, sweet Cherries bear on naturally formed spurs, and also on the spurs formed by pinching back the lateral growth. The Morello bears both on the natural spurs and pinched-back spurs on the older growths, and also on the young wood formed during the past season. The caterpillar often causes dire destruction to Pear trees, so a close watch must be kept on the young foliage. Some people commence pinching in the lateral growths early in the season, but this is certainly a mistake, as, besides being wholly unnecessary, it prevents the formation of fruit buds. It is rarely the lateral growth requires shortening before midsummer, even in the case of cordons, excepting any that are growing away too strongly or too near the leader.

Abberley Hall.

A. YOUNG.

STRAWBERRIES AFTER FORCING.

MR. INGULDEN, in his otherwise excellent article on this subject in a recent issue of THE GARDEN, omits one detail that I have always considered to be of primary importance. This consists in thoroughly cleansing the plants before putting them in the open ground. Forced Strawberries are almost sure to have red spider or mildew, and often both these pests on them at the close of the fruiting season, and I think that many failures in getting the plants to grow freely may be attributed to the presence of these pests when the plants are set out. In a showery summer the plants in good ground will generally grow so strongly that red spider cannot do much harm, but mildew will even then remain on them all through the growing time. I generally save a portion of my forced plants and invariably make a practice of dipping them in a strong solution of soft soap with enough black sulphur to coat every portion of the plant. Some of the oldest leaves are removed, as I think this gives an impetus to the pushing out of young leaves from the crown. Black sulphur is preferable, as being stronger, and therefore quicker and more certain in its effects. In the case of plants that have been subjected to a rather high forcing temperature, it is better to harden them off well before

dipping them, or the sulphur is apt to injure the foliage. It is also better to choose a dry time for dressing them, so that the sulphur may remain on for about ten days before planting. I have treated plants badly infested with spider in this way, and in three weeks from doing so the old foliage became as green and healthy as the young leaves. I am certain that anyone adopting this method will find the benefit of doing so in the increased vigour and fruitfulness of the plants. It is really dangerous to put out spider-infested plants in a garden where fruit trees, especially Peaches, are grown. In a hot summer I have seen the trees get badly infested through the Strawberries that were planted near them. It is indeed a great mistake to throw forced plants away, for they generally bear heavier crops when planted out than can be got in any other way. They have a great superiority over runners layered and put out in August in being already of fruiting size at that time, with the additional advantage of possessing numerous strong roots that get a firm and tolerably deep grip of the soil by winter. Last year, at the close of the forcing season, I saved all the old plants of Noble I had. They were cleansed and planted out in July. This season they were planted in frames in March, and they are far and away the best plants I have, much better than those that came from runners put out in the autumn and that had a season's growth with most of the runners kept off them. It is true they had a good watering once or twice during the dry autumn weather, which the others did not get, but this is by no means my first experience as regards the relative superiority of forced plants over young ones. Two things are noticeable, one being the almost entire freedom from blind crowns, and what I am certainly surprised at, the greater earliness of the old plants. In a general way young plants are rather earlier in throwing up their bloom trusses than old stools, so that in the above-mentioned instance the precocity of the old plants is probably due to their superior condition in the autumn. I do not know what may be the experience of Strawberry growers this year, but I do not think that plants hitherto have thrown up so strongly as usual—they have with me at least. This is probably due to the very dry autumn, no rain worth speaking of having fallen at the time when the fruit-buds were forming. I have noticed that if copious rains are wanting during the latter portion of September and the beginning of October there is a perceptible diminution of vigour in the spring. Pot plants are, of course, kept watered, but it is not always practicable to thoroughly moisten outdoor plantations in a dry time.

J. C. B.

FLOWER GARDEN.

LILIUM AURATUM.

It is not everyone that can successfully grow this Lily, for we must not regard the merely flowering the bulbs once as indicative of cultural skill, as nearly everyone can do this, and attain to success so far in a greater or less degree; but what of the bulbs when the flowers are past and gone? Very often they are gone also, yet at the same time it does not follow that even such wholesale failures as these are absolutely the outcome of negligence or even inexperience, as too frequently the bulbs themselves are in a great measure to blame, and in some instances to such an extent that no amount of care or attention could induce them to grow at all. Happily, however, we get successes in the midst of our failures, the former more often than not far outweighing the latter, and we are thereby encouraged—even if we lose our bulbs after flowering—to renew our stock, and thus retain to our gardens one of the most beautiful of hardy bulbous plants, and certainly the grandest of the tribe to which it belongs. In saying this, however, I am not unmindful of the several handsome forms which belong to this species, and which have received distinctive names, but

their rarity and consequently high price place them beyond the reach of the majority, while in the case of the type bulbs may be had cheaply enough, that is, if imported bulbs, and not home-grown, are sought after. For general purposes, and particularly for one season's display, the imported bulbs are decidedly cheapest, and the majority with due care yield very good results. Some growers—indeed many—do not care to have anything to do with the earliest consignments of these, because as they say they are lifted before the bulbs are fully matured, but given my choice I should decidedly prefer these to the later consignments, for the reason that the latter frequently fail to emit the large fleshy or basal roots when they have been kept dry too long, and my experience points to this, that the sooner

6 inches of ashes or cocoa-nut fibre. Upon no account give these newly-imported bulbs any water at this time; indeed the atmosphere at the time to which these remarks apply is generally sufficiently moist even if the soil is dry when the bulbs are potted, and a gradual plumping up of the bulbs under the conditions I have described will be more conducive to good results than that of following the orthodox law of "give a thorough watering as soon as potted;" this will not do for these Lilies. I have never obtained better results when growing them in pots than by potting them in the manner stated and keeping them without water till several inches of new growth appeared above the soil, when, assuming the base of the bulb to be sound, the new roots will also be on the move. Bulbs, however, that have a defective



The Golden-rayed Lily (*Lilium auratum*).

you obtain the bulbs and have them planted the greater the chances of their performing their proper functions in the right season—an important fact as regards the future of the bulbs. Where this Lily is grown extensively in pots, the bulbs should be potted as soon as received into pots not exceeding 5 inches diameter, provided, of course, this size will take them, which, as a rule, it will. The soil used should be dry, not dust-dry exactly, but moderately so, and be composed of three parts good loam, one of half decayed leaves or rough peat, adding sand liberally, but on no account using manure of any kind; let the pots be well drained and pot firmly. Stand the pots containing the bulbs on a bed of coal ashes or in a cold frame on a similar bottom, and cover with

base, or are perhaps fungus-stricken from a variety of causes—mainly sweating, however—do not, or rather they cannot emit these basal roots, the result of which is that for the time being the flowering is absolutely dependent on the mass of stem-roots which forms above the bulb, though these roots are invariably present. Their root progress will form the best guide when shifting these plants into their flowering pots, but in any case the safest plan will be to bury the stems as deeply as possible and thereby support as much of the stem and its roots as circumstances permit, adding greater support by using a rich soil above the bulbs.

For the open ground I have found it a safe method instead of planting out in the wet soil of the garden in winter-time to place

the bulbs in boxes of cocoa-nut fibre, having an inch below the bulbs and 2 inches above them, keeping them for the time in any cool cellar or similar place and planting them out at the end of March in well dug ground at a depth of 4 inches, using some sand about the bulbs at the time; all those that have commenced to form basal roots at planting time will generally make permanent subjects, and when once established we have no nobler or grander ornament for the garden. A word as to position may not be out of place, though invariably a shady one is accorded them and Lilies in a great measure delight in shade of a kind, and this is best afforded by distant trees, which recalls to my mind some noble examples I had under my care many years ago; these were in varying positions, some on steep sloping banks of Rhododendrons, where they only received the shade of these plants, while others occupied positions in beds of North American shrubs and shaded by distant Beech trees. The latter, however, did the best, and one bulb in particular year by year sent up fasciated stems and bore 140 flowers, small, of course, and in a conglomerate head that found no favour. Far handsomer were many others with their stems 6 feet or more high and bearing from six to ten gigantic flowers, many having a diameter of 8 inches or 10 inches. Being established clumps and never moved, they were given weak manure water once a week from the time the stems reached 2 feet high till the flowers began to expand. In winter I always covered them with a large mound of thoroughly decayed manure, which in this form seemed to supply their every need, the result of which was an annual array of their noble flowers. Well developed blossoms and fine growth are well depicted in the accompanying illustration; such as these would create a fine effect in any garden. E. J.

Narcissi.—The Narcissus season in the south will soon be past its best with the exception of the poeticus group and a few late-flowering varieties. The season has been shorter than usual, owing to the late spring, and the dry winds and hot sun of April have caused the blooms to last for a shorter time than a moister state of things would have probably done. The popularity of Narcissi has grown enormously in the past few years. To how few are many of the gems of the family known. Perhaps only to a few enthusiasts. Let us hope that many who now do not mind giving several pounds for an Orchid will soon not grudge as many shillings for a bulb of Narcissus. Emperor, Empress, Horsfieldi, and Sir Watkin are amongst the most popular of the better varieties, but there are many other rarer varieties rather more expensive perhaps, but to my mind far more lovely in their delicate beauty. I have before me as I write two Munstead glasses containing blooms of the following varieties: Duchess of Westminster, Katherine Spurrel, Minnie Hume, Gem, conspicuous, Maurice Vilmorin, J. B. M. Camm, John Nelson, Lady Grosvenor, cernuus pulcher, Queen Sophia, Princess Mary, C. J. Backhouse, Mary Anderson, Beauty, Mrs. George Cammell, and Beatrice Heseltine. These were gathered in my garden as they were just opening and allowed to expand in water, their exquisite delicacy being thus not marred by wind, rain, and sun. In floriculture, I think it would be difficult to surpass the picture the lovely soft colours and exquisite forms and outlines these beauties represent. Mme. de Graaf has also bloomed with me. A beginner commencing a collection, or rather selection, of Narcissi, and not wishing to pay quite the top prices, I would recommend to start with Emperor, Empress, Horsfieldi, grandis, rugilobus, Tenby, princeps, Golden Spur, Ard-Righ, maximus, Sir Watkin, Princess Mary, Stella, Cynosure, Figaro, Frank Miles, Autocrat, E. Hart, amabilis, Nelsoni major, Inimico, Maurice Vilmorin, Constance, John Bain, poeticus ornatus, the double

white poeticus, Telamonius plenus and Sulphur Phoenix. To purchase, say, six bulbs of each of these varieties would cost about £4. These would give a good representative collection of the various families, leaving out the more expensive and recently introduced varieties.—M. C., *Lorwood*.

Zinnias.—In the majority of cases Zinnias are sown too soon, as among the so-called half-hardy annuals, few, if any, are more tender, and it frequently happens that they get a check under glass from cold, and a more severe one after being planted out in the open. To prevent any risks in these ways it is far better to defer the raising of the plants till May, which is quite soon enough, as they grow at a rapid rate after that time, and are always superior in every way to those raised sooner, which, from being stunted at the first start, generally dwindle, and if they do not, are slow in recovering. The plan I pursue is to sow in shallow boxes filled with fine soil, and on this, after having been watered, the seed is scattered thinly. The boxes are then placed in gentle heat, where the seed quickly germinates. To keep the plants from becoming drawn and have them stocky and strong, it is necessary to stand them up close to the glass and give air whenever the weather is favourable. Like most annuals, Zinnias delight in deep rich land, and the ground for them should be well manured and trenched, as unless they can send their roots well down they are sure to suffer when dry weather sets in. The way Zinnias look best is in masses in large beds. In planting, they should be placed at least a foot apart, as they must have a fair amount of room, their habit being strong and branching, and the plants forming sturdy little bushes when they have space to develop.—S. D.

Doronicums.—Without doubt we cannot find a more beautiful yellow Marguerite, if all flowers of this single character are entitled to their French appellation, than is *Doronicum Harpur Crewe*. How noble a border plant this is! It is superior to all other Doronicums in the robust nature of its growth, its fine and most perfectly formed blooms, and in their abundance. That it revels in a fairly cool situation there can be no doubt, as I have found it to flag somewhat under the hot parching winds we have occasionally had and on a dry border, but still even there it is a splendid plant. It is remarkable, too, how rapidly it increases. Doronicums have a very happy faculty of pushing outside growths from the stools, and all they seem to need is occasional fresh soil, so that the new crowns may find sustenance for the new roots emitted. Huge clumps are all very well, but better still are smaller ones of which all the roots find plenty of sustenance. It is easy to lift and divide the stools at any time almost, but best of course in the autumn. The plants are not deep rooters, but rather have spreading roots, so that some top-dressing is very helpful. The *austriacum* and *caucasicum* varieties, if placed in large pots early and stood in a greenhouse, bloom somewhat earlier and very beautifully, as the flowers are in this way protected from harsh winds, the bane of all our more delicately formed spring flowers. The *Harpur Crewe* variety is rather later blooming, and in that respect perhaps it is an advantage. It is one of the really hardy border flowers which every gardener should secure. It will be long before he would find he had too much of it, especially if plants were regularly lifted into pots for house decoration in the spring.—A. D.

—The *Leopard's Bane*, or *Doronicum*, at a little more than a foot high, are now bright with golden blossoms. During the cold searching winds that have prevailed of late these have made but little progress, but the warm welcome rain of May 1 has put new life into the plants, and in twenty-four hours after, a decided improvement was noticeable both in quantity and size of bloom. The variety *austriacum* is a very useful one indeed, so also is *caucasicum*, both producing myriads of large golden flowers each 3 inches across and in the greatest profusion for weeks in succession. Its tufts are simply crowded with flower buds. It adapts itself to almost any soil or position and increases rapidly, forming perfect cushion-like tufts when the plants are isolated. An important item is in

the fact of its commencing to flower when about a foot high and continuing in one unbroken chain till nearly 3 feet high. It is a wonderfully accommodating plant, and if cut down at the end of May (should the beds be required for the ordinary summer bedding arrangements) it may be divided and transplanted to the reserve ground with impunity, where fine tufts will be again quickly formed for another season. Doronicums are largely grown as pot plants for market, and early in the year when flowers are none too plentiful they are very welcome.—J. W. V.

HERBACEOUS PLANTS UNSUITABLE FOR BORDERS.

It seems rather strange to write of plants graceful and beautiful in habit of growth and flower under the above heading. It is, however, a fact that there are many herbaceous things whose place is rather in the wild garden, where they may ramble at will, rather than in a border filled with choice subjects, for undeniable as may be their attractiveness from a floral point of view, their spreading qualities beneath the surface, and the consequent difficulty of keeping them within bounds, are only surpassed by such peculiarly objectionable weeds as ground Elder and Couch or Spear Grass. The Japanese Anemones, some of the Day Lilies, *Chrysanthemum maximum*, and the rosy Yarrow are examples of such plants. I thought we had exterminated a patch of the last, but it has appeared this spring as fresh and nearly as vigorous as ever on the one side among a clump of Hepaticas, and on the other among some rather choice border Carnations. I remember, too, the experience of an amateur with the pink and white Japanese Anemones. Attracted by the lovely display made in late summer and autumn, they were planted the following winter in a prominent place on a small lawn. The time of flowering, however, had not been taken into consideration, and as there was a desire for bloom at this particular spot earlier in the season, the Japanese Anemones were doomed. The exterminating process was not thoroughly carried out, and the result was that they made their appearance in great force the following spring. Admirable, therefore, as are the foregoing and many herbaceous plants of similar character, it is certain they cannot be tolerated in herbaceous borders of limited area where the line between clumps has to be rather sharply defined, and where there is not much time to bestow on annual forking and pulling out to keep ramblers within bounds. And yet how serviceable this rapid self-propagating power proves at times when quantities of herbaceous things are required to fill bare and unsightly spots in large pleasure grounds. Those who have access to these practically indestructible plants have the means at their disposal of filling larger areas promptly and effectually, and in such situations the encroaching propensities are not objectionable. The herbaceous borders are now daily attracting attention, for, apart from the little patches of flower, it is very interesting to watch the gradual development of foliage, embracing as this does almost every shade of colour, and it would be difficult to find even among the most delicate Ferns and Mosses anything more beautiful than the young growths of some of the Pyrethrums, Spireas, and Columbines. E. BURRELL.

Claremont.

Veratrums.—These deserve a note on account of their fine foliage, which has been conspicuous for some time past and will remain effective throughout the season. The tufts of great, broad, green, plaited leaves appear early and last long. Veratrums are in no way particular as to soil. We have fine tufts in sandy soil among the Bamboos; also in a tangled mass of shrubs there is a noble tuft equally as strong, and pointing forcibly to the value of Veratrums for naturalising and the production of permanent foliage effects.—A. H.

A beautiful mixture.—Under this heading "D. T. F." (p. 121) draws a glowing picture of a combination of *Comte de Brazza* Violet as a carpet under the scarlet Windflower, and there can be no doubt as to the contrast being very effective and charming, the difficulty being to get the Violet in any

thing like condition and full of flower out in the open. With the *Arabis* the thing is easy enough, and too much cannot be said in praise of this early-blooming plant, which defies all weather and never fails to flower freely wherever planted or grown. Where it looks most at home, however, I think, is on rockwork or other elevated positions associated with *Aubrietias*, *Daphne Cneorum*, and other things of that class which trail and cover the ground.—S. D.

HARDY PLANTS AFTER THE WINTER.

THE past winter will have many results apparently curious and inexplicable when regarded in the light of previous experiences. We shall not be able to explain why a plant that we expected to find dead shoots up vigorously, and why another of whose hardiness we in our own minds had not a shadow of doubt has totally disappeared; or why of two members of the same family growing under similar conditions one should die outright and the other not suffer in the least. We make due allowance for local peculiarities of soil, climate, existence of shelter or exposure when speaking or writing of the behaviour of certain plants in different and far-removed places; but in spite of all the allowances we make and the deductions we draw, there will remain facts that we cannot account for or explain. We shall, however, gain knowledge, and perhaps modify some of our opinions, by a free interchange of ideas and experiences with certain plants during the winter now past. For example, take the *Tritomas*. In a garden with a warm well-drained soil, where Tea Roses have passed through the winter comparatively unhurt, we should have regarded the *Tritomas* as safe. At any rate, I did so, and now the result is all too plainly apparent. Such kinds as *T. nobilis*, *grandis*, *Saundersi*, *maxima globosa*, *Rooperi*, and *sarmentosa* have perished entirely, even the crowns being rotten. The common *T. Uvaria* is injured, but not beyond possibility of recovery and the production of flowers this season; whilst small plants of *T. Macowani* and *corallina*, which it might have been thought would be the first to disappear, are spared and look, perhaps, the best of any. Yet these plants flowered last season as freely as other kinds, and this is all the more curious when compared with the experience of "E. J." as recorded in THE GARDEN of April 4 (p. 311). With "E. J." *T. Macowani* perished in a frame. I do not think the action of the frost is explained by "E. J.'s" supposition that it was "through the medium of the hollow flower-stems," but it is most probable that the crowns were very wet with snow and snow water, whilst the loss of the middle of some plants of *Yucca recurva* points to a similar cause.

Acanthuses we always regarded hardy, yet in a previous note I alluded to the fact that old and young established plants both in an open border and against a wall had perished, not the crowns alone, but the thick roots being, as a fresh examination has proved, quite rotten to a depth of 6 inches. Now if there is one choice hardy plant that we have been always advised to plant deeply as a protection against frost, it is the *Alstroemeria*, and I should always act upon the safe side by planting deeply. Yet recently I went to a nursery border, the same one in which the *Acanthus* had perished, where seed of *Alstroemeria aurantiaca* was sown in June, 1889, and lifted a row of splendid plants with great mats of healthy uninjured roots which were only just under the ground. There was not the slightest trace of injury, and the same may be said of *Physalis Alkekengi*, of which there was a row of seedlings adjoining whose roots were exposed through the sinking or washing away of the fine soil, and yet every one was alive. The past winter would seem to prove that in a warm, well-drained soil *Zauschneria californica* is capable of withstanding any amount of cold. We had a lot of it in a border, but as I had propagated some from cuttings I took no trouble to even slightly cover it, and the ground must have been frozen to a depth of 12 inches. About six weeks ago I was surprised to see a lot of strong bright red shoots springing up in all directions. The only herbaceous *Lobelias* I trusted out were plants of the typical *cardinalis*, of which there was a quantity. These

are quite safe. The choicer kinds, such as Queen Victoria and Firefly, are too precious to risk the loss of perhaps the entire stock. Old plants of *Pentstemons* are dear, but a lot of seedlings raised in summer and pricked out in autumn are healthy and strong and promise an early bloom. Having to move a row of *Oenothera missouriensis* which grew over a stone edging last year, and were required for a similar purpose this year, but in another place, I found every plant had plump red buds and was just making a start. I then examined a row of *Oenothera taraxacifolia* which covered the stone edge of the Tritoma bed last season, and every one of them had perished and their roots were decayed. It may be that this being a Chilean species is tenderer than the Missouri kind; at any rate that is the conclusion I have come to. The blue Rock Bindweed which often survives the winter, especially in soils so favourable as ours, must be included in the list of entire losses. A. H.

BLUE PRIMROSES.

I AM at a loss to understand why we may not welcome the blue tint in hardy Primroses as well as other pleasing colours. We would give the world to secure a blue Rose, or Dablia, or Chrysanthemum, or Begonia; then why not be pleased to have a blue Primrose? There is as much beauty surely in a really blue one as in a red, or yellow, or white one. We have had purples, violets, mauves and allied hues in Primroses so abundantly for a long time, that we may well be excused for wishing to extend the range of colour further and securing a real blue eventually. We had in *Primula elatior cœrulea* what was long known as a blue Polyanthus, and it was once made much of, although but a poor, pale-hued thing at the best. Still, it was odd that we should with such a beginning have never got beyond it in the Polyanthus. We have plenty of pretty mauves, purples, &c., but never a blue better than is the old *cœrulea*, so far as I have yet seen. Before both Mr. G. F. Wilson and myself produced blue Primroses no evidence, so far as I can learn, existed of any being known. Had these new breaks come from the Polyanthus, it would have been less a matter for wonder; but as the Polyanthus has refused to show blue tints beyond what has so long been seen and the Primrose had shown none whatever, it was all the more remarkable that we should have had as it were almost simultaneously at Weybridge and at Bedford blue breaks in Primroses. Mr. Wilson's differs appreciably from mine in character; hence I refer to his and mine as distinct breaks. Blue Gem seems, so far as I have had evidence, to be still the bluest of Primroses, although Mr. Wilson may be disposed to contest my opinion. That his is a very charming strain there can be no doubt. Possibly it possesses more of the old so-called altaica breed than mine here there is reason to believe. A peculiar feature of his flowers is that most of them show a ring of rich colouring round the eye very like to what was seen in the evanescent strain of tricolor Cinerarias, which seem to have disappeared as rapidly as they came into existence. The chief defect of bluish Primrose blooms is that they exhibit the scalding white frosts more freely than do other coloured flowers. The defect is, however, more seen in what may be called the slaty-blues rather than in deep fixed blues. Blue Gem flowers outdoors under numerous white frosts of late have suffered nothing in that respect. The colour outdoors is far brighter than is seen on the blooms under glass, especially earlier in the year when those abominable yellow fogs prevail, which seem to destroy all beauty in any coloured flowers. I think it is very probable if we isolate the true blues, we shall have no difficulty in getting the colour to come true in seedlings. White and sulphur tints are easily fixed and come very true. I have no doubt whatever that reds, purples, and crimsons may be fixed in the same way if the seed-stocks could be thoroughly isolated. To effect that they should be grown in quantities in shrub or tree nurseries a long way apart from each other, and well cut off by dense bodies of nursery stuff. It would be indeed a great gain could we ensure that white, sulphur, mauve, red, purple, blue, and

crimson Primroses could be got absolutely true from seed. Possibly under the greatest care some flowers would still show a tendency to have mixed hues or markings, but we should not like to see even Primroses tied to rigid colours, and would from time to time gladly welcome novelties or diverse breaks, especially so early in the spring-time, when rich coloured flowers are indeed welcome.

A. D.

Morisia hypogæa.—I find that Sweet describes this on page 290 of the third volume of the second series of the "British Flower Garden" as a perennial and quite hardy. It certainly is not an annual, and I hope there is no reason for considering it to be only biennial. It is one of the most charming re-introductions in the way of alpine plants that we have had for a long time. The bright yellow blossoms contrast so nicely with the deep green polished leaves, and then it grows so quickly. When I got it from M. Correvon about nine months ago it was of the size of a five-shilling piece, and now it would cover the top of a hat. Sweet says that it is readily increased by seed, and this I am hoping for. It derives its specific name from the capsules burying themselves in the ground like some of the *Violes*. It seems odd to me to hear that *Narcissus cyclamineus* likes a wet spot so well. I am sure that it has been very happy here in a dry one. I wish that other plants and bulbs could be as easily accommodated.—H. EWBANK, *St. John's, Ryde*.

Double Auriculas.—Is it an unusual thing to have a double-flowered Auricula? I raised some plants from seed, and have amongst them one the flowers of which are double like those of the double white *Primula*. It looks uncommonly pretty amongst the batch of seedlings.—J. H.

** Double Auriculas do occasionally come among seedlings, and appear to come as seedling sports. In a collection of Auriculas exhibited at the Royal Aquarium Flower Show on the 29th ult. were several double forms, two or three of them remarkably fine. Mr. Richard Dean, Ealing, has, we understand, a collection of at least some twenty distinct varieties of double Auriculas, a considerable proportion of which he raised from seed. For years past there have been two double varieties grown in this country—the double black, a variety difficult to grow, because of apparently weakly constitution, and a semi-double yellow variety, sometimes called *Yellow Prince*. Some double varieties have also originated on the Continent. A few days since we saw two plants of a new green-edged Auricula shortly to be offered in commerce. Each had a truss of bloom, but in both cases the flowers were all double. It is very unusual for the fine named varieties of show Auriculas to take on the double character, and it will be interesting to see in this particular case if the double form is continued another season.

A dwarf Fuchsia.—Like your correspondent "A. D." (p. 418), I greatly admire the hardy or perhaps I should say outdoor Fuchsias, and amongst them is one, a perfect little gem, which is as yet very uncommon. I allude to that seedling form of *Fuchsia Riccartoni* raised by Mr. Melville at Dunrobin Castle, and which received an award of merit last year at Chiswick. It has since, I believe, been named *Dunrobin Bedder*—a very expressive title as a bed of it continues to be an object of beauty for months, being profusely laden with flowers for a lengthened period, while it is at most little more than a foot high. The entire history of this pretty little Fuchsia was given in THE GARDEN last year (Nov. 1) by Mr. Melville, and from the article in question it appears to be one of the hardiest of all our Fuchsias. An idea may be formed of its dwarfness from one part of Mr. Melville's note, in which he speaks of a long line of it in front of Bijou Geranium being very effective from July onwards.—H. P.

Dielys eximia.—Although this kind lacks the beauty of *D. spectabilis*, it is still a first-rate hardy plant, possessing in its lovely leafage all the graceful elegance of a Fern, whilst it blooms from now onward

through the summer, the flowers being of a reddish-purple colour and borne in racemes, which grow about a foot high. Its foliage, however, is equally, if not more charming than the flowers, which are rather dull coloured. It spreads so rapidly that it ought to be lifted and divided every third year, otherwise it becomes so crowded that the blooming season is shortened by weeks. The second year after dividing it is seen in perfection of foliage and flower.

ORCHIDS.

THUNIAS.

THESE plants should be starting away now and rooting quite freely, so that a more liberal supply of water will be necessary. Thunias should be grown in the East India house, or in the warm stove with other tropical plants. I have seen them grown on blocks of wood and in baskets, but pot culture is the most suitable. The pot must be well drained, and the best compost for Thunias is a mixture of peat and loam, with the addition of some decayed manure and Sphagnum Moss. Mix the whole together, and let the bulbs be slightly elevated above the rim of the pot. All the old roots having been cut away, the bulbs should be placed upon the top of the soil and fastened in position by tying them to a stick. Water should be sparingly given at first, but this may be increased as the plants make roots. When the bulbs are getting towards their full size they will be greatly benefited by a little weak liquid manure, which will also increase the size of the flowers and render their colour richer. The bulbs grow from 1½ feet to 3 feet in height, producing flowers from the point soon after the bulb has attained its maximum size; the blooms are large and beautifully coloured. The plants keep up a succession of bloom for a long time. As all the species are deciduous, they should be gradually dried off and put away to rest. About the beginning of April is the time to start them if a few plants only are at command. It is the grower's own fault if a good stock is not soon worked up by striking the plants from pieces of the old stems. These should be divided into lengths of about 6 inches, and put round the sides of a pot, and stood in a rather warm and moist frame where they will soon grow, and if carefully tended will make flowering plants the second year.

T. BENSONIÆ is the most beautiful of the cultivated kinds, the flowers being large and the cluster composed of a quantity of blooms which open well. The petals and sepals are of a soft magenta colour with a rich purple lip, marked with dull orange. It comes from Burmah.

T. MARSHALLIANA is another beautiful kind having large heads of well-opened and frilled flowers, which are white stained with orange-yellow. It comes from Burmah; the variety *ionophlebia* has a soft yellow lip, the side lobes lined with dull purple.

T. ALBA is the original species discovered by the veteran Wallich in Nepal; it has smaller flowers and the lip does not open so well. The flowers are white, the lip more or less pencilled with purple. In the variety *nivalis* the whole flower is pure white.

T. DODGSONIANA has slightly larger flowers than the last-named plant, and is by some considered only a variety of it. The flowers are white, the lip clear yellow, freely streaked with purplish-crimson. It is now twenty years since this plant was introduced, but I have never been able to find out from what part of India it comes.

T. VEITCHIANA is of hybrid origin, and, curiously enough, is the only hybrid yet obtained. It was flowered about the same time by two raisers, viz., Mr. Telf and the Messrs. Veitch. The sepals and

petals are white suffused with mauve, lip rosy-purple.

W. HUGH GOWER.

Cattleya Lawrenceana.—This splendid species is now flowering grandly in Mr. Measures' garden, The Woodlands, Streatham, where 117 spikes bearing upwards of 250 flowers are now in their full beauty. *C. Lawrenceana* requires considerable heat and an abundant supply of moisture in the air. Mr. Measures' plants are thriving well in a house in which *C. aurea*, *C. gigas*, and some others find a congenial home. The sepals are soft rosy purple, the petals broader and slightly darker; lip deep rich purple, with a very much deeper stain of colour in front of the throat, which is white. Each flower measures some 5 inches across. There does not appear to be much variation in colour amongst the flowers.—W. H. G.

Masdevallia Shuttleworthi.—The genus *Masdevallia* owes its popularity in a great measure to the remarkable form its flowers assume, especially as this is combined in many instances with rich and varied colouring. The flowers of *M. Shuttleworthi* do not show this curious shape in any marked degree, but its neat habit, together with the large and daintily-coloured blooms, are qualities perhaps more generally appreciated. Amongst the species constituting the dwarfier section of the genus, there are certainly none prettier or better deserving of cultivation than this. The leaves are spatulate and about 3 inches in length, growing in dense tufts. The upper sepal is hooded and of a yellowish-red, striped with green in some forms, in others with purplish-red. The lower sepals are somewhat smaller, and almost covered with reddish-purple spots. The tail on each sepal is 2 inches long, the width of the flower, exclusive of these, being nearly as much. It is named in honour of Mr. Shuttleworth, who first introduced it to this country. It is a native of the United States of Colombia. It succeeds well in the coolest house when grown in teak baskets and suspended near the glass.

Vanda cristata.—If this species cannot be said to rank among the most beautiful of *Vandas*, it may at least claim the distinction of being one of the quaintest and most peculiar in colouring. It is a very old denizen of our gardens, and is a native of Nepal, where it was found growing on trees by Dr. Wallich as long ago as 1818. In leaf and growth the species is similar to the generality of the dwarfier *Aerides* and *Vandas*, the tips of the leaves having the curious jagged appearance common to those plants. Although the racemes have been described as bearing five and six flowers in a state of Nature, it is not often that so many are seen on cultivated plants. The flowers are not expanded to their full extent, the yellowish-green sepals and petals incurring considerably. The beauty may be said to consist entirely in the curiously-shaped and elaborately-coloured lip. This organ is $1\frac{1}{2}$ inches long, and, in the main, oblong in outline; at the base there is a large rounded hollow, which is of a deep rich golden, thickly blotched with black-purple; towards the apex the colour becomes a lighter yellow, but still freely marked with black-purple stripes; the apex itself is divided into two outwardly curving horns. It is suitable for basket culture, and is generally seen in flower during the present month.

Odontoglossum Alexandræ.—Two magnificent flowers of this species come to me from Mr. Howard, The Grove, Teddington. One form is slightly flushed with rose, the broad petals and lip being pure white and prettily fringed; it measures about $4\frac{1}{2}$ inches across, and is a fine full flower. The other flower is neither so large nor so well formed; the sepals are white, flushed with rose, the lateral ones having a few spots of chestnut fused into one blotch. The dorsal sepal has a single spot of the same colour, petals nearly white, coarsely toothed at the edges with a single spot of chestnut on each. The lip has a large varnished blotch of chestnut below the crest.—H. G.

Orchid flowers from Leith.—"W. S." sends some flowers for name. The *Odontoglossum* is

the common form of *luteo-purpureum*. The *Dendrobium superbum* is a good variety; so also is the *Odontoglossum triumphans*. The *Trichopilia coccinea* is a fairly good coloured form; it is not now much seen. The *Masdevallia* was shrivelled, and therefore I am unable to form any opinion of it.—W. H. G.

CYMBIDIUM LOWIANUM.

IN your remarks on the above plant you asked me to give a few notes on the culture of the specimen I exhibited. The plant in question was a small one, purchased some three years ago and potted up into a 6-inch pot. The material used was half loam and the other half peat with a little charcoal and dried cow manure. The following spring a large shift was given, there being a large mass of roots, so that a 10-inch pot was a suitable size, more loam and less peat being used with the addition of some bone-meal and half-inch bones over the drainage. We had two spikes of bloom of a large size that season. The spikes were early and not allowed to remain on the plant. The next spring the plant required another shift, and we had three large spikes of bloom. From 10 inches to 16 inches was a good shift; still it was necessary, as the great mass of roots had lifted the plant out of the pot. I still used the same compost, and also bones and bone-meal. When repotting these plants I find it best not to elevate them too much out of the pot, like many other Orchids, as when raised high above the rim of the pot the plants suffer from dryness at the roots. Abundance of clean drainage is necessary; still not in such quantities as other Orchids of weaker growth. This season I do not intend to give a shift, but to rely upon feeding the plant. I have seen it stated that frequent potting prevents the plants from blooming. No doubt such would be the case in plants of less vigour, but in this case it has not had this result. On the other hand, I would not have ventured on repotting yearly into larger pots had not the great mass of roots warranted it. Much also depends upon the treatment. In the growing season this variety absorbs a lot of moisture. I expect next season, without shifting, and the large number of growths the plant is making, to get a much larger number of spikes if the growth be well ripened. I find this plant does best in the *Cattleya* house, and requires abundance of feeding when in growth, watering sparingly when at rest. I also think too much peat is used in the compost. This *Cymbidium* also likes plenty of light and close to the glass, as too much shade often causes a thin weak growth with few spikes. The spikes are often left on the plants too long. The spikes when cut last for weeks if given fresh water occasionally. This is one of the most useful Orchids for a mixed plant house there is, as in the winter season its mass of foliage makes it useful for the stove, and it grows and blooms freely under stove treatment. It is also a good room plant.

G. WYTHES.

SHORT NOTES.—ORCHIDS.

Schomburgkia tibicinis.—Flowers of a very good variety of this plant come to me from Mr. Malcolm Cooke. It used to be considered an exceptionally hard plant to flower, but I have seen it blooming in several collections during the past two years. Has Mr. Cooke any plan with the plant which leads to success?—G.

Odontoglossum mulus.—I have received a grand flower of this measuring fully $3\frac{1}{2}$ inches across. The sepals and petals have a yellow ground, transversely blotched with chocolate; the lip is flat and well expanded. This plant is now very fine in Mr. Dorman's garden at Laurie Park, Sydenham, where many fine forms may now be seen.—G.

Odontoglossum Andersonianum ornatum.—This is a very superior form of this plant which I have received from Mr. Dorman, Laurie Park, Sydenham. The flowers are fully $3\frac{1}{2}$ inches across and of good shape, with a clear white ground, heavily spotted with bright chestnut; lip large, with a broad blotch of chestnut under the crest; the plant is carrying a long spike with many flowers, and is exceedingly beautiful.—W.

Dendrobium Statterianum.—"J. B. T."

sends me flowers of this under the name of *D. bigibum*. It is not this species, as it wants the white patch, which is such a conspicuous feature in *D. bigibum*. It is also a broader and rounder flower, and the colour is deeper and richer; in fact it is nearer to *D. Phalaenopsis*. By some it is said to be identical, but the flowers sent by "J. B. T." are certainly not those of *D. Phalaenopsis*.—W. H. G.

Cattleya Trianae.—I am in receipt of a flower of this species from Messrs. Pitcher and Manda, Hextable. It is of fine shape, large size, and rich in colour. The flower measures 7 inches across. The petals, which are 3 inches in breadth, are of a soft rose; lip large, the overlapping side lobes forming a tube 2 inches long; these are deep rose, and the spreading front lobe is beautifully undulated. The throat is deep yellow and the marginal border white.—W.

Oncidium sphacelatum.—We have a good plant of this species now in flower here. The panicle is bearing 468 flowers and buds, and although the individual flowers are not large, yet the great number of them, as the branchlets are loosely tied out, form a very pleasing picture hanging over and among the other Orchids. The panicle is now 8 feet long, and would doubtless have been more and borne more flowers had not the end been accidentally broken off before it was fully developed.—E. F. HAZELTON, *Highfield Gardens, Leek, Staffs.*

GARDEN FLORA.

PLATE 805.

FUCHSIAS AS CLIMBERS.

(WITH A COLOURED PLATE OF *F. DEPENDENS*.)

THERE is certainly no purpose for which many species and varieties of *Fuchsia* are better suited or in which their beauty is seen to greater advantage than when they are used to clothe the rafters and pillars of the greenhouse. So general, however, is the practice of growing them as ordinary bush plants in pots, that one rarely sees this method of cultivating them adopted, nor does it seem to be known how well it is adapted to their style of growth and to the display of their graceful, pendent flowers. One of the most beautiful effects in the conservatory at Kew during the summer months is obtained by training several species and varieties of *Fuchsias* to the roof. At that season the brightly coloured flowers, hanging in the greatest profusion from the branches against the background of abundant foliage, make a most delightful picture. The fact of their being destitute of foliage in winter will in most cases be considered an advantage rather than the reverse, one of the great objections to evergreen climbers being the dense shade they give to plants growing beneath them at a time when light is most needed.

Fuchsias are almost entirely known and represented in private gardens by the innumerable varieties that have been raised by the crossing and intercrossing of species and their progeny. A long course of selection and hybridisation extending over fifty years has produced forms which in size and brilliancy of colour undoubtedly surpass the original species. But that the latter have not been surpassed in elegance, delicacy of colouring, and real beauty will be the opinion of most of those who have seen and grown them. A comparison, for instance, of the species depicted in the accompanying plate—*F. dependens*—with one of the double-flowered varieties which represent the florist's ideal will show how much is lost by those who exclude the original and unaltered types from their gardens. For the purpose at present in view there are many of both kinds

* Drawn for THE GARDEN by H. G. Moon in Sir George Macleay's garden at Pendell Court, December 2, 1890. Lithographed and printed by Guillaume Severeys.



FUCHSIA AEFKINGII

that may be used, the chief necessity being that they should be of robust growth.

F. DEPENDENS.—This beautiful species is by no means so common as its beauty might lead one to expect. It is of strong growth, making shoots several feet in length in one season when planted out. The ovate, pointed leaves are usually in whorls of four—occasionally, however, in threes or even in pairs; they are slightly toothed at the margin and pubescent on the upper surface. The racemes are borne at the ends of the shoots and are pendent; there is, therefore, no position in which their full beauty is better displayed than when trained under the glass. The calyx tube is from 2 inches to 3 inches long, much attenuated towards the base; in colour it is a soft rosy scarlet, harmonising perfectly with the deeper coloured petals. The only figure of this species hitherto published appears to be a simple outline drawing in the first volume of Hooker's "Icones Plantarum." Here it is stated to have been discovered by Dr. Jamieson on the western side of the mountain Pichincha, near Quito, where it grows with its long trailing branches supported by neighbouring trees.



Fuchsia globosa.

F. CORYMBIFLORA.—A species of stronger growth and with larger leaves than *F. dependens*, belonging, however, to the same section of the genus. Owing to its rambling habit, it is more suitable for a pillar plant than for training on the roof. The leaves are light green, oblong-lanceolate, and thickly covered with soft hairs. The flowers are in pendent terminal racemes, which commence to flower at the base, continuing several weeks. The tube of the calyx (which is 3 inches long) and also the petals are of a soft scarlet. The species was introduced by Mr. Standish about fifty years ago from Peru. A variety called *alba*, in which the calyx tube is white and the petals deep red, was raised many years ago by Mr. Salter, whose name is well known in connection with some of our best Chrysanthemums.

F. GRACILIS.—Although this *Fuchsia* is now reduced along with *F. conica* and *F. globosa* to a variety of *F. macrostema*, it is so distinct, and is besides so well known under the above name, that its specific rank may justifiably be retained. Its slender growth and graceful habit especially fit it for this method of culture. The flowers are small, but they are borne in the greatest profusion. The sepals are scarlet and the petals bright purple. The variegated form of this species is valuable as much for the beauty of its foliage as for the wealth and brightness of its bloom. The leaves are opposite, the green central portion being surrounded by

a white border of varying width. During summer and autumn, when this variety is in its full beauty, with the bright purple and scarlet of the innumerable flowers sparkling amongst the variegated foliage, it would be difficult to conceive a more charming sight. Every greenhouse ought to contain at least one large specimen, grown either as a roof climber or simply trained up a stake.

F. SERRATIFOLIA.—This species was first discovered and sent to England by William Lobb in 1845, and on its being exhibited the following year was described as having the largest and loveliest flowers in the genus. It is a native of Peru. The oblong leaves are usually in whorls of three or four, and are distinguished by the satiny gloss on the upper surface as well as by the reddish tinge underneath. The flowers are produced singly from the axil of each leaf, the calyx tube being crimson at the base, changing to rose, and finally to yellowish green on the segments; the petals are of a rich vermilion. There is a very free flowering variety of this *Fuchsia* called *multiflora*; it does not appear, however, to be so strong in habit as the type, and is better adapted for pot culture.

F. DOMINIANA.—This beautiful hybrid was raised in Messrs. Veitch's nursery in 1852 from *F. serratifolia* and *F. splendens*. In style of growth it does not differ much from *F. serratifolia*, the leaves having the same verticillate arrangement. The flowers are of a rich rosy scarlet and continue to be produced up to November and December.

With respect to the common garden varieties of *Fuchsias*, it is scarcely necessary to select any for particular mention. As before stated, the only essential character is that they should be



Fuchsia serratifolia.

of fairly strong growth. They are now so numerous and the variations in colour and form so plentiful, that every taste may be suited. The following sorts, which are amongst the best known, may be mentioned as sure to succeed: *Rose of Castile*, *Monarch*, *Princess of Prussia*, *Marquis of Bristol*, *Alexandrina*.

Little need be said in regard to cultivation. *Fuchsias* when planted out are in no wise particular as to soil, a rich sandy loam being, however, the most suitable. When used as climbers in the greenhouse it is generally necessary for them to be planted behind the stage and pipes, at a distance of several feet from the light. When this is the case it is necessary, if plants already large enough are not available, to grow them on in pots until tall enough to reach the glass. By striking the cuttings as early in the year as possible and confining the growth to a single stem, the stronger sorts will be large enough

after one season, and may be planted the following spring as soon as growth commences.

B.

CHRYSANTHEMUMS.

EARLY CHRYSANTHEMUMS.

THE very marked attention that has been paid to the cultivation of early Chrysanthemums during the past ten or twelve years, and the consequent encouragement that has been offered in one way or another to their improvement, have necessarily given great prominence to what is comparatively speaking a new race of an already popular favourite. Although much has been written upon the subject of early flowering varieties of the Chrysanthemum, both as regards the cultivation and history, many points of interest in their early history have escaped the notice of the writers, and the present sketch has for its object to show that varieties of this section have been known, although perhaps somewhat neglected by the great body of Chrysanthemum growers, for a period extending over forty years. In the first outbreak of Chrysanthemum growing enthusiasm, it is a noteworthy fact that the advantages chiefly insisted upon by those who have recorded their views in the horticultural press of the time were the brilliancy of colour and late season of the year at which the then newly discovered plant was to be obtained in bloom. For the first half century of its existence in Western gardens the famous flower from the Orient enlivened only the months of November and December with its varied forms and valued colours. No such thing as an early summer-blooming Chrysanthemum of any sort was known to exist, although one or two of the flowers of the period now referred to bore such appellations as *Early Blush* or *Early Crimson*. The term early, however, as thus applied was merely relative, and simply distinguished the flowers so-called as slightly preceding the main body then in general cultivation. When the expression early Chrysanthemum is employed now-a-days it is intended to have a far more extensive signification, for it is as a generic term taken to include all those sorts whose natural season of flowering is from June to the middle of October.

The feelings of surprise at the beauty and utility of the Chrysanthemum were beginning to wear away somewhat, and no doubt the difficulty of obtaining satisfactory results in the open had been made manifest by an occasional bad season, when we find complaints by growers that there were no varieties which bloomed a little earlier than the old established sorts. As time went on, so the complaints became more numerous and frequent. Growers who specially devoted themselves to seedling cultivation were compelled to admit their utter inability to secure varieties possessing the quality of opening their flowers any time much in advance of the dull, foggy, moist days of the average English November; and, indeed, so far as seedlings of any kind were concerned, many and frequent were the lamentations that the growers gave vent to who had attempted that phase of Chrysanthemum culture in England. But it was being done a little, and by the time the year 1850 had dawned seedlings were being freely raised in the Channel Islands and in France, not only by professional horticulturists, but by amateurs too, many of the latter being quite as successful in their gains as the former. Yet, although great progress had been made in form, size, and colour, no advance in the season of flowering was apparent, and the early-blooming race seemed as far off as ever. The idea of obtaining something earlier was ever present in the minds of several zealous Chrysanthemum raisers, and on the Continent attempts were being made and experiments carried out principally, perhaps, at that date by M. Lebois and M. Pelé, of Paris. Of the latter not very much is known, but as regards M. Lebois, who left behind him a record of his doings in this field, it may be said that nothing but failure attended his efforts for a long time, and that the most he succeeded in achieving was the raising of plants that could never by any means at his command be got into bloom previous

to the middle of October. There must undoubtedly have been other labourers in the work further south, for M. Lebois himself relates that the first real encouragement he received was a present of two Chrysanthemums raised from seed by M. Coindre, of Avignon, both of which were in full bloom by the month of August, and were shown at the exhibition of the Horticultural Society of the Seine in September, 1852, without attracting much attention from the jury, principally because they had made a long journey and had been staged in bad condition. Once in possession of these two promising flowers, it is easy to imagine the care that the enthusiastic raiser bestowed upon his new favourites, and that he lost no chance of doing justice to them. In the autumn of the same year M. Lebois was rewarded by gathering nearly 200 ripe seeds from the heads of his flowers, which he attributed in a great measure to their early growth under the southern sun of their native country. This seed was sown the following spring, and in the autumn of 1853 M. Lebois tells us he had the gratification of finding nine new plants with very double flowers, and being distinct in colour, as the result of his assiduous cultivation. From this he rightly concluded that he was on the way to greater success, and that he could then pursue his work with the certainty that before long the horticultural world would be in possession of a fine collection of summer-flowering Chrysanthemums. In further justification of such conclusion, M. Lebois significantly added that he then possessed over 3000 seeds gathered from his new early Chrysanthemums. The story of M. Lebois's proceeding terminated with this prophecy, and whatever he may have done subsequently can only be gleaned from a perusal of French horticultural literature, if indeed any record of his further work exists, upon which subject we have no knowledge one way or the other.

Concurrently with the labours of the two French horticulturists already mentioned, others must have had their work successfully recompensed, for in the autumn of 1851 the first known early-flowering Chrysanthemum was bloomed in England and was admittedly of foreign origin. So far as the records are available, it would appear that to the *Midland Florist* is due the credit of announcing its discovery, which it did in the following way:—

One of the great drawbacks to the enjoyment of these beautiful autumnal flowers has been the late season at which they bloom. We are glad to find that a new variety (originated in Italy) has been introduced which is very considerably earlier than the Chinese varieties already in cultivation. The flowers are described as being double, well formed, and of a rich orange-yellow. It is expected to be a favourite bedding plant from its dwarf habit and abundant blooming.

This was the variety known as Hendersoni, and a point of considerable importance attaching to it is that it has remained in cultivation from the date of its first introduction until the present time, and may be found in almost every list of early-flowering Chrysanthemums published during a run of something like forty years.

The introduction of a second early variety seems to have taken place very shortly afterwards, for the *Midland Florist*, in the early part of 1854, speaking on the subject says:—

We strongly recommended Chrysanthemum Hendersoni last season as a good bedding plant, and our readers who purchased it will, we think, have been pleased with it. We have now to introduce another to their notice which combines the quality of a finely formed flower with great earliness of blooming. In fact, the month of August is the period at which this fine dwarf bedding variety is in full flower. It is called Annie Henderson . . . it is a beautiful bright canary colour . . . dwarf in habit.

It is not surprising that when the first two varieties had received such testimonials, and had become known and appreciated, there should have been an increased demand for, and an extension of, the new section. One of the first men of mark in the Chrysanthemum world to take up the new flowers was Mr. Broome, of Temple renown, and a small selection of the new early sorts was

not long in finding a place in the classic gardens under his charge. In some of the early editions of his little work on the Chrysanthemum, long since out of print, lists of the sorts best known in his day are given. For present purposes the second edition may be called into requisition as the most useful, giving, as it does, a choice of thirteen varieties under the heading "Summer Flowering Pompons." The varieties he describes are Andromède, Annie Henderson, Arc en Ciel, Frederic Pelé, Hendersoni, La Neige, Leonora, Maréchal Magnon, Mlle. Lucille, M. Perduet, Saint Flore and Scarlet Gem. Mr. Broome says that these varieties bloom during the months of June, July, August, September and October, showing, it is submitted, that so long ago as 1858, when he wrote the above, that the early flowering varieties, as a race, had been fairly established. Mr. Broome's list possesses another feature of interest in the addition of (S.) after two of the names, by which we are justified in assuming that Mr. John Salter had also been engaged in the production of the new flowers besides the foreign raisers.

The late Mr. Shirley Hibberd, who contributed a small pamphlet on the Chrysanthemum in his series of "Garden Favourites," published almost contemporaneously with Mr. Broome's, includes a selection of twenty of the early varieties, but the names furnished by Mr. Hibberd afford but little food for reflection, as, with the exception of three or four varieties, none of those he mentions can be recognised at this date.

There is only one observation that arises at this point, and it is that the major portion of his flowers are all distinguished by names of decidedly French origin. The name of M. Adolphe Pelé now comes to the front, for in the autumn of 1860 he secured some capital early sorts, of which six were purchased by M. Amb. Verschaffelt, of Ghent, and figured by him in the *Illustration Horticole* (vol. viii., pl. 272). This plate is in all probability the first coloured illustration of early-flowered Chrysanthemums, and the varieties chosen for representation were Chromatella, Aurora, Illustration, Mme. Amb. Verschaffelt, M. Domage, and Mme. Thibaut. To judge by the artist's work, these flowers were all of good form, size, and substance, comparing very favourably with many of the present day.

The same volume gives another illustration of some more of these old early-flowered varieties (pl. 298), but this second plate illustrates seedlings obtained by M. Lebois, and the flowers figured were Mme. Angèle Dinnat, Antigone, Ninette, Coquette, Mme. Marie Planès, La Sibylle. So far as can be gathered, none of these acquired renown in England, and four years later, when Mr. John Salter published his book, "The Chrysanthemum—Its History and Culture," only one variety out of those above mentioned either of M. Pelé or M. Lebois was mentioned in Mr. Salter's descriptive list of summer-flowering Chrysanthemums, and that was M. Pelé's Chromatella. The rest of that section which Mr. Salter considered worthy of a place in his book were probably later seedlings than those above enumerated, excepting, of course, Hendersoni, which he also includes; the others were called Adrastus, Bordeaux (Pelé), Coquillage, Delphine Caboche (Pelé), Le Luxembourg (P.), Mme. Alphonse Dufoy (Pelé) Mme. Lemaire, Marseille (Pelé), Mexico (Pelé), Observation (Pelé), Scarlet Gem (S.), and Sicile (Pelé). A further period of four years, or 1869, saw the publication of the last catalogue issued from the Versailles Nursery, and in that the list of early Chrysanthemums differs so slightly from the one in Mr. Salter's book as to call for little or no comment.

It can scarcely be expected that many of these flowers, now all upwards of a quarter of a century old, could remain popular favourites when once the necessary steps were taken for their improvement, and especially at a time when the public taste had not been educated up to a proper appreciation of their relative value. One of the principal additions to the section was made in 1869, when *Sour Mélanie*, a well-known white flower, was obtained and

distributed by M. Lebois; this, like a few of the others, was a long time before it became known in England, but it has continued in cultivation with us without cessation since the discovery of its merits was made known. The next decade is the opening of an era of some importance in our subject, for it will be apparent to the most casual observer that until then every so-called early Chrysanthemum was of the pompon type. A change was now to take place, and it is a matter of regret that the details concerning it are so meagre as to leave room for much speculation. The advent of a large-flowered early Chrysanthemum was probably little expected when Mme. Castex Desgrange, a white Japanese variety familiar to all who know the Chrysanthemum, was discovered, as Mr. Piercy, in his paper read at the National Chrysanthemum Society's Conference in September, 1889, says was the case in 1879. The origin of this famous variety, for such it is in more ways than one, is due to M. L. Boucharlat aîné, of Lyons. He it was who first distributed it in the year 1873-74 with a number of other early sorts, none of which are now left. This is but another case of the length of time it took in years gone by for good varieties to become common, and it is easily accounted for when it is explained that at that time there was no systematic annual importation of new Chrysanthemums as now, but the practice then in vogue was for a certain proportion of the best to be purchased by M. Lemoine, of Nancy, and by him introduced one or several seasons later to customers of his in this country. The sports from Mme. Desgrange, viz., G. Wermig, Mrs. Burrell and Mrs. Hawkins, are all perhaps as valuable as the parent variety in their proper places, and form a trio of additions to the early section that would be difficult to replace.

From the discovery of Mme. Desgrange then we may date the greater degree of interest in earlies, which still show signs of further development, as we shall prove later on. As in the case of nearly all the other sections of the Chrysanthemum, the progress and improvement in seedling raising were mainly due to the French florists, of whom perhaps in later times M. Simon Delaux has been most persevering in the endeavours to keep pace with the times. His work, however, has been but gradual, and although he has had to sustain some competition from his compatriots, yet at this moment he appears to have no rival in the business seriously worthy of the name. Ten years ago M. Delaux's collection of summer-flowering Chrysanthemums was considerable, and made up only of odd varieties picked up here and there and of which he apparently knew but little, for in his catalogue of that period he enumerated but nineteen varieties, half a dozen of which have no description attached. But he had become sufficiently interested in the section to get them together, and in the spring of the year 1883 he had succeeded in selecting from his new seedlings three large Japanese varieties, whose flowering season was in advance of the usual period by some weeks, and these, still known by the names of Simon Delaux, M. Pynaert Van Geert, and Isidore Féral, were well received by growers in England and also on the Continent. M. Pynaert Van Geert purchased the stock of these new acquisitions, and they were shortly afterwards figured in colour in the *Bulletin de la Société d'Horticulture d'Épernay*.

There were no additions to the list until 1885, when M. Delaux announced the distribution of some further early sorts. They were called Mandarin, Fleur d'Élé, Été Fleuri, Bouquet Estival, and Roi des Précoces, the last being a crimson free-flowering sort that has been of much value for market purposes here in England, besides being much in request by American seedling raisers. All these were also of the Japanese type, and the successful raiser added at the time of their distribution that they were the result of fifteen years' work in that direction and would be of some importance in the horticultural world, a prophecy which he was destined to see fulfilled in more instances than one. Almost simultaneously with the distribution of the before-mentioned set by M. Delaux, another southern French raiser, M. J. Pertuzès, succeeded in drawing attention to some novelties of the same sort, the majority of which likewise find a place in

the lists of to-day. The following were the names of M. Pertuzès' varieties: Mignon, Deuil du Père, Mme. Blanche Pertuzès, Flocon de Neige, Canari Capitaine Labat, Commandant Rives, Précocité Japonaise, Hermine, Panaché Toulousain, Blanche Colombe, and Mlle. Léonie Lassali. Nearly all of these speedily found their way into the English trade collections, and it is, therefore, not surprising to find that the interest in early Chrysanthemums began to be more particularly marked than before, and in consequence of the prominence they had acquired the National Chrysanthemum Society decided to hold in September, 1886, the first exhibition of early-flowered Chrysanthemums. Those who were present on the occasion will not forget the want of colour that the show made apparent in the early-flowering section, for the various shades of white and yellow were particularly noticeable in all the exhibits. The same year, however, saw an alteration in this respect, so far as the new varieties of the season were concerned, for among them A. Vilatte des Prunes, M. William Holmes, Précocité, Rose d'Été, and William Bealy were conspicuous by their brighter tones. Subsequent years have witnessed further additions and improvements, mainly from Continental growers, although there were contributions from the other side of the Atlantic of equal merit. Of those, however, and of English varieties Mr. Piercy, in his papers at the National Chrysanthemum Conference and the Royal Horticultural Conference in 1889, has treated, and there is no necessity to go over the ground again.

The present year will, in spite of previous efforts, very largely contribute to swell the list, for the new early flowering varieties offered for distribution this season exceed anything hitherto announced. It is doubtful whether the 1891 sorts can be all fairly entitled to rank as early sorts, as they have not yet been tested in our climate, but probably many of them will. M. Délaux, who is sending out 125 varieties, divides them into five classes, and has published a separate list of his early blooming seedlings as follows: 1, those flowering in June; 2, those flowering in August; 3, those fully out by 5th of September; 4, varieties in full bloom on the 15th of September; and 5, those in full bloom by the end of the same month. A large number are said to belong to the large-flowered Japanese type, but others are classified as Pæony and hybrid Pæony-shaped sorts, distinctions unknown and unrecognized by us. In the list appended hereto those described in the latter way are marked as Japanese, which, by past experience, proves to be the best term that we English growers can apply to varieties of that class.

As there are other early varieties included in the list from different raisers, it has been thought desirable for purposes of reference to arrange them all in alphabetical order without having regard to the exact period of the year at which they are supposed to bloom.

Albert Chausson (Délaux).—Japanese; golden yellow, striped crimson.
Alfred de Montebello (Délaux).—Japanese; silvery white, shaded mauve, centre golden.
Alfred Florent (Délaux).—Japanese; lilac-rose and white, centre slightly golden.
Alfred Werlé (Délaux).—Japanese; violet, golden-rose and buff, centre gold.
Ami Médard (Délaux).—Japanese; creamy white, shaded rose, yellow centre, dwarf.
Baron del Marcol (S.).—Incurved; dark red, speckled gold.
Baron Veillard (Délaux).—Japanese; yellow and crimson, dwarf.
Baronne G. C. de Briailles (Délaux).—Japanese; large blooms, creamy white.
Camille Bernardin (Délaux).—Japanese; carmine-violet, shaded white.
Charles de Cazanove (Délaux).—Japanese; amaranth-violet, centre gold, dwarf.
Charles Joly (Délaux).—Japanese; violet-rose and white, golden centre, dwarf.
Cher. Aug. Bouchard (Délaux).—Japanese; white and rose, gold centre.
Comte de Charrière (Délaux).—Japanese; salmon-cream and violet rose.
Comtesse de Chénod Fumet (Délaux).—Japa-

nese; carmine-amaranth-violet, striped white, reverse silvery, centre golden.
Comtesse Fernand de Montebello (Délaux).—Japanese; cream and rose, centre yellow, reverse rose.
Comtesse Joseph de Mareuil (Délaux).—Japanese; silvery white, striped rose, centre gold.
De Ayala (Délaux).—Japanese; lilac-rose and white, centre golden.
Dr. Labat (Délaux).—Japanese; dark crimson, centre gold.
Duchesse de Crussol (Délaux).—Japanese; yellow, speckled golden-red.
Duchesse d'Uzès (Délaux).—Japanese; silvery white and rose, tipped yellow.
E. Immer et Sohn (Délaux).—Japanese; creamy white, darker centre, reverse rose.
Eugène Clicquot (Délaux).—Japanese; silvery white and rose.
Eugène Mercier (Délaux).—Japanese; violet golden-red, centre gold, dwarf.
Gaston de Venoge (Délaux).—Japanese; yellow and rose.
Gaston Chandon de Briailles (Délaux).—Japanese; rose, centre golden.
Georges Devred (Délaux).—Japanese; canary-yellow, dwarf.
Gloire d'Astafort (Délaux).—Japanese; golden-red and buff, shaded crimson, reverse gold.
Jacques Berred (Délaux).—Japanese; rose and white, dwarf.
J. B. Duvoir (Délaux).—Japanese; white and lilac-rose, gold centre, dwarf.
Jean Nicolas (Délaux).—Japanese; rose and dull white, centre cream.
Jeanne Jung (Délaux).—Japanese; lighter than Mme. Audiguier, centre golden.
John Wolf (Délaux).—Japanese; crimson, brick-red and yellow.
L'Abbé Morlot (Délaux).—Japanese; violet-amaranth.
Le poète des Chrysanthèmes (Délaux).—Japanese; rose-violet and white, dwarf.
Mme. Albert Colmiche (Délaux).—Pompon; crimson and yellow.
Mme. A. Thibault de la Croué (Délaux).—Japanese; carmine-amaranth, centre gold.
Mme. Auban Mot (Délaux).—Pompon; lilac-rose and white, tipped gold.
Mme. Borrès (Délaux).—Japanese; light golden yellow and white, striped red.
Mme. B. Yung (Délaux).—Japanese; crimson and buff, shaded chestnut, reverse gold.
Mme. Charvin (Délaux).—Japanese; violet-rose, silvery reverse, tipped yellow.
Mme. Dangeville (Délaux).—Japanese; white and rose, dark cream centre, dwarf.
Mme. de Croizilles (Délaux).—Japanese; crimson, centre gold.
Mme. de Dubor (Délaux).—Japanese; cream and violet-rose, centre cream.
Mme. Dufosse (Délaux).—Japanese; crimson-red, striped yellow, centre gold.
Mme. E. Bellan (Délaux).—Japanese; vinous rose on silvery white ground, cream centre.
Mme. Edouard Lefort (Délaux).—Japanese; dark yellow and red, dwarf.
Mme. Eulalie Morel (Délaux).—Japanese; rosy golden red, reverse golden.
Mme. Gabus (Délaux).—Pompon; lilac-rose, edged white.
Mme. Gastellier (Délaux).—Japanese; white and cream, dwarf.
Mme. Gaston Colmiche (Délaux).—Japanese; white and rose.
Mme. Gréard (Délaux).—Japanese; cream.
Mme. Hancrau (Délaux).—Japanese; dark canary-yellow, reverse violet.
Mme. Harman Pagne (Délaux).—Japanese; silvery white and rose, reverse yellow.
Mme. Henri Devred (Délaux).—Japanese; alabaster-white, centre cream.
Mme. Henri Galice (Délaux).—Japanese; brick-red and buff, claret centre, dwarf.
Mme. Jacob (Délaux).—Japanese; crimson-red, shaded chestnut, gold centre.
Mme. Jeanne Gayon (Délaux).—Japanese; silvery white and mauve, dwarf.
Mme. la Baronne d'Erlinger (Délaux).—Japanese; flesh-coloured salmon, gold centre.
Mme. Léon Hasse (Délaux).—Japanese; yellow and brick-red, reverse golden.
Mme. Louis Lionnet (Délaux).—Japanese; silvery white and rose, centre gold.
Mme. Mathilde Cassagneau (Délaux).—Japanese; silvery mauve, shaded rose, yellow centre.
Mme. Nathalie Coste (Délaux).—Japanese; white and violet-rose, tipped yellow.

Mme. Paul Nansot (Délaux).—Japanese; purple-amaranth, silver reverse.
Mme. P. Jung (Délaux).—Japanese; dark yellow, striped red.
Mme. Valentine de Lamartine (S.).—Japanese; light canary-yellow, passing to carmine-rose.
Mme. Veau Pasquier (Délaux).—Japanese; straw-yellow and cream, centre yellow.
Mme. Wallcraft (De Reydellet).—Japanese; light mauve, passing to creamy white.
Mme. Zéphir Lionnet (Délaux).—Japanese; dark yellow, centre red.
Mlle. Eugénie Lemaigre (Délaux).—Japanese; cream and violet-rose, dark cream centre.
Mlle. Germaine Cassagneau (Délaux).—Japanese; lilac-rose and white, centre golden.
Mlle. Jacob (Délaux).—Japanese; lilac-rose and white, silver centre.
Mlle. Louise Morlot (Délaux).—Japanese; carmine-violet-rose, striped white, centre golden.
Mlle. Marguerite Puisaye (Délaux).—Japanese; crimson-red, lightened buff, centre gold.
Mlle. Pauline Morlot (Délaux).—Japanese; carmine-rose-violet, gold centre.
Maquise de Montmort (Délaux).—Japanese; rose and silvery white.
M. A. Colmiche (De Reydellet).—Japanese; light rose, centre darker, tipped yellow.
M. A. Herlaut (Délaux).—Pompon; claret-red, centre gold, dwarf.
M. Albert Galy (Délaux).—Japanese; golden red, shaded brown, centre gold.
M. A. Pottier (Délaux).—Japanese; yellow and golden red, dwarf.
M. Auban Mot (Délaux).—Japanese; very full, orange-red and buff, centre gold.
M. Auguste Dufour (De Reydellet).—Japanese; bright red, reverse lighter.
M. Bories (Délaux).—Japanese; salmon-white, shaded vinous rose, gold centre.
M. Bournisien (Délaux).—Japanese; white, striped rose, centre gold.
M. Bouzignot (Délaux).—Japanese; silvery rose and white, dwarf.
M. Chauvry (Délaux).—Japanese; brick-red and salmon, reverse old gold.
M. Courtin (De Reydellet).—Japanese; ochre-yellow, passing to yellow.
M. Dupuis (Délaux).—Japanese; dark canary-yellow, reverse rose.
M. E. Vaucher (Délaux).—Japanese; vinous golden rose and white, orange centre.
M. François Katzer (Délaux).—Japanese; rust-red, shaded yellow.
M. Frédéric Korhly (Délaux).—Japanese; silvery white, striped violet-rose, gold centre.
M. Frédéric Usmayer (Délaux).—Japanese; dark yellow and chestnut.
M. G. de Dubor (Délaux).—Japanese; dark yellow, striped red.
M. Gérard (Délaux).—Japanese; silvery white and violet-rose, centre golden.
M. Gustave Gernerwald (Délaux).—Japanese; silvery white and rose, free flowering, dwarf.
M. Henri Galice (Délaux).—Japanese; yellow and golden red.
M. Henri Devred (Délaux).—Japanese; yellow like Vieil Or, very free and dwarf.
M. Jacob (Délaux).—Japanese; crimson, golden centre.
M. J. Moulins (Délaux).—Japanese; orange-red, centre old gold.
M. Jules Paquet (Délaux).—Japanese; silvery white, reverse violet, July bloomer, dwarf.
M. Lalo (Délaux).—Japanese; buff and rose.
M. Lefrançois (Délaux).—Japanese; lilac-rose and white, centre gold.
M. Lemaillé (Délaux).—Japanese; claret-red, centre golden buff, dwarf.
M. le Ministre Faillitres (Délaux).—Japanese; old gold and crimson.
M. Lheureux (Délaux).—Japanese; carmine-rose and buff, centre silvery, dwarf.
M. Lobis (Délaux).—Japanese; crimson-red, striped gold, centre gold.
M. Louis Lionnet (Délaux).—Japanese; golden salmon and yellow.
M. Maxime de la Rochetier (Délaux).—Japanese; orange-yellow, centre striped crimson.
M. Mérendet (Délaux).—Japanese; claret-rose, centre gold.
M. Pierre Cassagneau (Délaux).—Japanese; red, striped yellow, centre gold, dwarf.
M. Portal (Délaux).—Japanese; white, lacinated, dwarf.
M. S. Balth (Délaux).—Japanese; creamy white.
M. T. T. only (Délaux).—Japanese; yellow and crimson, silver reverse.

M. Valéry Larbaut (Délaux).—Japanese; white and violet-rose, cream centre, tipped yellow.

M. Vauvel (Délaux).—Japanese; rose and silvery white.

M. Zéphir Lionnet (Délaux).—Japanese; violet and silvery white, tips golden.

Norbert Puvrez (Délaux).—Japanese; golden salmon, reverse gold, dwarf.

Paul Chandon de Briailles (Délaux).—Japanese; dark carmine-violet, edged and tipped white, centre golden.

Pauline Puvrez (Délaux).—Japanese; white, centre cream.

Petite Jeanne (S.).—Japanese; buff-rose, shaded coppery gold.

Président René de Saint-Foix (S.).—Japanese; purple-carmine-red, reverse and tips golden.

Président Léon Say (Délaux).—Japanese; salmon-buff, striped red, reverse old gold.

Prof. Welter-Croz (Délaux).—Japanese; silvery white, centre carmine-rose; the blooms last a fortnight longer than the other varieties.

Raoul Chandon de Briailles (Délaux).—Japanese; white and rose, centre gold, dwarf.

R. du Mesnil de Montchaureau (Délaux).—Japanese; violet and amaranth.

René Chandon de Briailles (Délaux).—Japanese; white, striped carmine and rose, dwarf.

Secrétaire Alfred Bleu (Délaux).—Japanese; yellow and violet-red, new form.

Souvenir d'Eugène Mozel (S.).—Japanese; bright cherry-red.

Souvenir de Louis Ferie (Délaux).—Pompon; red and yellow, dwarf.

Souvenir du Petit P. Mozel (Délaux).—Japanese; yellow, striped carmine-red.

Souvenir du poète de Lamartine (S.).—Japanese; velvety carmine, reverse white.

Souvenir de Wm. Holmes (Délaux).—Japanese; crimson-red and buff, dwarf.

Thiophile Roderer (Délaux).—Japanese; sulphur-white, shaded rose, yellow centre.

Veuve Clicquot (Délaux).—Pompon; brick-red and yellow, fimbriated.

Vice-président Hardy (Délaux).—Japanese; yellow, striped red, very long petals.

Vicomtesse d'Arcne (Délaux).—Japanese; violet-rose, striped white, centre gold, dwarf.

C. HARMAN PAYNE.

STOVE AND GREENHOUSE.

HYBRID AND OTHER RHODODENDRONS FOR POT CULTURE.

THESE may be fairly divided into two sections, viz., those which can be grown like the Indian Azaleas in quite a cool house, and those which require a minimum temperature of about 50° Fahr. The former partake of the character of *R. Veitchi* and *R. Sesterianum*, and the latter of that of *R. javanicum* and *R. jasminiflorum*, from which species so many fine hybrids have been raised. The culture of those that are grown in a cool house scarcely differs from that required for Azaleas. One of the principal points to guard against is that of overpotting. Compared with the Azalea they can be successfully cultivated in smaller pots. They are what some would term plants of bad habit, but this imaginary defect can be easily overcome by taking the plants in time. Strong shoots often occur; these if left alone weaken others and frequently run away without branching. These should be stopped before they have got too far. The potting should be done in a careful manner. Peat should be chiefly employed, and this should be such as possesses good enduring properties without soon becoming sour. When not of the best quality available it is a good plan to add some light fibrous loam. They should always be potted firmly, leaving room for a good supply of water during the growing season. As soon as it is seen that there is a cessation of growth so much water is not required, otherwise there will be a greater disposition to form wood buds (probably starting into a second growth) rather than flowering ones. Thorough exposure out of doors as soon as the wood is partially hard-

ened will greatly assist in developing the latter. Red spider is at times troublesome, but with a free use of the syringe this may be easily kept under. The plants should be housed with the Azaleas in the autumn, and subjected to the same treatment through the winter. Seedlings frequently run away into long growths. I have seen a notable exception to this, however, in a fine batch of *R. Veitchianum* which had been raised in this manner. These formed compact bushy plants, being in a small state studded profusely with flowers of large size. Of this section some of the best to grow are the variety just named, which is an introduction from Moulmein, and Countess of Haddington, which has been recently noticed in the pages of THE GARDEN. Lady Alice Fitzwilliam is a worthy companion to *R. Veitchianum* (see illustration, p. 463), its white blossoms at times slightly tinted. *Sesterianum* is a rather stronger grower, with flowers elegantly fringed and of large size; this, too, is a white variety. *Gibsoni* (formosum), an old, but beautiful species with white flowers, tinged with purple and yellow, and *Edgeworthi*, a fine, well-known variety, with blossoms deliciously scented, are also good. *Dalhousiae* is another good kind to grow, but of rather straggling habit, flowers white, tinted with rose. *Williamsi* has large trusses of creamy white flowers. *Exoniense* (see illustration, p. 466) is a free blooming variety, of good habit. It was raised at the Nurseries, Exeter, by the father of the late Mr. Robert Veitch and James Veitch, of Chelsea, and is the result of a cross between *R. Veitchianum* and *R. ciliatum*. For some years it was overlooked, as being a new variety, till the year 1881, when it received a first-class certificate from the Royal Horticultural Society and other sources. In South Devon and Cornwall it is perfectly hardy. The illustration herewith of this *Rhododendron* gives a good idea of what these plants should be like when well grown, possessing a compact habit, without being formal in any way. For large conservatories these and the larger-growing varieties, such as *R. Nuttalli*, are worthy of far more consideration than they usually receive. They are quite distinct from and of more noble style of growth than the Azaleas, to which they are closely allied, whilst they last quite as long, if not longer, in good flowering condition. The hybrids, of which many improved varieties are now in cultivation, which have been raised by intercrossing *R. javanicum* and *R. jasminiflorum* have an undoubted future in store for them. They will, I firmly believe, be grown in far larger numbers when their culture is better understood. The varied tints of colour found amongst these hybrids are so numerous, and the soft shades of many are so distinct and beautiful, as to cause them to be appreciated almost at first sight. These have been repeatedly exhibited in a cut state by Messrs. Veitch and Sons, Chelsea. The influence of each parent has been clearly manifested in the colours imparted to these hybrids, almost all shades intermediate between them being present in the seedlings. The culture of this type of hybrids does not materially differ from that of the other section first alluded to. As to soil and potting, the same course may be safely followed, making a rather more free use of sand. I advise this because these hybrids thrive best when watered a little more freely. They do not do so well when kept too dry at the root; this will cause them to lose their leaves prematurely; and otherwise check the growth. This is also obvious from another standpoint, viz., that of their continuous flowering propensities. They may, in fact, be considered as always in a growing condition. They should

not be exposed to cold draughts of air through the chilly seasons, nor at any time do they need that amount of ventilation given to the hardier types. A moist atmosphere is congenial to them; this they require all the year round. Given this, with a temperate house treatment, as regards warmth of from 50° to 60°, about the same as will grow and flower *Bouvardias* successfully, for seven or eight months in the year, these *Rhododendrons* will thrive well. During the warmer months what may be termed a close greenhouse will suit them well, i.e., a house without fire-heat, but in which there is a good proportion of humidity. I have a strong impression that these plants may be most successfully grown planted out in the open border of a house not too lofty nor with too sharp a pitch. In this manner they would undoubtedly grow away freely, and I see no reason why they should not flower equally as well. They would in this way prove most valuable for supplies of cut bloom, and the critic would indeed be a bold one who found fault with them when used in this manner, surrounded as each truss is by such handsome leafage. The bed for such a trial should be well drained and the soil not too deep, otherwise I think the growth would be too vigorous. I have not had the opportunity thus far to make this experiment, but I have long considered it might be advantageously adopted with a suitable house at one's command. The following are some of the finest of the javanico-jasminiflorum hybrids raised by Messrs. Veitch and Sons at Chelsea. Several of these have been shown from time to time in a cut state. The newer kinds to be distributed this year are—

PRINCESS BEATRICE, one of the most attractive of the light varieties. It is a vigorous, free-flowering variety. The flowers are a delicate light yellow, suffused with satiny-pink, the centre a light pink with rosy-carmine filaments.

MINERVA.—The trusses are massive, extra large, and globose in outline. It is a vigorous grower, the flowers being of a soft nankeen-yellow with rose-coloured filaments, the foliage a deep green. These are both decided acquisitions.

The best of those already distributed are—

APHRODITE.—A very fine delicate blush white.

BRILLIANT.—A brilliant scarlet, an improvement on *Duchess of Edinburgh*.

SOUVENIR DE J. H. MANGLES.—An extra fine variety, the flowers among the largest and best formed in the section, orange-yellow suffused with rosy-pink, tube pale yellow.

OPHELIA.—A novelty in its colouring—a soft light rose toned with light orange-yellow.

LUTEO-ROSEUM has flowers over 2 inches in diameter, in colour delicate rose with white, the centre a light yellow.

AMABLE.—A fine light-coloured variety of extra size, delicate pale flesh colour.

MONARCH.—A distinct kind with massive trusses, the flowers a clear buff-yellow toned with orange.

TRIUMPHANS.—Very distinct, the colour a crimson-scarlet, the trusses large.

ROSE PERFECTION has flowers of a soft satiny rose with white centre.

JASMINIFLORUM CARMINATUM.—Very distinct and free-flowering.

PRINCESS CHRISTIAN.—A bright nankeen-yellow.

PRESIDENT.—A splendid hybrid of robust growth and compact habit, one of the best in the whole group. The flowers are large and of perfect form, of a clear deep buff-yellow, tinted with rose towards the margins.

LORD WOLSELEY.—The trusses are large and compact, the flowers being amongst the largest with short tubes, the segments of the limb broad and spreading, bright orange, tinted with rose at the margin.

The above are the best of the newer kinds with single flowers, which have trusses much larger and the individual flowers of finer form

than in the older varieties. Of the older kinds the following are the best: Princess Alexandra, Princess Royal, Taylori, Duchess of Edinburgh, Duchess of Connaught, Maiden's Blush, and Princess Frederica.

The double varieties, or the balsaminæflorum section, have a very interesting record. These were raised by Mr. Heal in the following way: Amongst the seedlings under his care which were flowering for the first time there was one which showed a tendency in one flower only in

- CARNEUM has flesh-coloured flowers tinted with rose.

RAJAH.—An extra fine variety, with flowers of a bright fawn-yellow, tinted with rose towards the margin.

ROSEUM.—A bright rose, with extra double flowers.

The great advantage which these double-flowered varieties possess over the single ones is the great length of time the blooms remain in good condition upon the plant—nearly or quite

than those of the Java kinds and very compact. The plant in growth is very bushy, flowering very freely whilst still of a small size. These characteristics point to a most serviceable race of kinds with more of the habit of Azaleas as compared with the foregoing list of hybrids. Of these the same firm are raising a fine strain of pure white and yellow-flowered varieties, which will prove valuable additions to those already sent out.

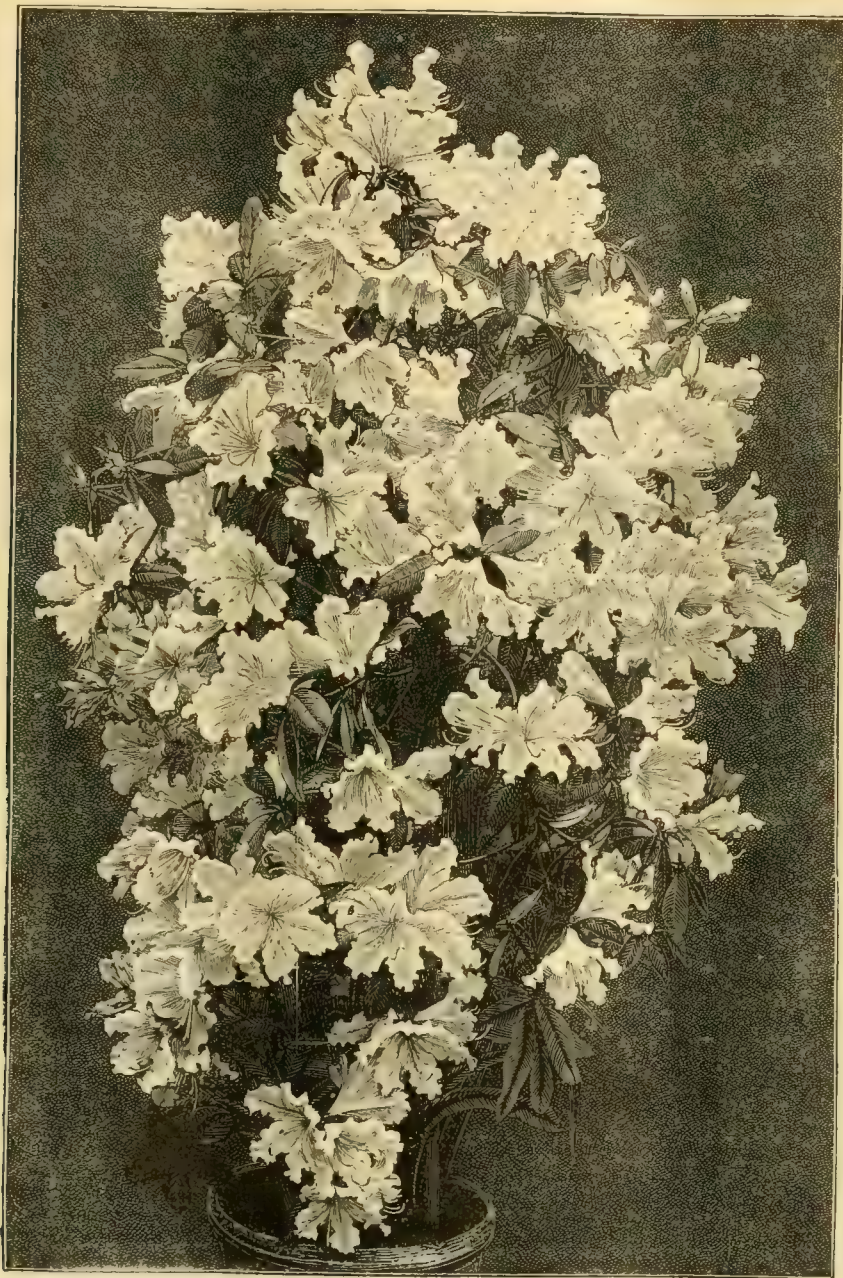
PLANTSMAN.

HEATHS IN FLOWER.

AMONG the many beautiful plants shown by Messrs. Low at the Royal Horticultural meeting held on April 14 were a few examples of different greenhouse Heaths, represented by such kinds as *Erica ventricosa coccinea minor*, *E. Cavendishi*, *E. melanthera*, *E. persoluta alba*, and *E. Spenceriana*. Of these, the first flowers earlier in the season than the rest of the *ventricosa* section, while the blooms are also less inflated than most of them. The name *coccinea* as applied to this Heath seems to be somewhat of a misnomer, for the tube is really light pink, almost white, and the reflexed lobes of much the same tint. The brightest colouring is just at the mouth of the flower, and in the case of a specimen laden with bloom, these reddish spots stand out very conspicuous from the rest of the flower. The short, freely-branched habit, great profusion of bloom, and richly tinted foliage combine to render this Heath one of the most desirable of the greenhouse varieties. Unlike several of the hard-wooded Heaths, those of the *ventricosa* section have clean smooth blossoms without any traces of the glutinous character to be found in many of them. *Erica Cavendishi* is readily distinguished from the other members of the genus by reason of the bright golden yellow colour of its wax-like blossoms. This Heath is of a good, sturdy, free-growing habit, with dense dark green foliage, so that a specimen of it is bright and cheerful at all seasons. It is certainly a most beautiful Heath, and one that has been grown to a limited extent as a market plant for some years. *Erica melanthera* differs widely in the size of its blossoms from any of the preceding. It is a free-growing, but twiggly-habited species, that will in a greenhouse often flower soon after Christmas, though at that time, from the absence of sunshine, the blooms are much paler in colour than they are three months later. When profusely laden with its tiny pink blossoms it is certainly very pretty, while the flowers possess a peculiar, but to many pleasing fragrance. A distinct feature is furnished by the anthers, which are black, and therefore stand out conspicuous from the rest of the flower. The cultural requirements of this Heath are simpler than for other members of the genus. *Erica persoluta alba* is of a somewhat upright habit of growth, and produces its pretty little pure white bells in the greatest profusion. The typical species with pink blossoms is not grown to anything like the same extent as this white-flowered variety. *Erica Spenceriana* is of a freely-branched habit with ample bright green foliage, while the flowers, which are borne in a rather short sturdy spike, are each about 1 inch long, deep pink in colour at the base of the tube, gradually becoming paler till the upper part of the flower is almost, if not quite, white. It is a very good Heath for general decoration, being very free-flowering, the blossoms large and showy, while it is not a difficult variety to cultivate in a satisfactory manner.

H. P.

Flowering bulbous plants.—*Achimenes* started in March will now be of fairly good height. When the shoots are about 3 inches or so in length it is a good plan to make them up into the sizes of pots or pans in which it is intended they should flower. This is, I think, better than starting them at the first in their blooming pots. Each one will move with a good ball of roots; hardly any check is therefore given. These plants delight in a light soil; chiefly leaf mould will suit them well. A good place to grow *Achimenes* up to the flowering time is the back shelf of a three-quarter span stove. Gesneras of the fine-foliaged section should for the



Rhododendron Veitchianum.

the truss to become double. He took off all the other flowers and fertilised the remaining flower with its own pollen. From this one pod of seed were raised these remarkable varieties, viz. :—

BALSAMINÆFLORUM ALBUM.—Pure white flowers, and as double as a *Gardenia* or *Tuberose*.

AUREUM resembles the foregoing except in colour; this has bright yellow flowers.

double the time of the singles. These double kinds are valuable for either bouquets or button-holes, being much better for the latter purpose in particular than the singles.

There is also a new section, which has been repeatedly exhibited within the last eighteen months; it will no doubt become very popular when better known. This race is termed the multicolor section. The trusses are smaller

present be treated in a similar manner; most of these will not, however, be sufficiently advanced yet. Those which form large tubers with several shoots pushing forth from each one may be thinned out for propagation. Of this section, such as the fine old *G. macrantha* and its varieties and *G. Donkelaariana*, not enough is seen now-a-days. For autumn flowering they are, however, valuable and distinct.—J. H.

The Jacobæan Lily (*Amaryllis formosissima*).—This plant, also known as *Sprekelia formosissima*, should not be forgotten in the race after the magnificent hybrid forms of the *Amaryllis*, which are now brought to such perfection, for the colour of the flowers is particularly rich, while they are quite unique and beautiful in form. To flower it well, it must be thoroughly dried off and ripened after it has perfected its growth, and kept so until it is required for starting again. I find good fibrous loam with a liberal dash of sand is a suitable medium in which to grow it, and it should be well rammed into the pot, making all quite firm. Watering with manure water appears to help the plants when growing, but should not be continued too long or given too strong, or the result will be unripe bulbs and few flowers next year. It is quite amenable to gentle forcing, so that, although the flowers do not individually last long, a succession may easily be kept up for several weeks. My plants have done very well this year, most of the bulbs having produced two flowers, and none have refused to bloom altogether. They are grown seven bulbs in a 7-inch pot, and in this way they make a good display.—J. C. TALLACK.

***Solanum capsicastrum* vars.**—These berry-bearing plants, if not already cut back in the case of those grown on from year to year, should now be seen to, so that the young shoots may be fairly hardened by the latter end of May, when they can be safely planted out for the summer months. Plants cut back much earlier make rather too much growth whilst under glass; such are, of course, useful for obtaining cuttings, a few of which should be taken each spring to supply the places of those which have passed their best state. This mode of increase is preferable to raising seedlings when an extra large stock is not absolutely required. The young stock from cuttings I prefer to grow on in pots the first year; these by careful management make very useful stuff.

Zonal Pelargoniums.—The stock for winter blooming must now receive attention. This is a very good time for striking them when only moderate-sized plants are required, and these are in many ways of most service. Each cutting should be inserted singly in a 2½-inch pot and then stood in a moderately warm place and not overdone with moisture either in the air or in the soil. A light place is better than a shaded one when a temporary screening against very bright sunshine can be effected. Those for summer flowering should still be pinched, no bloom being allowed to develop yet awhile. If in anyway pot-bound this stock should be repotted as soon as possible, but kept in a cool airy house to prevent their becoming drawn.

The hybrid Cape Primroses (*Streptocarpus*).—The new race of these beautiful and unique plants is already in flower at Messrs. Veitch and Sons' Chelsea Nurseries. At the April show of the Royal Botanic Society this firm staged a few of their most distinct kinds. The plants flowering thus early will bloom almost continuously until the late autumn. During warm weather a dry greenhouse will suit them well, provided they be kept away from any excessive draught. They need not be in any sense termed stove plants, although warmth facilitates an early growth upon old plants and hastens on seedlings towards the flowering stage. I noted a few days ago at Kew Gardens that a large number of this type of *Streptocarpus* have been planted as an edging around the central part of the border of the succulent house. Some of those which Messrs. Veitch and Sons showed recently were awarded floricultural certificates of merit. These were named Plato, quite a distinct kind; Finette, a light ground with distinct veins; Virgil, white ground with dark markings;

and Acis, a pale lavender ground with light centre. Later on in the season we shall no doubt see still greater variety, whilst this season's seedlings will yield still more. Those which I have raised from seed this spring are now growing away freely; they are now—after being pricked off twice—fit for small pots. I am looking forward to having these in flower about July. Possibly before that time, if the opportunity offers, they will be planted out for the season in a small pit near the glass. This is by far the best mode of obtaining good plants for another season. They could in this way be made to follow *Alternantheras* where these have been grown in a similar manner. If I am not greatly mistaken, these *Streptocarpus* hybrids will make very useful summer flowering plants for the conservatory, or as small vase plants in the house. They do not require large pots in any case, being far better, comparatively speaking, when grown in smaller ones than those usually allotted to *Gloxinias*. The foliage is rather brittle; care in handling will therefore pay, as it spoils the look of the plants when the leaves are broken or torn. They will take a good supply of water when well established.—PLANTSMAN.

GREENHOUSE HARD-WOODED PLANTS.

MANY of these will now be rapidly advancing to the blooming stage. It is therefore advisable to pay closer attention to the watering; this is really essential at all times, but just now the plants will be found in very many instances to take more water, becoming dry almost before one is aware of the fact as compared with a few weeks back. If a plant suffers whilst developing a full crop of flowers it is severely taxed, while the blooms are also weakened. A plant with healthy root action may not require water in the morning, but would stand in need of it before nightfall, particularly if the weather was fine and the atmosphere a drying one. In watering see also that the ball is thoroughly wetted. Sometimes large plants get dry at the centre and around the collar, especially if the last potting was not done in so careful a manner as previous ones. The best way to treat such cases is to stand the pots in a tub of water so that the entire ball becomes again thoroughly moistened. In the case of nearly all Cape and New Holland plants of hard-wooded growth it does not do to be led away with the idea that assistance can be rendered by applications of either manure water or an artificial stimulant. It is far better to keep on the safe side and use neither one nor the other. The benefit, if any, is only temporary, leaving the plants in a worse condition afterwards. I remember some years ago a very fine collection of Indian *Azaleas* coming to grief in this way. They were fed for a season or two with a highly concentrated manure, but after that most of them died. The safest and I think the best stimulant when any is used is a weak solution of soot water, obtained by putting a little pure soot into a bag and then sinking it to the bottom of the tank. The water, if tasted afterwards, should have a slightly perceptible bitter taste, but nothing in excess of that. A considerable assistance may be rendered to Indian *Azaleas* coming into bloom by occasional syringings, as in the case of plants which are forced. *Pimeleas* would also receive benefit from the same source, whilst in both instances insect pests would be kept in check, thrips in the former instance and red spider in the latter. On the other hand, the *Aphelexis* and *Phænocomas* require to be kept quite dry over head. Upon no account should the handsome flowers of these plants be allowed to come into contact with water. When that is the case the centres of the blooms become mouldy long before their time, losing in this manner the chief part of their beauty. As soon as the beautiful blue *Leschenaultias* are fully in flower, some shading, not too heavy, will tend to keep the flowers for a longer time in good condition. On the other hand, the *Darwinias*, which are best represented by *D. tulipifera*, rarely require any shading at all, but *Dracophyllum gracile* will keep better with a light shading as soon as the trusses are fairly opened. The *Eriostemons* will not need to be shaded, other-

wise the growth which quickly follows will be drawn up. The finer kinds of Cape *Heaths* require all the sunlight possible to intensify the colours of their flowers, but as soon as these arrive at perfection then a light shade will keep them from bleaching. Later kinds which flower late in the summer and autumn should be kept as near to the glass as possible. H. A.

Aralias—These should not be encouraged by fresh potting to grow away too freely, otherwise they quickly become too tall. A. Chabrieri is an exception in regard to this, being of branching habit. This variety even can be grown to a good size without any undue amount of root space; seen thus it is a most serviceable vase plant in the summer-time. Keep a watch upon *Aralias* for scale. Any *Aralias* which may be too tall should be dried off and then cut down near the base. If more than one shoot afterwards pushes forth propagation can be effected, taking off the cutting with a little heel to it. I find *Aralias* can be struck in this way with patience and care, each cutting being placed singly in a 2½-inch pot.—H.

***Heuchera sanguinea*.**—Where a display of flowering plants in the greenhouse has to be kept up as far as possible throughout the year, many of our hardy perennials are very useful for the purpose, as with a little protection they will bloom earlier than in the open ground, and consequently the flowers are more appreciated than would be the case if those on the outside border were then in bloom. One of the most elegant and beautiful of all is this *Heuchera*, of which a coloured plate was given in THE GARDEN towards the latter part of 1881, when it was comparatively unknown, and the beauty of the whole plant as there shown took many by surprise. Since that time it has rapidly risen in popular favour, and may now be frequently seen employed for the decoration of the greenhouse where the masses of bright-coloured blossoms can be arranged in various ways. A group of this interspersed with the pure white *Allium neapolitanum*, whose heads of blossoms just overtop those of the *Heuchera*, forms a most attractive object. Apart from the perennials that are usually employed for greenhouse decoration, such as *Spiræa japonica*, *Lily of the Valley*, and such things, there are many others very beautiful, yet rarely met with. Among such must be included many of the *Saxifrages*, hardy *Primulas*, *Spiræa palmata* and its white variety, the *Day Lily* (*Hemerocallis flava*)—in fact, all the members of this genus and a host of other subjects, to say nothing of many beautiful *Lilies*.—H. P.

Browallias.—The *Browallias* are not grown as much as they deserve, as they are when in flower pleasing objects in the conservatory, and of easy culture. *B. elata grandiflora* and *B. alba* are the best for pots, and by sowing at different dates they may be had nearly all the year round, but it is for summer and late autumn decoration that I advise their culture. They may be grown by anyone possessing an ordinary frame or a cool greenhouse. For the earliest lot I usually sow early in March in a temperature of 50° to 60°. The best way is to sow the seeds in well-drained small pots in a sandy compost. The seedlings when above ground should be kept close to the light, as they quickly draw and become weak if neglected in any way; they also require severe thinning, only leaving four to six plants. These must be potted on into 5-inch, and finally shifted into 8-inch pots if large specimens are desired. Seed may also be sown in pans, and when large enough to handle, pricked off into small pots and shifted on as required; but for a few pots of early bloom I find sowing the seeds in small pots and potting on is a saving of time, as the seedlings get no check in any way. These plants like a good compost, and should get good loam, leaf-mould, and manure, with a little sharp sand if the loam is heavy. They also take plenty of liquid manure when their flowering pots are full of roots during the summer months. They may be had in bloom from May to November with little trouble, as they require but little heat. If grown for winter bloom, smaller pots, say 6-inch, are large enough, and the seed may be sown in

July, August, or September, using a larger quantity of loam and no manure, only leaf-soil in the compost. For summer blooming, larger pots than 8-inch may be used if very large specimens are wanted. It will also be necessary to pinch the points out during their growth from the time the plants are 6 inches high, so as to get bushy, well-furnished examples. For summer and autumn bloom I usually sow three times—early in March, again in the middle of April, and at the end of May. This gives a succession of bloom well into November.—G. WYTHES.

The variegated Pine-apple (*Ananassa sativa variegata*) makes a most useful decorative plant for the stove; its arching foliage and beautifully variegated leaves suffused with a roseate hue when fully exposed to the sunshine always make it attractive. To secure the best habit, propagation ought always to be from the crown; true, this does not often give any increase unless a duplex crown has been formed. For further increase the suckers must be chiefly relied upon. The crowns when fairly rooted may be suspended in the stove, as in the case of Orchids or basket plants; thus they are more out of harm's way, besides which the growth is kept more compact.

Cycads.—These will now generally be in active growth. Cycads when they do make a start grow away very quickly. At such times I have found it of advantage to water freely, much more so than when there is no visible activity. If pot-bound the plants should be helped considerably by a stimulating agent. Every possible care should be taken not to injure the young foliage as it develops, nor in any way to allow it to be crippled, otherwise the effects cannot afterwards be removed. Shading at such times is rather more necessary in the ordinary run of plant houses, but should not be used to excess, otherwise the growths will not be so close and compact as it is desirable they should be.

SHORT NOTES.—STOVE AND GREENHOUSE.

Anthuriums.—These, like most other Aroids, will now be in free growth. Those which have not been fresh potted will require more water with a good top-dressing, chiefly of Sphagnum Moss or the fibrous portions of peat or loam. These which are the most conspicuous among the Anthuriums for the beauty of their leafage, as *A. crystallinum* and *A. Veitchii*, should not be allowed to become weakened by the production of spathes. Every care must be taken of the young foliage as it develops, as it is most susceptible to injury until matured.

Marantas.—These will now be disposed to flower rather than put forth fresh shoots from the base. These flower-spikes ought to be pulled out, save in the case of *M. Warcewiczii*, which in itself is a most novel and interesting plant whilst in flower, with its ivory-white blooms and bracts. These spikes afterwards can each be propagated, being better than resorting to division for that purpose. The older foliage of Marantas should be cut away as the young leaf shoots push up. It is just as well to bear in mind that Marantas require the maximum amount of shading; this should be arranged for as far as possible by standing them below other plants as well as by artificial means.

Erythrinas.—These fine plants are valuable for the conservatory both whilst in flower and also for the sake of their foliage. *E. Crista-galli* is one of the best known, as indeed it is one of the most useful, being half-hardy. Of this there are several good garden forms varying in the colour of their flowers. The variegated kinds, as represented by *E. marmorata* and *E. Parcelli*, are very ornamental plants; these, however, require more warmth to grow them well. Any necessary attention should be given now that growth is on the move. These plants should not be starved in small pots; it is better to encourage them to make a free growth, then their beauty will be far more apparent. Cuttings taken off with a heel will root freely enough at this season of the year. Plants already in large pots may have a top-dressing of good soil, this often being preferable to disturbing the roots.

Coprosma Baueriana variegata.—It was unintentional that I omitted this useful plant from my list of variegated plants for the greenhouse. I am well acquainted with it, and have seen it grown in quantity in some of the market nurseries, though it cannot be considered a popular market plant. When first I

undertook its propagation I experienced some difficulty and have known others to fail. After a little experience I found that the fault was in making the cuttings too long, or rather in putting them too deeply into the soil. There is no difficulty in rooting cuttings if they are taken from matured shoots with about three pairs of leaves and inserted in sandy compost, the cuttings being kept quite fresh and put in only just deep enough to keep them firm. Each cutting may have a stick to keep it in position, the base of the cutting being barely below the surface of the soil.—F. H.

THE WEEK'S WORK.

HARDY FRUIT GARDEN.

PLUMS.—Trees against moderately warm walls are now making good progress, heavy crops of fruit apparently being set, and the foliage cleaner and stronger than usual. To have the fruit at its best it must, where at all thick, be freely thinned out, but it is not advisable to commence the thinning just yet, or until the Plums are as large as horse Beans. What ought to be done is to go over all the trees, clearing the fruit if need be of old flowers, also removing any that are jammed behind the wood or against nails. Young branches will in most cases be furnished with quite a thicket of young shoots, and these should be freely thinned out or they will spoil each other, a few well-placed spurs being better than crowds. Stop all reserved young shoots not required for furnishing at a length of about 2 inches, this greatly benefiting the rest and also laying the foundation of good fruiting spurs. Trees furnished with long old spurs are not nearly so productive and the fruit from them is not so good as that obtained from trees on the same wall it may be on which there are numerous younger branches. This fact should be borne in mind at the present time, a number of well placed young shoots being reserved, and duly laid in from near the stems. When sufficiently strong and productive these younger branches may take the place of the worn-out older ones, and in this manner the trees can be constantly kept in a most profitable state. The least that can be done is to cover naked old branches with young wood.

CHERRIES.—These, in common with all, have flowered or are flowering more freely than usual, the earliest being well set. It will be some time before the Morellos need any attention, but the choice dessert varieties against walls ought soon to be gone over and the young shoots freely thinned out, leaving these about 4 inches apart on the branches, and stopping all not required for covering blank spaces at the fourth or fifth joint. It is from the spurs thus formed that the fruit will be produced in the near future. Unless the fruit is fully grown the quality is very indifferent, and this season so thickly is it set that it will soon require to be freely thinned out. A pair of grape scissors is the handiest and best tool for this work.

WASHES FOR PLUM AND CHERRY TREES.—On the whole there appears to be less aphid about than might reasonably have been expected after such a long spell of unkindly weather, but as these insects increase and spread rapidly it is advisable to take timely precautions. Much may and ought to be done in the way of removing and destroying many of the most curled leaves, it being a very difficult matter to reach the insects inside of them in any other way. After this has been done give the trees a thorough washing with some approved insecticide, taking good care not to use it strong enough to injure the tender young fruit. What will be found a safe and cheap remedy can be concocted as follows: Place half a pound of Quassia chips and one pound of soft soap in a gallon of water and boil steadily for about one hour, strain off the solution and mix with clear soft water as required at the rate of one half-pint of the former to a gallon of water. Syringe the affected trees freely with this and wash off with clear water before the insects have a chance to recover in any way. Tobacco water, which can be had from most seedsmen and horticultural sundriesmen in one gallon jars, freely diluted with water is also a safe and effective insecticide. These washes are recommended principally for Plums and Cherries. In the case of Peaches and

Nectarines it is a safe and simple plan to puff tobacco powder well into any shoots affected by green or black-fly, syringing this off the next morning following upon the overnight application. A judicious use of this powder and freely and forcibly syringing the trees with clear water ought to keep them clean.

CATERPILLARS AND WEEVILS.—Ocular proof can soon be had of the presence of the former, as the mutilated state of the foliage soon attracts attention. In private gardens caterpillars are not generally very troublesome, the orchard trees and any near hedgerows being most liable to be overrun by them. In the latter case nothing short of freely spraying the trees with the poisonous Paris Green or London Purple, mixed at the rate of one pound to fifty gallons of water, appears to be effective, no ill effects to the crops resulting from its use. If there is any possibility of garden trees, standard or dwarf trained, or against walls, or otherwise being overrun by caterpillars, these also should at once be just damped with the diluted Paris Green mixture, but casual attacks are best kept under by hand-picking, a close look out being kept for the first appearance of the pests. Weevils, notably the red-legged garden weevil, are answerable for more mischief than is generally known, the blame more often than not being attributed to other pests. They rest in the ground during daylight and work in the night-time, and consequently are rarely seen. When the lower leaves, buds, and shoots of Pears and various other trees and bushes against walls or in the open are badly and systematically eaten, slugs get the credit of this, when perhaps it is the weevil alluded to that is nightly feeding on them. Seeing that they are nearly as large as Kidney Beans, it ought to be possible to find some of them after it is dark, and they can be gradually and surely got rid of by spreading sheets under the trees before it is dark. If a visit be paid to them towards 10 p.m. and a light flashed on them, the weevils will roll off and be caught in the sheet, shaking them into a pail of boiling hot water finishing their career. It is these weevils that eat the calyces of Gooseberry and other blossoms, thereby spoiling them, and there are far more of them at work in different parts of the country than most gardeners are aware of. Fining down and then drenching the surface of the ground with petroleum and water at the rate of half a pint of the former to three gallons of water will do much towards getting rid of weevils, and if the oil is kept well mixed with water, it will do no damage to the roots of the trees.

RASPBERRIES.—Apparently it cannot well be too often pointed out how unwise it is to attempt fruiting Raspberries during the summer following upon planting. When the canes are preserved to their full length or thereabouts they will certainly produce a crop, which, however, more often than not is of an inferior character, and to make matters worse, this attempt exhausts their vigour and no young canes are formed accordingly. When this happens the plantation may as well be broken up at once and a fresh one formed, as they seldom recover properly from such a bad start. Newly-planted canes ought always to be cut down to near the ground, and should yet be done where this precaution has been neglected. Thus treated, and other conditions being favourable, they push up strong young canes, which may safely be fruited during the next season. Healthy plantations of Raspberries are addicted to pushing up far more suckers than are needed, and this season they are even more plentiful than usual. Those spreading out into spaces between the rows can be kept down with the hoe, and the rest ought to be freely thinned out, no more being reserved unless wanted for planting than are required to take the place of the old canes next winter. The autumn fruited canes cut down to near the ground must also be freely thinned out, as if the young growths are at all crowded, the fruit will be scarce and poor in quality. Give them good room, and the long arching leafy growths will next autumn be furnished with clusters of fruit from the top to near the bottom. Raspberries being surface-rooting are among the first to feel the effects of drought. To check the rapid loss of

moisture, and consequent surface-cracking of the ground—which has already begun—well stir it with flat hoes, and then heavily mulch between the rows with strawy manure.

W. I.

ORCHIDS.

THE houses are now gay with flowers, and gardeners are always anxious not only to have a good display, but to keep it up as long as possible. This is pardonable, and in many cases the plants do not receive the least injury from the flowers remaining upon them until they fade; but sometimes they do suffer, and when the plants are rare or of much commercial value, it is not desirable to allow them to suffer from exhaustion, brought about by the too persistent character of the flowers. The plants of some species of Orchids gradually decline in vigour,

and the two growths annually produced three or four spikes for twelve years more without any decline in health or vigour. The plant was grown in quite a warm house. The plant had a chance to become thoroughly established before it produced any flower-spikes, and was able to bear the annual strain, which a recently imported plant is not. We are very successful in growing and flowering *Angraecum sesquipedale*, and this year the plants bloomed more freely than usual, each good growth producing six flowers on two spikes. These flowers were allowed to remain upon the plants until they faded, and now, as the result, several of the lower leaves on each have decayed and will have to be removed, to the manifest detriment of the plants. They will soon push out fresh roots and make some new growth. If by some chance they failed to bloom for a season, it would be a great boon to the plants,

maintaining upon them for two or three months and they are sure to suffer, as anyone can see by noticing how the pseudo-bulbs will shrivel up. It would be much better to cut off the spikes before the bulbs begin to shrivel, and keep them as long as they will last in water. *Oncidium macranthum*, again, is a species that may easily become exhausted by being allowed to produce its long spikes of flowers annually. The formation of the spike takes a long time, and the flowers themselves last a month or more in good condition. I believe in the case of such Orchids as this it is better to remove the spikes as soon as they show themselves in alternate years. Weakly-growing plants of all Orchids would be much benefited by not being allowed to bloom, or by the flowers being removed as soon as they open. The Orchid houses ought now to be well filled with flowers, and weakly plants of

choice varieties may have the flowers removed as soon as they open, for in truth they will sometimes remain long in beauty in the dwelling-house, as Orchids with some few exceptions are long-lasting as cut flowers. It is better also not to allow recently imported Orchids of some species to flower too freely for the first time. Another point in the cultivation of Orchids which may account for deterioration in the vigour of the plants is that they are removed as soon as the flowers open from the warm and moist atmosphere, where they had the treatment exactly suited to their wants, into a house with a much lower temperature, a dry atmosphere, and a freer admission of air. The above are seasonable remarks on culture that young growers especially should carefully consider, for it is of the utmost importance that the commercial value of a collection should be kept up; indeed, it ought to be increased. This can only be accomplished by caring for the welfare of individual specimens, and being careful that the plants are not weakened from over-flowering, or by being allowed to become a prey to thrips or red spider. The weather is now very favourable for the healthy growth of the plants. Artificial heat is not much needed even in the warmest houses to keep up the required temperature, for it is easy by shutting up early to get up the temperature to 90° or so in the afternoon, and if it does fall to 60° or 65° if the nights should be cold, the lower temperature would last only for an hour or two, as it begins to rise again from sun-heat soon after five in the morning. The cool house would not require any artificial heat, and in that case it is undesirable to shut the house up close with a very moist atmosphere, as the moisture is condensed on the flowers, causing them to be disfigured with black spots and blotches. A very little heat in the pipes with air on at night will prevent this.

J. DOUGLAS.

THE KITCHEN GARDEN.

BRUSSELS SPROUTS.—Where these were sown early under a cold frame and with free exposure on all favourable occasions after the seeds germinated, sturdy little plants will now be forthcoming, and as it will not do to allow them to remain



Rhododendron exoniense. (See p 432.)

notwithstanding all the care bestowed upon them. Some plants continue in health and vigour year after year for a quarter of a century or more, and others quite as promising decline after the third or fourth year. I fancy the quantity of flowers produced and the length of time they remain upon the plants are to blame for the decline of vigour in many species and varieties. Take as an illustration the very beautiful *Vanda coerulea*. The newly-imported plants grow vigorously and flower freely from the first, but after producing one or two handsome spikes annually for about four years they gradually decline. One very successful cultivator had a notably vigorous plant, which he said grew freely for twelve years before it began to flower,

There are other Orchids upon which the flowers will remain in good condition for about three months, and in some cases this does no harm; in others it is very weakening. *Cypripediums*, for instance, do not suffer. *C. villosum*, of which I have a large specimen, has bloomed annually for twenty years, and has always borne the flowers well for three months, and it is now as vigorous as ever. Plants of *Odontoglossum crispum*, *O. Pescatorei*, &c., will also remain in flower a very long time if the atmospheric and other conditions are favourable, but the plants suffer. One and sometimes two spikes will push out from each pseudo-bulb, and the development of the spikes exhausts the plants, but add to this the flowers re-

any longer in the shallow-rooting medium of the seed bed, the plants must be pricked out. An ordinary sheltered border will suffice for pricking out. The seedlings should be set out in rows 4 inches apart and 8 inches between the rows. The young plants will only require to be covered with mats, kept off the plants by strips of wood or hurdles as a slight protection from bright sun or drying winds. It is not a wise proceeding to plant Brussels Sprouts out into their permanent quarters too early or before they attain a fair size, as if a dry time should intervene the plants suffer considerably. Simultaneously with pricking out the plants, a suitable plot of ground should be prepared for their reception as soon as ready for going out. The Brussels Sprout is probably the most important green vegetable for winter use, so due care should be taken in its culture. An open plot of ground should be selected, and this also must be deeply dug and heavily manured. Sometimes the practice is adopted of planting out the Brussels Sprouts between the rows of Potatoes, and when such is the case the plants do not afterwards make that free and sturdy growth so conducive to a satisfactory return, and are also not able to withstand the rigours of a severe winter.

SEAKALE.—The pots, boxes, or whatever coverings have been used for blanching in the open air must not be allowed to remain over the crowns any longer, but should be removed as soon as possible, so that the crowns may have sufficient time to make a satisfactory growth. Where the practice is adopted of allowing the same roots to remain in the ground year after year they will gradually become weaker if means are not taken to add additional fertility to the soil. A dressing of well-rotted manure should now be lightly forked into the surface, and a dressing of salt would also be highly beneficial. Any roots which have not been forced should have about half an inch of the top of the crowns cut clean away, that is if this has not been attended to earlier. Where this is neglected the crowns will surely run to seed, and the after-growth will be proportionately weaker. Early planted cuttings are now showing above ground, and a dressing of salt sown lightly over the surface will stimulate growth considerably. A surface stirring will also be beneficial.

MUSTARD AND CRESS.—An east border is the best position for sowing Mustard and Cress throughout the summer months. A light and fertile soil, with a fine and level surface, is necessary for the purpose. A sowing according to the demand should be made weekly. In our own case we have a framework closely covered with tiffany. The surface having been made perfectly level, so as to prevent the soil from working up amongst the stems of the produce, the seeds are sown, and then receive a gentle, but thorough watering. The covering being now placed over the seeds, it closely excludes sun and drying winds. When the plants are about half an inch in height, the covering is removed overnight.

SPINACH.—A cooler site should now be selected for Spinach. An east or even a north border is the best for sowing at this date. A rich soil being very essential, the ground should have been deeply worked and well manured, as it is useless to sow on poor or roughly worked soils, this tending to the early running to seed as much as anything. Large sowings should not be made, as two or even three spread over the same extent of ground will prove the most serviceable. The ground previously to being prepared for sowing should have a dressing of soot. If the weather is likely to prove dry at the time of sowing, the drills should be soaked with water over-night and the seeds sown the following morning.

RADISHES.—On hot soils the flavour of Radishes is very strong where grown in the open quarters, and to be appreciated Radishes must be quickly grown, both by having a fertile soil to run in and frequent applications of water during a dry time. For the summer crops an east border is as good a position as could possibly be chosen, as being partially shaded during the hottest part of the day, it suits Radishes admirably. Where a fertile and free

root run is not present, and without which it is impossible to look for good results, the border should be prepared. A mixture of old potting soil, Mushroom bed manure, and well burned garden refuse, placed on the site to the depth of 4 inches or 6 inches, will prove a suitable rooting medium.

Y.

PLANT HOUSES.

FINE-FOLIAGED PLANTS.—These will now be growing away freely when in a healthy state. Where hitherto the plants have been somewhat crowded together more room will now be needed. Rather than this should occur it is better to grow a less quantity. It is a great mistake to have these or any plants overcrowded; a deal may be accomplished by judicious arrangement, elevating some upon pots, whilst others which do not so much require the same amount of light can be partially shaded by these. Every attention should be given to the cleanliness of the plants. This is essential in every case, but needs to be even more emphasised with relation to fine-foliaged plants. Mealy bug, where troublesome, should be kept down by means previously advised in all bad cases; where there are but few remaining after radical measures have been adopted sponging with a reliable insecticide will often be sufficient. By now giving close attention to this insect a deal of trouble will be saved later in the season. Thrips will probably cause some annoyance, so also will red spider after the continuous period of cold weather with extra heat in the pipes. Frequent fumigations for the former insect will usually be sufficient. Where the latter exists I have never found anything to surpass syringing with water which is strongly impregnated with soot. I do not mean by this that the water is to be black looking, although it will not be quite clear, partaking somewhat of a light brown colour. The best plan is to obtain a strong canvas bag, such as that which is used for seeds; into this about half-a-gallon of soot should be put, tied up securely and sunk in a small sized tank. This will continue to be of service for some little time, being used for syringing; all that is needed is to move the bag about at times. Every care ought to be taken to procure pure soot, that taken from furnaces being often strongly tainted with sulphur; this it is not safe to use.

The points of the shoots of Crotons are frequently given to casting their leaves whilst still of very small size; larger ones also will fall at times, at last the tips of the shoots being left quite bare and blind looking. This injury is caused by a species of spider, which for the sake of distinction from the more familiar one I would term the white spider. Being more minute than the red spider, this is a most insidious pest, the injury caused being often-times put down to deficient root action when such is really not the case. Having been troubled with this insect at this season of the year to a serious extent upon Crotons and a few other plants, I adopted the bag of soot remedy with the best results. This insect does not evidently relish the water impregnated with the bitter properties of the soot, and speedily succumbs. All-round syringing must, of course, be performed; this we used to do three or four times daily, the last turn being at nightfall. The leaves of the Croton when of nearly full size are sometimes attacked just before they are hardened; the appearance then presented is that of a blistered nature on the underside. These leaves may not fall, but their followers will if a check is not effected. Syringing with clean water does not have the desired effect, nor does hardly any of the insecticides. This species of spider can hardly be discerned with the naked eye, but under a magnifying glass its rapid movements are plainly visible. I have found the *Stephanotis* to be infested with the same thing, the leaves upon the points of the shoots dropping. In any case, however, the soot water will be found beneficial. Maiden-hair or any other tender Ferns should not be within reach of the syringe at such times; these plants I have found to be injured. Nearly all fine-foliaged plants will when in free growth take an abundant supply of water at the root with a liberal use of the syringe also. It is better to rely upon these acces-

sories to obtain the best results than to place so much dependence upon the potting mediums. Overpotted plants never look well, nor are they so easily managed, whilst regarding their utility there is no comparison. It may be urged that plants in small pots require more attention for water; they will certainly require more water, but as to attention respecting its application at the proper time, the tables are reversed. Many of the fine-foliaged plants are gross feeding; by using stimulants, therefore, as soon as the plants have occupied the soil fully with roots their special needs will be met. For this purpose I prefer the manure water from the farmyard for all quick-growing plants.

ALOCASIAS usually throw up several flower-spikes about this time of the year before settling down to grow in earnest; these should be pulled out carefully, the left hand holding the plant in position, so as not to disturb the roots. *Caladiums* also have the same propensity; these should be served in a like manner. The former will soon show a good quantity of roots upon the surface; a light dressing of fresh Sphagnum Moss will protect them and assist growth. The latter if started in small pots should have a shift before they are too much pot-bound. Green-fly is at times troublesome to the *Caladiums*, usually congregating upon the lower portions of the footstalks, and thence attacking the young leaves as they unfold. A watering or two with a solution of Peruvian guano will remove these and at the same time assist the plants.

DRACENAS will require to be watched rather sharply at night-time for any slugs which may be lingering about in search of food. The small shell snails are very destructive to the young leaves as they unfold. This is bad enough at any time, but more so when the plants are growing freely. If very much pressed for room, some of the hardier kinds of Palms which have been wintered and thus far grown on in the stove may be removed to a rather cooler house; the shade afforded in a Peach house advancing would be sufficient, being better than a too rapid drop in temperature. The *Panax* and *Rhopalas* can also be treated in a similar fashion with safety before finally using them in the conservatory arrangements for the summer.

J. H.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

MAY 9.

THIS, one of the most important and extensive of the exhibitions held at Sydenham, may be considered in most respects to have been a good one. Notably was this the case in the collections of stove and greenhouse plants from Hawkesyard Park, Rugeley. The *Azaleas* from Slough and pot *Roses* from Cheshunt were likewise all that one could wish for, being in neither instance of unwieldy size. Orchids were but poorly represented; one of the worst displays in competition which we have seen for some time. This is not the fault of the Crystal Palace Company, for the inducement in prizes is good. The reason has to be sought further afield, which will form the subject of some remarks another week.

The first prizes in both classes for stove and greenhouse plants were worthily won by the fine examples from Mr. Spode, Hawkesyard Park. Those staged in the larger class consisted of some grand specimens. *Tremandra ericæfolia*, some 5 feet through, was a model of what such plants should be, trained, it is true, but not in any formal manner; this plant was most profusely studded with its pale lilac-coloured blossoms. *Aphelexis purpurea grandiflora* was also in a very fresh condition, with abundance of flower. *Erica Cavendishi* was dwarfer than usual; a good plant of *E. ventricosa coccinea* minor was also shown, both being in full beauty. *Statice profusa* afforded a pleasing change in colour, but one would rather see a good plant of *Leschenaultia biloba* major in its place. A grand plant of *Hedaroma tulipifera* was not sufficiently advanced. Stove plants were represented by a very fine plant

of *Anthurium Scherzerianum* and an excellent example of *Ixora coccinea*. In the smaller class Mr. Chapman staged plants equally as good; these consisted of duplicates of the same *Tremandra* and *Aphelexis*, with a splendid plant of *Erica profusa* in the best possible condition. *Anthurium Scherzerianum* (Ward's var.), with its broad foliage and large spathes, in the same collection was well flowered. In both instances the second prize winners were some distance behind. Mr. James, of the Castle Nursery, West Norwood, took that award in the large class, his best plants being a very good *Ixora Dixiana* and a *Franciscea calycina* major; whilst Mr. Mould, Pewsey, Wilts, staged a very bright plant of *Hedera fuchsoides* and the seldom seen *Rhododendron exoniense* full of flower. For nine Azaleas, Mr. Charles Turner, Slough, was first with plants in fine form, the best being *A. sinensis* (very bright colour), *Marquis of Lorne*, *Charmer*, *Etendard de Flandre*, *Jean Vervaene*, and *Duc de Nassau*. The second prize went to Mr. A. Offer, Handcross Park, who staged some very fine plants; his best were an immense example of *Eulalie Van Geert*, *Baronne de Vriere* (a superior white with *Rhododendron*-like flowers), *Souvenir du Prince Albert*, and *Comtesse de Flandre*. Mr. Turner also took the first prize for eighteen Azaleas in small pots, showing the best varieties in admirable condition. *Madeleine*, *Grandis*, and *Empress of India* were amongst the best of these. *Ericas* were but poorly represented, the best coming from Mr. Mould, who had an excellent plant of *Victoria Regina* with other fair examples. *Roses* in pots were shown in splendid style by Messrs. Paul and Son, Cheshunt, and Mr. Turner. The former collection was the fresher of the two, and contained fine plants of *Tea-scented Innocente Pirola*, *Noisette Celine Forestier* (one of the best *Roses* for pot culture), *Perpetuals* being represented by *Magna Charta*, *Beauty of Waltham*, *La France*, and *Alphonse Soupert*. In Mr. Turner's group were *La France*, *Catherine*, *Souperet*, and *Edouard Morren* in good condition. *Pelargoniums* were shown in profuse flowering condition by Mr. Turner, who took first for show and fancy varieties in the large classes, Mr. Phillips, Langley Broom, Slough, following in the same position in the smaller classes with fine plants. With twenty-four plants in 6-inch pots this exhibitor distinguished himself by beating Mr. Turner. *Herbaceous Calceolarias* were admirably shown by Mr. T. Gabriel, Leigham Court Road, Streatham; the plants were not over-large, but of good variety and well bloomed. This exhibitor took first in both classes for these in good competition. Some good plants of *Gloxinias* were staged; the best, a set of six, came from Mr. Leaky. Flowering specimens were finest from Mr. Chapman, who had another fine *Tremandra* and *Ixora coccinea*, taking first for both, whilst Mr. Offer held the same place with a specimen Azalea in *Duc de Nassau*. *Orchids* call for but little further comment; the best nine were from Mr. James, Mr. Marriott, Coventry, taking the first for a single specimen with a good plant of *Cypripedium villosum*.

Five-foliaged plants were extensively shown, *Crotons* being present in good numbers, but it is yet too soon to see these plants in good condition, the colouring being deficient, not doing the genus full credit. The best group in the large class was sent by Mr. F. W. Prior, Blackheath Park; these included a fine plant of *Phyllotænum Lindenii*, better than it is usually seen. *Cycas circinalis*, *Croton Johannis*, and *Alocasia Thibautiana* were also noteworthy. Colonel Pepper, Milford Hill, Salisbury, was a close second with good *Cycads* and *Palms*. In the smaller class, Sir C. Pigott, Baronet, Wexham Park, Slough, was fortunate in securing the first prize, being hard pressed by Mr. R. W. Mitchell, Bickley Park. Mr. Tate, Park Hill, Streatham, won with six exotic Ferns, including fine plants of *Davallia Mooreana* and *Nephrolepis ensifolia*. Mr. Ford coming in a good second with a fine *Adiantum decorum* amongst his collection. The best collections of *Crotons* came from Messrs. Offer and Ford, and the best *Dracenas* from Messrs. Lambert and Hudd, the plants being good, but wanting more time to

develop colour. Messrs. J. Laing and Sons staged some huge plants of *Caladiums* of the best varieties, easily taking the first prize. Mr. Hazell was first in a strong class for eighteen table plants, showing plants of the right stamp. In cut-flower arrangements, Messrs. Perkins and Sons, Coventry, again occupied the front place, taking first for button-holes and sprays, bridal bouquets and bouquets of any kind, the last being one of the best productions of this well-known firm. For an epergne, Mr. Bishop, of Croydon, was first with a tasteful arrangement, Mr. Thomas Butcher, South Norwood, taking first for three stands for the dinner table, with designs of oblong shape, the arrangements partaking of a dwarf character, but the flowers, although good, were too much mixed. Collections of cut flowers were shown by Mr. James and Mr. Finch, the latter exhibitor putting up a strong lot in the amateurs' class. Prominent amongst miscellaneous trade groups was a remarkably fine display of pot and cut *Roses* from Messrs. W. Paul and Son, Waltham Cross. Amongst these note should be made of the superior cut blooms of *Maréchal Niel*, rich in colour. Climbing *Devoniensis*, *The Queen*, *White Lady*, *Magna Charta*, *Violette Bouyer*, *Danmark*, and *Sunset* were also in good condition. The plants consisted of some of the foregoing and other well-known kinds. From Messrs. B. S. Williams and Son, Holloway, came another excellent group of *Amaryllises* and other flowering plants. From Highgate Messrs. Cutbush and Son sent a miscellaneous group, wherein *Leschenaultia biloba* major was most conspicuous. Messrs. John Laing and Sons also showed a choice assortment of flowering and foliage plants, *Begonias*, *Orchids*, and *Caladiums* being prominent. From Messrs. J. Peed and Sons came a large group of flowering and foliage plants, which formed an attractive feature, *Anthuriums* being conspicuous. Mr. T. S. Ware set up a very large assortment of *Narcissi* and perennials (cut blooms), and Messrs. Barr and Son likewise, these two collections making a gay display. Messrs. Carter and Co. had an extensive exhibit of well-grown *Cinerarias* and other plants, and from Mr. Causton's garden at Dulwich were sent several well-grown pots of *Mignonette*, these being far better than those to which prizes were awarded at the earlier exhibition in March.

A full prize list will be found in our advertisement columns.

ROYAL HORTICULTURAL SOCIETY.

MAY 12.

OWING no doubt to the near approach of the great summer show in the gardens of the Inner Temple, this meeting was not so extensive as some of its predecessors. There were, however, several noteworthy exhibits of *Orchids*, of hybrid hardy *Rhododendrons*, new forms of *Anthuriums*, and well-grown pot *Roses*. The attendance was better than usual, and a goodly number listened to the lecture by Rev. Prof. Henslow upon greenhouse hybrid *Rhododendrons*, his remarks being chiefly confined to those of the javanico-jasminiflorum sections with dried specimens to illustrate his lecture. The chairman, Sir J. T. D. Llewellyn, Bart., supplemented the lecture by recommending for more extensive planting the early-flowering hardy hybrids of the *Rhododendron*, of which he showed several varieties.

Floral Committee.

First-class certificates were awarded to the following—

PTERIS CRETICA CRISPATA—This is one of the handsomest forms of *P. cretica* yet raised, the pinnae being broader, elegantly crisped, and undulated along both margins, with the white median band of the variety *albo-lineata*. In habit it is more compact and dwarfer than either the type or the afore-named variety. The crispation is assumed as the fronds gain age, being not nearly so prominent whilst young. From Messrs. Veitch and Sons, Chelsea.

ANTHURIUM LAINGI—This is the finest of all white varieties yet raised, the spathes being of extra size, measuring about 7 inches in length by 5

inches in breadth. The colour is an ivory white, that of the spadix being of a pale flesh colour. Its foliage is massive, of extra breadth compared with that of most of the varieties with ornamental spathes. From Sir Trevor Lawrence, Bart., M.P.

ANTHURIUM BURFORDIENSE—Of the brilliant coloured varieties of the *A. Andreanum* type this is the finest of any yet shown. It has broad spathes of great substance with the uneven surface of *A. Andreanum*; these spathes measure as much as 7 inches across by 8 inches in length. In colour they are a brilliant vermilion, very glossy, the spadix an ivory-white. This is one of the most remarkable varieties yet seen. Awarded a first-class certificate. Also from Sir Trevor Lawrence's collection.

Awards of merit were also given to each of the following:—

SWEET BRIER LADY PENZANCE—This distinct variety is a seedling from the common Sweet Brier hybridised with the pollen of the Austrian Copper Brier in 1886 by Lord Penzance. The original plant is now a vigorous one of some 4 feet in height. The colour of the flowers of the seedling is a shade lighter than that of the Austrian. It has the Sweet Brier foliage. Shown by Lord Penzance.

LILAC LEON SIMON—This is an advance in the way of double Lilacs with pale lilac-coloured blooms, the spikes being of good size, the flowers quite double. The chief advantage of these double varieties is the greater length of time in which they last in good condition. From Messrs. Paul and Son, Cheshunt.

MYOSOTIS BEXLEY GEM—This is an extremely dwarf form of *Forget-me-not*, which, in the character in which it was shown, would prove a most useful plant for rockwork. It partakes somewhat of the character of *M. alpestris Victoria*, but much dwarfer than that excellent variety. Its flowers are of azure-blue colour. From Mr. Marshall, Auchinraith, Bexley.

Orchid Committee.

Awards of merit were given to the following:—

ODONTOGLOSSUM HALLI LEUCOGLOSSUM—The plant shown carried a very vigorous spike of a dozen fine flowers resembling these of the type except in colour, the groundwork being of a pale olive-green with blotches of brown. It is a striking and distinct variety. From Mr. G. Le Drux, Langton House, East Molesey.

ODONTOGLOSSUM CRISPUM WRIGLEYANUM—This partakes somewhat of the variety *Veitchianum*, but is suffused with a pale violet shade, otherwise in the bars and blotches, also in the size of its flowers, it resembles that fine kind. The plant bore an extra strong spike of a dozen blooms. From Mr. E. O. Wrigley, Howick House, Preston.

PHALENOPSIS SPECIOSA IMPERATRIX—This variety is quite an advance upon the type. The plant shown was a vigorous specimen with several flowers. The colour of these is a glossy purplish violet, a very striking shade, the substance, too, being greater than in most kinds. From Mr. F. Wigan's collection at Clare Lawn, East Sheen.

CATTLEYA SCHROEDERÆ (Temple's var.)—This is a superior form of the well-known *C. Schroederae*. From Mr. Temple, Leyswood, Groombridge.

CATTLEYA MOSSIÆ GIGANTEA—The latter word well illustrates this splendid variety; in all its parts it is of larger size, but the lip is the most striking, being deeply fringed with the peculiar colours, deeper than usual. From Mr. Malcolm Cooke, Kingston Hill.

A few other good things in the way of *Orchids* were shown both in a cut state and as plants. Of the former there was a magnificent collection of varieties of *Cattleya Mendeli*, from Mr. R. B. White, Arddarroch, Garelochhead. Both light and richly coloured forms were here to be seen, in some of which the lips were of extra size, with deep fringing. This collection illustrated the great variability there is in the colour and form of this fine *Cattleya*. Other cut *Orchids* were sent by Mr. F. A. Bevan, Ludgrove, New Barnet, among which was a good spike of *Dendrobium*

Goldieanum, which seen at a distance might be mistaken for a Vanda. *Cypripedium Lawrenceanum* was also of fine size. A small collection of plants came from Messrs. Seeger and Tropp, East Dulwich; these consisted of *Lælia purpurata*, a finely coloured *Odontoglossum vexillarium* and *Oncidium phymatophilum*, with varieties of *Cypripedium barbatum*. Mr. Wigan also sent a good plant of *Dendrobium clavatum*, after the style of *D. Paxtoni*, but with more glossy flowers; *Phalenopsis speciosa*, *Cymbidium tigrinum*, and *Lælia majalis* with six blooms and buds. To the last plant a cultural commendation was awarded. From Mr. Le Druze came a very fine variety of *Odontoglossum nebulosum* called *excellens*, which was certificated in 1888; it has chocolate spots upon a clear white ground, the flower of extra size; and two plants of *Odontoglossum cirrhosum grandiflorum*, with one each of *Trichopilia tortilis major* and *T. suavis*, and a good plant of *Odontoglossum Andersonianum*. A very fine plant and variety of *Cypripedium Rothschildianum* was sent by Mr. Murray, Oakwood, Wylam-on-Tyne. It was in robust health, with one spike of three extra large flowers. A plant of the curious *Selenipedium viridiflorum* came from Messrs. Sander and Co., St. Albans. From Sir C. W. Strickland, Bart., Hildingley, Malton, Yorks, came several very good plants of *Cattleya citrina* in excellent health and flower. One of these, if not more, has been in Sir Charles' possession for twenty years, showing that he well understands their peculiarities. An excellent plant of *Cypripedium Lawrenceanum* expansion was sent by Mr. Statter, Stand Hall, Whitefield, Manchester; this had extra large flowers well marked. From the same gentleman came *Cattleya Mendeli celestis*, a good variety of this Orchid.

As before alluded to, Sir J. T. D. Llewellyn, Penllergare, Swansea, sent several varieties of hardy hybrid *Rhododendrons*. These consisted of hybrids from such as *R. Aucklandi*, *Thompsoni*, *Broughtoni*, *campanulatum*, *catawbiense*, and *arboreum*. The trusses were of extra size and vigour, with a beautiful variety of colour from nearly white forms to lilac, deep rose, and crimson. To this exhibit a silver Banksian medal was awarded. Some excellent plants of pot Roses came from Mr. J. C. Tasker, Middleton Hall, Brentwood. These were the best plants seen for a long time from an amateur grower, and would have been a credit to Cheshunt even. The best were *Souvenir de S. A. Prince*, *Mme. Margottin*, *Souvenir d'un Ami*, *Mons. Furtado*, *Innocente Pirola* (free), *Grandeur of Cheshunt*, *Beauty of Waltham*, and *La France*. To this excellent exhibit was awarded a silver-gilt Flora medal. Messrs. Barr and Son staged an extra choice assortment of *Daffodils*, consisting of several of the later varieties which are now in good condition; with these were late *Tulips* and *Doronicums*, &c. A silver Banksian medal was awarded. A large assortment in profuse flower of *Polyanthus* came from Mr. Phippen, Reading, making a good display. To these was awarded a bronze medal. The same award was also made to several good plants of seedling *Amaryllis* sent by Mr. H. Still, Lismore, Wimbledon Park. Amongst these were some bright coloured forms. From the Royal Gardens, Kew, were sent flowers of *N. Bernardi*, very varied and beautiful.

Fruit Committee.

The exhibits were not numerous, but a few good things were shown. A very fine dish of James Veitch Strawberry, with good ones of Laxton's Noble and Auguste Nicaise, were sent by Mr. Leach, Albury Park Gardens. To the first named a cultural commendation was awarded. A Melon sent by Mr. Bradshaw, Davenham Bank Gardens, proved to be no advance upon existing kinds. An excellent half dozen fruits of Waterloo Peach were sent by Messrs. Burton and Son, Bexley Heath; to these a cultural commendation was awarded. Apples of superior size, quality, and colour were shown by Mr. Chas. Turner, Slough; these were Tasmanian produce, having travelled well, being also in excellent preservation. Those of one kind were of extra size, resembling Alexander; others consisted of King of the Pippins of capital flavour. From the Royal Horticultural Society's Gardens,

Chiswick, were sent some ten kinds of Rhubarb, the most promising being Paragon (Kershaw), Conqueror (Laxton), and Champagne (Hawkes), with good examples of the well-known Victoria.

The prizes offered for Narcissi were awarded as follows: 1st, to Rev. G. P. Haydon, Hatfield Vicarage, Doncaster, with a large assortment; 2nd, to Mr. H. J. Adams, Roseneath, Enfield. The latter collection made by far the best display, and was well arranged.

ROYAL BOTANIC.

MAY 13.

THIS was one of the best exhibitions held by the society for some years. The large tent was well filled, flowering plants predominating. The weather was delightful. The brilliant colours of the Azaleas, Pelargoniums, Roses, &c., were most effective, there being just enough fine-foliaged plants to set them off to the best advantage.

The usual bank set apart for Orchids was well filled. For twelve exotic Orchids in the amateurs' class, Mr. T. Whillans, Blenheim, was the only exhibitor, and obtained the highest award with made-up specimens of great merit. In the group were three specimens of *Cattleya Mendeli* with a score of blooms on each, *Cypripedium levigatum* with thirteen spikes, *Odontoglossum citrosium* with ten handsome spikes, *Dendrobium thysiflorum* with twenty-eight spikes, *Cattleya Lawrenceana* with eighty richly coloured flowers, *Dendrobium Jamesianum*, a mass of fine flowers. In the centre of the group there was a very fine example of *Cymbidium Lowianum* with ten spikes, and a handsome specimen of *Ada aurantiaca* added a bit of rich orange-scarlet to the group. In the corresponding class for nurserymen, Mr. H. James, of Castle Nursery, West Norwood, was awarded first prize for a very effective group, *Cymbidium Lowianum*, *Lælia purpurata alba*, and *Cattleya Mossiæ* being his best plants. There was only one group of Orchids in competition for the prize, and that was staged by Mr. J. Douglas, Great Gearies, Ilford. The centre of the group was a large specimen of *Cymbidium Lowianum* with nine spikes; well-flowered specimens of *Dendrobium nobile*, *Odontoglossum Edwardi* with long spikes, *Odontoglossum Roezli* and the variety *album*, *Cypripedium caudatum*, &c., were also included.

Groups of ten and six stove and greenhouse flowering plants were exhibited by Mr. Chapman, Hawkesyard, Rugeley, and highly creditable they were to the exhibitor, well deserving the first prizes awarded to them. The *Ericas* were covered with fine flowers; *Tremandra ericæfolia*, an immense bush, was covered with its charming rosy tinted flowers; *Anthurium Scherzerianum Wardi* formed a conspicuous object in the group of ten; and the *Ixoras* were well grown and flowered, while the handsome specimens of *Aphelexis grandiflora* with their soft rosy tinted flowers were charming in the extreme, albeit the plants were rather over-trained.

Messrs. Paul and Son, the Old Nurseries, Cheshunt, Herts, were, as usual, great in Roses. They exhibited nine handsome large specimens of a high standard of excellence. The group contained superb specimens of such fine crimson varieties as *Alfred Colomb*, *Sir G. Wolesey*, the rosy crimson *Beauty of Waltham*, the golden *Celine Forestier*, the best yellow for large specimens, and a handsome centre piece of the silvery Rose, *centifolia rosea*. For a group of twenty Roses in 10-inch pots the specimens from Messrs. Paul and Son had wonderful growth and flowers of superb quality, upwards of forty flowers being on one bush of *Celine Forestier*. *La France*, *Alphonse Souperet*, *Marguerite Romaine*, *Beauty of Waltham*, *Violette Bouyer*, *Innocente Pirola*, *Mrs. J. Laing*, *François Levet*, *Ella Gordon*, and *Mme. Lacharme* were the best.

Mr. Charles Turner, of the Royal Nurseries, Slough, exhibited six handsome specimen Azaleas. They were of large size and furnished with a profusion of flowers of good quality. *Roi de Hollande*, *Duc de Nassau*, and *Comtesse de Flandre* were the best of them. Of the pretty delicate-tinted *Mrs. Turner* there was a fine medium-sized specimen. The first prize was awarded. Mr. Turner,

made a most effective group in the class for twelve Azaleas in 12-inch pots. They were really handsome specimens, densely furnished with flowers of high quality.

In the amateurs' class, greenhouse Azaleas were numerous exhibited and of high class quality the largest and best specimens were sent by Mr. A. Offer, Handcross Park, Crawley. In the class where the pots are limited to 12 inches in diameter, Mr. H. Eason, Hope Cottage, Highgate, was first with six well-grown and flowered examples.

In the amateurs' class for six Pelargoniums, Mr. D. Phillips, of Langley Broom, Slough, obtained the first prize with remarkably well-grown and flowered specimens. The same exhibitor was awarded the first prize for twelve *Calceolarias* of a good strain.

Mr. Charles Turner was first in the trade class for six Pelargoniums of great excellence, but the same exhibitor was beaten in the class for fancy Pelargoniums by Mr. Phillips, whose six specimens were smaller, but superbly flowered. Cape Heaths were not up to the usual standard of excellence. Mr. Mould, of Pewsey, Wilts, was awarded the first prize for six. A nice group of six Roses gained a first prize for Mr. P. Perry, Middleton Hall, Brentwood.

Foliage plants were not up to the usual standard. The best group came from Mr. Henry James, who also gained a first prize for *Dracenas*. The fine-foliaged plants which gained the first prize for Mr. A. Offer were of much better quality, the *Crotons* being noble specimens. Mr. Mould gained a first prize in the trade class for six stove and greenhouse plants, and also for twelve not of large size, but clean and well grown. Messrs. Paul and Son were first in the class for a collection of alpinists; while in the corresponding class for herbaceous plants Mr. Ware was first.

The centre of the tent was most effectively furnished with four groups of miscellaneous plants. Conspicuous amongst them was a very fine collection of Roses from Messrs. W. Paul and Son, Waltham Cross. There were six large boxes of cut Roses, the variety *Maréchal Niel* being very fine, and fifty pot Roses in standard and dwarf specimens (silver-gilt medal). The group from Messrs. B. S. Williams and Son was composed principally of exotic Orchids, amongst them being *Masdevallia Harryana lilacina*, a charming pale variety; *Cypripedium selligerum majus*, and a splendid example of *Cymbidium Lowianum* with seven spikes, &c. (silver-gilt medal). Messrs. Laing and Sons, of Forest Hill, made a very effective display, principally of *Begonias* and *Caladiums* (silver medal). Messrs. Cutbush and Son, of Highgate, had an effective group of flowering and foliage plants (silver medal). Messrs. Carter, of High Holborn, made an effective display with single and double *Petunias* (silver medal). Messrs. Balchin and Son, of Hassock's Gate, had a charming group of the pretty blue *Leschenaultia biloba major* (bronze medal). Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, had a group of Tree *Pæonies*, the flowers of superb quality (silver medal). Mr. T. H. Burroughs, of Ketton, Rutland, sent a fine group of cut flowers of *Anemones*. A group of new Pelargoniums of the decorative type was sent by Messrs. J. and J. Hayes, of Edmonton, many of them of considerable merit (bronze medal).

Mr. C. Turner, in addition to his pot Roses in the competing classes, also staged a group, and was awarded a silver medal. Roses in pots were also shown by Mr. Perry, for which he received a silver medal. Messrs. Barr and Son staged a group of cut hardy flowers, consisting principally of Narcissi, and were awarded a bronze medal. Mr. Rumsey, Waltham Cross, had cut Roses and received a bronze medal, the same award going to Mr. Wiggins for a group of double white Stocks.

A full prize list will be found in our advertising columns.

Names of plants.—*H. W. Harper*.—A remarkably fine bloom of Rose *Maréchal Niel*.—*W. Burton*.—*Alpine Auricula*; very rough and of no value.—*H. B.*—Flowers of *Prunus triloba* fl.-pl., a valuable flowering shrub.

"The Garden Annual" for 1891.—Contains Alphabetical Lists of all Branches of the Horticultural Trade connected up to November 10 last. The Lists of Gardens and Country Seats (containing over 50000) have been very carefully and extensively revised and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHARD AND FRUIT GARDEN.

THINNING CROPS IMPERATIVE.

BEFORE these remarks appear in print most of the wall trees will have flowered, and if what has already taken place in the more forward localities is any criterion, there will be such crops of fruit generally as have not been seen for many years past. An abundance of fruit is a great boon to the country at large, but whether a super-abundance is beneficial to all alike, that is to say, growers as well as consumers, is a moot question. When the trees generally are over-weighted with fruit, much or all of this is of inferior quality and of comparatively little value, and this is not the only drawback. Over-cropped trees are so greatly impaired in vigour, that they require at least one clear season's rest before they recoup their energies, so that the chances are we may have a great glut of fruit this summer and a scarcity next year. I am making no attempt to throw cold water over our glorious prospects, but, on the contrary, would have all make the most of the present promise, at the same time not losing sight of the future. There is neither wisdom nor forethought in allowing fruit trees to exhaust themselves one season and to be too enfeebled to bear a crop the next year. Yet this is what most probably would happen in innumerable cases where no thinning out is practised. The bird-in-hand theory does not apply to fruit culture in the open any more than it does under glass, and all who would have a valuable crop of fruit this season and the chance of one next year should at once start thinning the great clusters of fruit while yet it can be done. This timely thinning out and the gradual selection of the best formed fruit will lead to those reserved growing to their full size and be of much greater value accordingly, while the trees will not be thoroughly exhausted in efforts to mature a far greater weight than they are capable of properly doing. That a natural thinning out would take place in very many instances I readily admit, but it is this doubtful process that ought to be anticipated by early, and it may be somewhat severely reducing the numbers of small fruit before the trees are weakened in the attempt to swell all that are set. Unfortunately, much of the thinning out has of necessity to be done when the gardener has a great stress of other work to contend with, but much of it can be carried out in a short space of time, always provided it is not too long delayed.

Apricots are among the first requiring attention. In many instances the crops will not be heavy, but the fruit has set irregularly, there being great clusters here and there, and in particular on spurs hugging the walls. These, therefore, should be freely thinned out, or they will soon press against and spoil each other. Remove all badly placed for swelling, and leave the rest about 1½ inches apart on the spurs and branches. If the set is regular, this would be far too many to leave, one fruit to every 4 inches of tree surface being a heavy crop. The Moorpark ought to receive the most room, this being the finest variety, and paying well for liberal treatment. Experienced cooks can put all the Apricot thinnings to a good use, excellent pies being made with them. Pears will also soon

be fit for thinning, and no fruit better repays for this attention. I have already commenced thinning out the clusters, and it will be persevered with on all the wall trees necessitating it. Nor is it the wall trees only that may require to have their crops lightened, the pyramid bushes and cordons and horizontally trained trees also flowering abundantly well repay for any time spent on them in the way of thinning out the fruit. Some varieties set more freely than others, as, for instance, Beurré d'Amanlis is now furnished with great bunches of fruit; whereas, Marie Louise has failed to set more than one or two fruit out of a bunch of flowers, and where weakly every flower has fallen. On Passe Colmar, Doyenné du Comice, Louise Bonne of Jersey, Beurré Diel, Comte de Lamy, and several others that could be named nearly every flower appears to have been followed by a sound fruit, and in all such cases the thinning out will be severe. It is not merely the fruit of larger varieties that ought to be systematically reduced in numbers, but the smaller sorts, including Doyenné d'Ete, Citron des Carnes, and Winter Nelis, must also be freely thinned out, or otherwise the fruit on overcropped trees will be worthless. If the clusters are thick, one fruit left on each would be ample, and this is too many for the large-fruited Pears.

Plums were literally smothered with flowers, and if the set generally equals what has taken place in the case of the earliest trees, there may be more fruit than leaves. Some of the choicer sorts, notably the Green Gage, are somewhat fickle, the set frequently turning out less satisfactory than first appearances would lead anyone to expect. The thinning out of these should, therefore, be cautiously proceeded with, not much of it being done till the fruits are seen to be swelling off well. The hardier varieties, notably the Victoria, are almost certain to produce extra heavy crops, and unless rather early and severely thinned out, none of the fruit will be of really good quality. At present I am undecided about the Cherries. Ours, apparently, are not setting particularly well, but should there be any extra large clusters these will have to be freely thinned out, and the rest will be all the better for it. Peaches on open walls promise to be unusually plentiful, and in all cases where the fruit has set thickly, the thinning out should be commenced early, and completed when they are near the size of medium sized marbles. Open-air trees are, whenever possible, cropped, as a rule, more heavily than those under glass, but if fine examples are wanted, each ought to have a clear space of not less than 6 inches all round, or, at any rate, the average space should not exceed 6 inches each way. The Apple trees will be a glorious sight, the report from various south-western localities all giving the same glowing account. Thinning the crops on large trees is simply out of the question, and these must, therefore, be left to Nature, but in the case of garden trees, whether these be half standards, pyramids, espalier-trained bushes, or cordons, the thinning out, if the set is at all proportionate with the amount of flower, ought to be severe. Nor should this important work be long delayed, the first proceeding being to clear the clusters of old petals and to reduce the number of fruit by at least one half. This is especially necessary where caterpillars are at all troublesome, not merely in the case of Apples, but also Pears, Plums, and stone fruits generally, or otherwise a single grub in each cluster will have spoiled the lot before being discovered. Nor can the grubs be dislodged or got at in any other way than by hand-cleaning and thinning

out. Prospects being realised, there will be such an abundance of Apples, that only the very best samples will fetch good prices in the markets, and this ought to be a strong reason for early and severe thinning out of the crops wherever they can be got at.

Quite young trees are also flowering more freely than usual, not a few of those newly planted making an attempt to bear crops. This will be found a not altogether unmixed blessing, and in all probability many growers will have cause to regret having allowed their young trees generally to bear as many fruit as they will. If they are wanted to remain in a stunted state, let them bear a crop of fruit, though not a heavy one, or it will be of little value, but in most cases it would be a much wiser plan to remove the whole of the fruit that sets on newly-planted trees, and to only very lightly crop all but the most vigorous of those longer established. Everything should be done to promote strong healthy growth, as it will be a comparatively easy matter to induce fruitfulness when a good foundation has been laid.

W. I.

APPLES IN MARKET ORCHARDS.

APART altogether from the importance of having Apple trees in market orchards in few sorts and in ample quantity of each, there is the special beauty which attaches to long rows of trees alike in style, form, colour, and character of blooms. As just now seen, orchards of great extent and so planted exhibit beauty far beyond what others of a mixed nature can give. Just in front of my house there is one of the mixed orchards, and in it may be found trees of all sorts of shapes and sizes blooming early or late, or perhaps, so worthless are many of the trees, not at all. So far as scattered trees give beauty there is plenty, but as to such effect as is found in other and correctly planted orchards there is none. Of course it is hardly the rule anywhere to plant Apples only, and that does not detract from the general beauty of the blooms. Sometimes rows of Lord Suffield, Manks Codlin, Julien, Cox's Orange and Blenheim Pippins, or other common market Apples are alternated with rows of Victoria Plums, Hesse Pears, Bigarreau or Morello Cherries, or Crittenden Damsons, but, all the same, the unity of character which should always characterise any good orchard is well preserved. Even if some bloom early or late, at least the entire row of trees is in accord. In planting fruit trees in rows of sorts the grower knows at once what space his trees will require during the succeeding thirty years, and he plants accordingly. When trees are mixed, the fruitless or barren sorts invariably develop into the finest and most valuable looking trees, whilst the hard-working regular croppers wear perhaps a half-stunted aspect. These, however, are the bees of the orchard, the others are the drones, and are less useful in the orchard than the drones are in the hive. They should early in life be decapitated and regrafted with the most desirable sorts in the row, so that in time comparative uniformity of sort is produced. It is annoying to a grower to have to run all over his orchard to fill his baskets with any one sort of fruit. If a few kinds have a good reputation and invariably command good prices, it is by far the wisest course to plant chiefly of these few sorts, and thus when there is a crop have an abundant supply. No two growers ever have all the same sorts, so that there is always the chance that but moderately fruitful years may produce good crops for some one. That is more likely to be the case with Apples than with any other fruits. In planting young orchards now, the numerous old kinds which have done for growers such good service have to submit to a weeding out, and are replaced by newer varieties. Really the planter of an extensive orchard who trusts little to his own or to general or local knowledge but accepts the advice of the nurseryman, would find himself in a condition of bewilderment. If the nurseryman has one sort he can strongly re-

commend, he has 150 sorts all equally fitted for market; but as the intending planter wants at the most a dozen kinds only, so as to have few varieties and when they fruit an abundant crop, he does the most wisely to take stock of the surrounding orchards, mark a few of the good sorts in them, avoid the worst, and fill up with a few of the very best of the newer varieties. In such a case, whilst assuredly having some sound eggs in his basket, he is entitled to have full confidence in all. On the whole, it is invariably found that the grower of only a dozen sorts of market Apples reaps more frequent crops than does the grower who bases his expectation on fifty varieties. A. D.

Pyramid Apple trees.—We might make more use of these as ornamental shrubs than we do. Placed here and there in large wide borders filled with hardy perennials, they look exceedingly pretty, both at the present time when they are in flower and later on when they produce their fruit. Some kinds are much more adapted for this purpose than others. Lord Suffield is beautiful in flower, and early in autumn the large green shiny Apples look exceedingly pretty. We need not banish all this beauty to the kitchen garden. Often the kitchen garden is some distance from the house; why should it be the only part of the premises in which such ornamental trees are to be found? Cox's Orange Pippin makes a beautiful pyramid, and the fruit is one of the best. I cannot see why we plant Weigela rosea in our gardens and shut out Apple trees. The flowers of the Weigela closely resemble Apple blossoms; they are not any prettier, but no fruit comes afterwards. The fact that the Apple is deciduous is rather in its favour, as at a time when the tree has no attraction in itself it can be surrounded by bulbs which will succeed all the better because there are no evergreen leaves in the way.—S.

Fruit tree blossoms.—It would be almost impossible to exaggerate the beauty of the bloom on fruit trees this year, for during the time I have been connected with gardens and orchards I never remember one in which the blossoming of so many varieties came at one time. The season has been so remarkably late, that even the usually early blooming kinds seemed dormant until the end of April, and it was not until May came in that all the kinds, both early, mid-season, and late, burst out at once into a blaze of bloom. One of the prettiest sights of the year is to look down on fruit gardens and orchards, where the blossoms of Apple, Pear, Plum, Cherry, and other trees are mingling their delicate hues together. If anyone were sceptical as to the value of fruit-bearing trees for ornamental purposes, he need only take a stroll through the fruit orchards now to have his doubts dispelled. One of the most highly coloured Apple trees we have in bloom now is Lord Derby, its fine trusses of bloom being of a rich deep crimson. The weather is at present favourable for the blooming period, being still and dry, so that we have every reason to look for a good crop of fruit. My own idea is that the bloom sets better in still calm weather than in more windy periods, as I find that under glass one may do more harm than good by over-ventilating, the trees being chilled and the flow of sap checked by cross currents of air, that are sometimes let in during the flowering period under the impression that they will distribute the pollen. We may do this even too effectually, for I find that the best sets of fruit are secured by giving the trees every opportunity to grow without any check, by keeping the temperature up during the blossoming period, even if very little air is given.—J. G. H.

Watering outside Vine borders.—Outside borders, though apparently very dry, are not so, and it is only the surface that stands in need of gentle rains occasionally. At any rate this is the case with most borders composed principally of rather heavy loam, and to heavily water these at this early date would be a mistake, as in all probability they are still far too wet and cold for the good of the Vines. Nor is it advisable to heavily mulch such cold soils with strong or farmyard

manure, as this serves to exclude both warmth and air, both of which the borders stand in great need of. In many instances probably the best course to pursue is to keep the surface in a free open state, the use of a flat hoe preventing cracking, and if this is not sufficient a surfacing of good leaf-soil or old Mushroom bed manure would be far preferable to the manure. The latter can be very well dispensed with, both as a mulch and fertiliser, especially if approved Vine manures are applied either in showery weather or prior to watering. Outside borders largely composed of light, non-moisture absorbing materials may soon require to be well watered. They ought to be examined frequently, and be freely watered before the soil becomes very dry, or otherwise very much more water will be required to properly moisten the soil. Such borders may safely be mulched with manure.—W. I.

STRAWBERRIES.

In this neighbourhood last year very large breadths of Strawberry bloom suffered severely from frost, presumably because the breadths had recently been too thickly mulched with long manure, which helped to maintain during frosty nights a moist atmosphere about the bloom. Whilst that mistake will not be repeated, it does not seem likely to give much trouble this year, as the ground is exceptionally dry, far more so than is usual at this season, and thick manure mulchings are sadly needed to prevent that free radiation of moisture which now takes place. We have a season indeed in which very liberal waterings are needful if they can be given. So long as the nights continue cold with just a smell of frost in the air, so long would it be unwise to water in the evening, although it is usually held to be the best time, because the liquid thus given is enabled to percolate into the soil, and thoroughly refresh roots and foliage during a long cool night. Still moisture thus artificially applied when the nights are clear presents great danger to the bloom which it is well to avoid. The next best thing to do is to water liberally early in the morning and thus enable the moisture to penetrate freely to the roots before the sun becomes too hot. A thorough soaking of the plants in the early morn well down to the roots, a free stirring of the soil with a hoe at midday, and then the addition of a mulching of long manure immediately afterwards, present as useful a course of treatment for Strawberry breadths as can well be conceived for such a season as is the present. It is pleaded that sewage might be utilised for Strawberry beds. I fear that is hardly good advice; it is so difficult to dissociate the fruits grown on the ground as they are from the foul nature of the irrigant. There is perhaps hardly another crop to which the same objection applies with similar force. Sewage matter leaves behind on the soil not only obnoxious smells, but much objectionable insect life which would infest the fruits as the gases from the sewage would poison them. I fear few persons would care to partake of sewage-grown Strawberries, especially during a dry season, when, so scarce is rain, that there would be no cleansing showers to purify the soil. It may be said that when we use artificial manures so freely for pot Strawberries, why so very doubtful as to the use of sewage? The two things have a wide distinction, but even in the case of artificial manures, if these be applied in too hard a condition and too freely, the quality and flavour of the fruits materially suffer. We may well remember that just now we could not hope for a more valuable fertiliser for all sorts of crops, Strawberries or otherwise, than a heavy warm rainfall. Still, that would be in the form of the purest of water, and we have but to fertilise our Strawberry breadths with similar liquid to do that which is right and safe. With such a prospect before us of a wondrously heavy fruit crop, I cannot conceive of a better use for strong sewage than applying it liberally to help the tremendous strain which will presently be put upon the trees. It seems as if we should find the enormous fruit promise compelled to contend with soil in a remarkably dry condition, and unless there be

between now and the autumn a heavy rainfall, it must not be a matter for surprise if samples after all should be small. The fact of the unusual small rainfall since last August, a winter and spring dry, almost beyond precedent, makes us realise the probable value of every drop of moisture, sewage or otherwise, which can be utilised for irrigation during the ensuing season. So far as Strawberries are concerned, the plants are now pushing up bloom freely, and therefore it is a critical time to water them much, and yet the future nature of the crop will materially depend upon the abundance of moisture at the roots or otherwise for the next month. It is not so much just when the fruits are colouring that moisture is needed as earlier. Huge fruits may be all very well, but sweetness, firmness of flesh, and excellence of flavour are of far more importance. If the spring or early summer holds dry we shall find the fruits very firm and good in flavour no doubt, but if size is to be secured there must be no stint of water for the next few weeks to keep the plants well up to their work.

A.

STRAWBERRY NOBLE.

I MUCH doubt if this Strawberry will ever take a foremost position among early forcing kinds. From a commercial point of view it is undoubtedly very valuable, and will probably take the place of Sir J. Paxton among market growers, especially in those districts where the ripening period is sufficiently early to allow of growers there making good prices of the first gatherings. This is the estimate of Noble formed by a Covent Garden salesman of good experience. He tells me that the majority of growers find a difficulty in colouring it well. When forced to come in during April, the berries are apt to lose much of their natural rich crimson hue, and are so soft that they do not travel well, and cannot be kept a day or so, as may be done in a time of dull trade with such firm kinds as Sir J. Paxton. As an instance of the difficulty of getting Noble in its true character early in the season, I may mention that samples of it brought to Covent Garden several weeks ago could not be sold at any price. I should certainly advise all who may be thinking of growing the Strawberry for the London markets to bear this fact in mind. Colour is such a primary consideration in Covent Garden, that the man who cannot put a good bright tint into the berries will lose money at Strawberry forcing. Hitherto I have had no difficulty in doing this, but my experience of this Strawberry is limited to two seasons, and I have not attempted to get it in before the end of May, at which time it is, of course, easier to colour the berries than earlier in the season. It must be remembered, too, that we had remarkably sunless forcing weather all through the early spring, and without a certain amount of sunshine it is almost impossible to put colour into any kind of fruit. The estimate I have formed of Noble is that for outdoor culture it is without a rival for the early supply of our markets, and that it will be found equally useful to come in during May and the early part of June under glass. It not only comes into bloom early, but the fruit swells up so quickly, that but little fire heat is required to bring it into market in the height of the London season, the only time now when forced Strawberries are much in demand. For growing in cold frames it is the premier kind. Last year grown with Paxton and President, it was ripe when these latter kinds were only just beginning to colour. But in private gardens I doubt if Noble will in the future hold a high position as a first early Strawberry. Brought along in a high temperature, I doubt if in colour and flavour it will equal Héricart de Thury and Grosse Sucrée. The experience of some of the readers of THE GARDEN on this point would be of value. J. C.

Byfleet.

Littering down Strawberries.—This is generally left till too late, as with many it is not done till the plants are in fruit, instead of which it should be carried out as soon as the beds are cleaned and put in order in the spring, as then it not only prevents the soil from becoming dry,

in the way it has this year, but it affords great protection to the young leaves that are forming and shelters the plants. Besides being of such benefit in the manner referred to, there are other reasons for littering down Strawberries before they start much into growth, and they are the ease and speed with which the operation may be carried out at that early stage compared with the time it takes later on, when the foliage is advanced and the flower-spikes are in the way of the worker. Where clean, moderately short straw can be got, there is nothing better, except it may be Bracken, for the fruit to lie on, the latter being valuable in gardens where slugs abound, as, owing to the sharp edges of the stems and points where split or broken, slugs cut or impale themselves if they attempt to crawl over or in it. Although by many, stable litter is considered objectionable, it may be used with safety without imparting any taint if shaken quite clear of all droppings and put on the beds early as advocated, as then the rain and air wash and sweeten it long before the fruit is ripe, and it becomes clean from exposure. Amateurs and market growers of Strawberries near towns, where litter is scarce and dear, very frequently use tan, which can generally be had for the carting; but the worst of that material is that it is bad for the land if by chance it is left on and worked in, as, being of a woody nature and slow in decomposing, it breeds fungus, which is hurtful to the roots of all plants. The way we manage is to save the straw that has been used in the ice house, and all that for covering Seakale that we have for a late supply, the former of which is used for the Strawberries before they start, and the latter as it is taken when the Kale is cut, so that the straw answers the two purposes and gets suitably prepared for the latter by being broken up, and it is then easy to put it between the rows and well up to the plants. With the littering down done, the next thing to think of is the application of sewage, which, if not over-strong, cannot well be too freely administered to Strawberries in light soil or where drainage is good. Those who cannot get liquid manure will find that nitrate of soda, dissolved in water in the proportion of 1 oz. or so to two gallons, will act as a powerful stimulant and greatly improve both foliage and fruit.—S. D.

A KILLING FROST.

BITTER blinding hailstorms prevailed on Saturday, May 16, and during the night following the thermometer fell to 21°, or 11° of frost. Again on the 17th hail and snow fell in quantity, turning to cold rain through the night and for the greater part of the 18th. To-day (19th) the weather is quite bright, but 9° of frost were registered in the morning. Much damage has been done, for the very hot weather of the early part of last week had brought things on fast. The early Potatoes even on well-sheltered borders have been cut almost to the ground, while in the open the few that were up were cut off. Scarlet Runners and French Beans (early sowings) are quite killed, exposed Gooseberries look parboiled, and more than half of a good crop has been destroyed; the kind that has suffered most is the old rough yellow. Plums nearly as big as Peas are quite black; only those on the under sides of the shoots have escaped. Cherries (rather smaller) are in the same case. Pears have suffered badly, and Strawberry flowers even to the smallest, which were open in the least degree, have had the embryo fruits entirely destroyed. Asparagus was frozen through, and the stems have since shrivelled. The young growth of some of our hardy plants could not stand such weather, and *Spiræa palmata* and *Polygonum sachalinense* by the waterside have been badly cut, while in the borders *Dielytra spectabilis* (Lyre Flower) and other things have been spoiled for flowering. The young shoots of a fine Beech hedge are badly cut, and the hedge-top especially is quite browned as though scorched. It will be some days before the full extent of the damage can be seen, but enough is already visible to show almost unprecedented damage for the time of year. Numbers of dead swallows are lying in all directions,

and the survivors are very weak on the wing; scores of them have flown into the sheds for shelter and remained huddled together yesterday all day in a very pitiable manner. A few days ago hundreds of swallows, martins, and a few swifts were flying about the mere, but to-day very few indeed may be seen.—J. C. TALLACK, *Livermere Park*.

The hope of an abundant fruit crop in East Yorkshire this year has completely gone with the arrival of one of the most severe May frosts within recollection on the morning of Whit Monday. Not only have all the open blooms on Plums, Pears, Cherries, Strawberries, &c., been destroyed, but thousands have been killed in the bud. Whole clusters of unopened Apple blossoms have had their inner cores destroyed. Gooseberries have been pulped. Young Beech trees with fresh unfolded leaves are now hung in blackened rags. The Maples, Sycamores, Spanish Chestnuts, Spruce and Douglas Firs appear as though their growing tips had passed through fire. The damage done is incalculable. Twenty degrees of frost were recorded by a standard terrestrial radiation thermometer of Negretti and Zambra's, which chilling influence is everywhere painfully apparent.—J. LOVEL, *F.R. Met. Soc., York Road, Driffield*.

Herewith I send you buds and blossoms of a few things to show what the frost has done in this neighbourhood. The worst frost was on the morning of the 18th inst. Snow fell heavily the greater part of the preceding day. It is very many years since so severe a frost came as late as May 18. Bush fruit of all kinds, Plums (the earliest of which were well set), Pears, Apples, Cherries, both early and late kinds, are killed, as you will see all buds are black when opened. The list includes trees on south, west, and east walls. Strawberries and Raspberries, too, have suffered badly. I enclose samples of former from young plants put out first week in August last. They stood the winter better than two or three-year-old beds; hence were considerably earlier. I fear the crop from them is ruined. The foliage of the older beds has suffered much, but the flower-spikes were well down under the foliage, so perchance they may be safe. It would be interesting to know from other gardeners situated in some of the most exposed parts how much they have suffered. The leaves of the Beech trees have been quite blackened. Dahlias covered over with treble mats in a very warm and sheltered place have been killed.—JOHN RAINBOW, *Brough-ton Hall Gardens, Yorks*.

The cold weather of the latter part of last week, freely mingled with snow and hail on the 15th and 16th inst., was succeeded on Whit Sunday morning by a sharp frost of 6°, which left its mark on many things. Some old stock Dahlias that had been used for propagating were completely blackened. The young shoots of the Ash and even the Ivy were similarly blackened; the latter, which covers a wooden partition fence and faces south, had scarce a shoot untouched by the frost. *Polygonum sachalinense* is another of the tender ones, as also are the two Plantain Lilies, *grandiflora alba* and *Sieboldi*, the remaining members of this group being unharmed. Some *Mme. Desgrange* and *Boule de Neige Chrysanthemums* which had been fully exposed for ten days prior to the frost were very much browned, while *Dielytra spectabilis*, usually the first to suffer, is unharmed. This is singular, as it forms a companion plant to the Plantain Lilies just named. I never remember these latter suffering so much from spring frost before. *Bocconia cordata* is among the sufferers.—E. JENKINS, *Hampton, Middlesex*.

The prospects of a crop of fruit generally were most cheering until the night of the 16th. During the day heavy snowstorms fell on the Cotswold Hills. These were followed by a very sharp frost. We registered 9°. All our Potatoes which were up were cut to the ground, and I fear that the bloom of Apples, Pears, Cherries, and late Plums is damaged to such an extent as to totally spoil them. I hear that as many as 11° of frost were registered in a neighbouring garden, and the Asparagus was quite ruined. This is most disheartening, as never have I seen fruit trees look so

promising. Many hardy plants have suffered badly.—T. ARNOLD, *Cirencester House Gardens*.

I send all the bloom spikes off one plant of Noble Strawberry to show the havoc made by the severe weather of the last few days. King of the Earlies and Sir Joseph Paxton do not seem to have been injured quite so severely, but the crop has certainly received a severe check in this district.—HENRY F. SHEPPARD, *Bedford*.

ROSE GARDEN.

ROSE MME. BERARD UNDER GLASS.

ON p. 435 D. T. Fish expresses surprise at my strong recommendation of this Rose for indoor cultivation. With me it has proved quite as free flowering as *Gloire de Dijon*, and I am convinced it would prove equally so with D. T. Fish if he can get the summer growth thoroughly well ripened. *Mme. Berard* requires to have its wood well matured, more so than any other Rose I know; then the result will satisfy the most exacting. I find *Mme. Berard* equally as free and a greater favourite than *Gloire de Dijon* on account of its deeper colour and more handsome foliage.

I do not see how D. T. Fish's idea of using *Reine Marie Henriette* as a stock for *Maréchal Niel*, and allowing the *Reine Marie Henriette* to grow so as "to bring up a full tide of sap" can in any way assist to master mildew, as this blight is not in the least affected by the stock, being, as far as my experience goes, always brought on by cold draughts, dryness at the root, or sudden changes in temperature, three things that no kind of stock can affect in the least.

Now a few words respecting "A. D.'s" note on p. 436, who says he tried these two Roses "for several years, and found them too gross growing and too moderately blooming." My firm opinion is that nine out of ten growers do not treat these strong climbing Roses in a proper manner. I know of no Rose that is shy blooming among this class, that is provided they are induced to form a good growth and which can be thoroughly ripened. In all cases I have found them equally free with *Maréchal Niel* and *Gloire de Dijon*. I grow *William Allen Richardson*, *Bouquet d'Or*, *Lamarque*, *Rêve d'Or*, *Mme. Berard*, *Belle Lyonnaise*, and *Reine Marie Henriette* upon pillars in a Rose house, and find them all flower very freely from well-ripened wood. The good old *Gloire de Dijon* is a great favourite with me, but as almost every grower has a few blooms of this variety to put into the market, I find those of the varieties named above command a better sale.—RIDGEWOOD.

It might interest Mr. Fish to know that I have this Rose growing under glass, and very satisfactory it is. The fact of the blooms being less double than those of *Gloire de Dijon* causes it to be of better form than this old, but not despised Rose. It is a strong grower, has good foliage, and is exceedingly free-flowering. I have a *Maréchal Niel* in the same house that is worked on *Mme. Bravy*. It last year showed signs of growing knotty where worked, and I allowed the *Mme.* to throw up a couple of growths to, as I thought, strengthen the stock with the object of getting rid of the warts, but although both stock and top are healthy and vigorous, the warts continue to get bigger.—J. HINTON, *The Gardens, Pull Court, Tenchesbury*.

Aphis and the Rose maggot.—It generally occurs when we get cold, uncongenial weather that insect pests abound, and the present season proves that it holds good again, as look where one may at Roses, they show only too plainly that the maggot and fly are at work. The latter is bad enough, but the former is much worse. Be this as it may, certain it is that we have the insidious interloper to deal with, and the sooner that those who have Rose bushes and wish to see fine blooms destroy it the better, for if not, it will do irreparable mischief by eating into the buds now forming in the tips of the shoots. To think of waging was

with the maggot by the use of any of the insecticides is futile, as, however skilfully applied, they will not reach it, and unless they actually come in contact it is safe. It is the practice with many loving rosarians to go carefully over their plants and untwist the leaves, and so hunt the enemy out, but the process, even with the most expert, is a slow one, and unless practised by skilful hands much harm may be done, as the tender leaves become torn in the opening. The safest and most expeditious way of ridding Roses of the maggot is to gently squeeze all affected shoots or leaves between the thumb and finger, bringing just sufficient pressure to smash the insect without bruising the foliage. For destroying the aphid, no plan is better or safer than that of using some approved insecticide at the proper strength, and throwing the liquid in the form of spray on the plants, wetting every affected part, as then no fly will escape. Fortunately, instruments are now being made and sold for the purpose of spraying, and though the cost may be against them at first they really soon pay for themselves in the insecticide saved, as it takes so much less than when syringed or applied in the old-fashioned manner. In cases where only a few shoots show that they have aphid, they may be dipped if long enough to bend over slightly, or have a little tobacco dust puffed into the tips. This the fly objects to greatly, and while showing their discomfort they may easily be washed off by applying water with force from either a syringe or garden engine, which, besides bringing the insects down, will do the plants much good if the weather is warm.—S. D.

ROSE WILLIAM ALLEN RICHARDSON.

On page 356 I gave you a brief description of my Rose house; I now send a few flowers of that grand Noisette Rose, William Allen Richardson, taken from one of the plants growing on the pillars of the house. This plant was turned out some five or six years ago, and was then only in the dormant bud, and worked upon the De la Grefferaie stock, which I find to be the best for this Rose. No doubt it is to a great extent upon its own roots now. More than once I have noticed in the gardening press that this Rose is too weak in growth to be styled a good climber. My plants are quite as strong as those of Maréchal Niel, and the specimen these blooms were taken from has some eight or ten shoots each fully 14 feet long and covered with the same quality of flowers as those sent. There are from 500 to 700 flowers upon this plant alone, whilst its fellow has some 300 blooms. Many of the trusses have from three to seven buds. These plants will continue to bloom slightly until next autumn, when another grand display will be made, almost as good as that at the present time, and upon the young shoots that are now well into growth and some 6 feet long. I treat this variety exactly the same as I do Maréchal Niel and other strong climbers, i.e., induce as much strong growth as possible, which I endeavour to get thoroughly ripened, and have never had to complain of the shyness of this sort, as I have frequently noticed other growers do. The colour of the flowers sent you is the proper one for this Rose. It varies, even on the same plant, the colour sometimes being pure white, except for a shade of pale straw colour in the centre, varying from this up to the deep orange and yolk-of-egg tint so much admired by all. The plants that are full of flowers now, of the orange colour, bore a few light-coloured blossoms early in the spring.

Whether in the open or under glass, this is a grand Rose for a pillar or wall, and must not be pruned; let it grow away as strongly as it will, and sooner or later a fine crop of flowers will be had upon all of the ripened growth.

RIDGEWOOD.

*** Very fine flowers of this useful button-hole Rose. The colour of the blooms was a rich orange, the foliage also being remarkably strong and healthy.—ED.

Rose Cleopatra.—This is one of the prettiest Tea Roses introduced for many years. It is thoroughly distinct and one of the finest for cut flowers—blooming

in trusses, so much so, that I wonder at its not being classed among the Noisettes. When the buds are thinned, really grand blooms are the result. The buds are very long and pointed, while the colour is a soft light flesh edged with bright rose, and having a decided metallic tint in the centre of the flower. It has been a grand Rose in pots this spring, and I can imagine no better kind for flowering in the open air in the autumn.—RIDGEWOOD.

NOTES OF THE WEEK.

Clivia Lady Wolverton.—Permit me to call your attention to a slight inaccuracy in connection with the above named Clivia which appeared in your issue of May 9 (p. 443). Your correspondent there says: "This is one of the several hybrids raised at the Forest Hill nurseries of Messrs. J. Laing and Sons." That statement is incorrect, as Clivia Lady Wolverton was raised by me here at Iwerne Minster from a seed imported amongst others from South Africa. I bloomed it successively two or three seasons, and in 1888 at the spring show in the Drill Hall the committee of the Royal Horticultural Society unanimously awarded it a first-class certificate.—P. DAVIDSON, *The Gardens, Iwerne Minster, Blandford.*

Apples from Tasmania.—I have taken the liberty to forward to you two cases of our Tasmanian Apples. They are packed alike as nearly as I can make them, and contain the following: Cox's Orange Pippin in blue paper, Calville Blanche in pink paper, and Scarlet Nonpareil in white paper. I should be glad of your opinion of them. The Scarlet Nonpareil is being shipped by some of our growers as Cox's Orange Pippin, and by others as Scarlet Pearmain.—W. P. CLEMMETT, *Chairman South Union Fruit Board, Port Esperance, Tasmania.*

*** The Apples rolled separately in soft paper and carefully packed came to hand in good condition. Of the three varieties sent the best certainly was Cox's Orange Pippin, which was juicy and of good flavour. The Scarlet Nonpareil was not very good, and the Calville not of the same size or colour as in France, being high-coloured on one side and not so good in flavour.—ED.

The Royal National Tulip show.—The exhibition will take place in the Botanic Gardens, Old Trafford, Manchester, on the 30th inst. The usual custom of canvassing the growers as to the most suitable date for holding the show, which is carried out about a fortnight or three weeks before the show takes place, has been followed, and by the narrow majority of one it has been decided the annual show shall take place on the above date. The extent of the exhibition and the quality of the blooms will depend upon the weather experienced during the next week. In order to prevent the disqualification of any stand through two blooms of the same variety and class being shown through inadvertence, as happened last year, for the future the stands of flowers before being seen by the judges will be examined by the committee, and if two blooms of a similar character are discovered, the committee will inform the exhibitor, who will be allowed to replace one of the flowers by another of a different variety, thus preventing any disqualification from this cause.

Hibbertia Reidi.—One of the most charming of the many delightful plants to be seen in flower in Messrs. Low's nursery at Enfield during spring is this dwarf Hibbertia. For abundance of bloom and neatness of habit it far surpasses any of the other species now in cultivation. The plants as grown here are chiefly in 5-inch and 6-inch pots, and form trim little bushes from 9 inches to 1 foot in height, the leaves, which are pubescent, being very small and narrow. The flowers are terminal on the numerous short twigs, generally not more than a quarter of an inch long, which spring from the older shoots. The petals are five in number, somewhat wedge-shaped, and of the brightest yellow, each flower being three-quarters of an inch across. Although small, the flowers are plentiful enough to almost entirely hide the foliage. The genus Hibbertia, which is, with the exception of two

species found in Madagascar, entirely Australasian, is best known in gardens by two climbing species—*volubilis* and *dentata*—both of which are ornamental enough to be grown as greenhouse climbers. If the species under notice is as easily cultivated as they are it should rank as one of the choicest and most desirable of greenhouse plants.

The Temple show.—The Royal Horticultural Society will hold its fourth great annual flower show in the gardens of the Inner Temple, London, on the 28th and 29th inst. So far the entries have been numerous and important, and those who are still desirous to exhibit should at once communicate with the superintendent, Royal Horticultural Society's Gardens, Chiswick. This year the arrangements have been nearly all completed somewhat earlier and more systematically than usual, and there is every reason to hope that, if favoured with fine weather, H.R.H. the Princess Christian will have the pleasure of opening the finest flower show the society has yet held in the Inner Temple Gardens.

Genetyllis tulipifera.—This is one of the few species that have survived the general neglect which has overtaken the majority of once popular Australian plants. Although it is not grown in large quantities, still one finds the species represented in many gardens. Several fine plants were exhibited at the recent show of the Royal Botanic Society in Regent's Park, and, despite the unfortunate manner in which some of them were trained, the flowering capabilities of the plant were admirably displayed. This species was discovered and introduced to cultivation by Mr. Drummond, whose name so frequently occurs in connection with Australian plants in the publications of forty years ago. It does not appear to ever attain a height of more than 3 feet, having firm woody branches thickly set with small, oblong, deep green leaves. The flowers in themselves are inconspicuous, and, as a rule, are not seen, being hidden in the large, pendent, bell-shaped involucre, to which the plant owes its attractiveness. The larger bracts of the involucre are 1½ inches long and are white, streaked and shaded with rosy-crimson. Like most plants which owe their beauty to the involucre (as the *Proteas*), this remains in good condition for several months. It is a plant which even small greenhouse collections ought to include. The generic names of Darwinia and Hedaroma have been given to it, and it is under the first of these that Bentham and Hooker have placed it.

Cœlogyne pandurata.—It is now nearly forty years since this species was first flowered in this country, but it is still one of the most rarely seen. It is, however, the most striking of Cœlogyne, and is remarkable alike for the size and singular coloration of its flowers and the robustness of its pseudo-bulbs and foliage. It is a native of Sarawak, in Borneo, and is found on the trunks of trees growing in hot swampy lowlands near the coast and on the banks of rivers. The pseudo-bulbs are very much compressed, forming flat, oblong bodies sometimes nearly 6 inches high and growing at intervals of several inches on a thick, creeping rhizome. The leaves are a foot to 18 inches long, very stout and leathery, and of a deep shining green. There is a large plant in the Orchid house at Kew now bearing two spikes, one of which carries ten flowers. The sepals and petals are of a bright and pleasant shade of green, the latter measuring 4 inches from tip to tip when fully expanded. The lip, which has, as the specific name suggests, somewhat the shape of a violin, is of the same colour, but furnished in the centre with several velvety black ridges and crests running lengthwise, and on the front with numerous black warts. The rambling habit of the plant makes it inconvenient for pot culture, and it is better suited for growing in a long, shallow teak basket, where the rhizomes have space to fully develop. The compost should consist of peat fibre and Sphagnum, and, as may be inferred from the native habitat of the species, hot, moist conditions are required throughout the year. It was discovered by Sir Hugh Low, to whose exertions we owe the introduction of many other beautiful plants.

FLOWER GARDEN.

PARIS DAISY.

(CHRYSANTHEMUM FRUTESCENS.)

THIS is also grown under the name of *Pyrethrum frutescens*. When the winters in England are mild, which is but seldom, the plant retains its shrubby character and forms an immense bush, the second year producing thousands of flowers. The original species was introduced from the

freely produced. There is a form known as maximum, largely grown for market. The best yellow variety is *Etoile d'Or*, raised about the year 1874 by N. Desgeorges, then gardener to M. Adam, Villa de Bruyeres, Golf Juan, near Cannes, from seed of the small yellow-flowered form *Comtesse de Chambord*. The forms of the Paris Daisy may be treated as half-hardy garden plants, or they may be grown to flower in the greenhouse. The flowers last a long time in beauty and stand the weather



Marguerite (*Chrysanthemum frutescens*) on shores of the Mediterranean.

Canary Islands so long ago as 1699. From this species a great many varieties have sprung, and are very popular under the name of Paris Daisies. There is a form known as *C. frutescens Halleri*, the foliage of which is greener and more ample than that of the type, the habit of the plant being dwarf and compact. *C. frutescens pinnatifidum* is a very distinct variety, with finely cut pale green foliage. The flowers are smaller than those of the type, but very

well; they are, therefore, well adapted for window boxes. I well remember when the variety *Etoile d'Or* was at the height of its popularity, one of the large market growers told me that the large-flowered *Pelargoniums* had quite gone out of fashion; he showed me some very handsome examples of the *Pelargoniums* beautifully flowered. "These," said he, "I have been growing for eighteen months, and they will realise 9s. per dozen plants

in Covent Garden, while I can obtain 30s. for the best plants of Paris Daisies that cost much less to grow into a saleable size." *Chrysanthemum frutescens* is easily increased from cuttings, which should be taken in the autumn, and the plants may be potted off as soon as they have formed roots. Successful cultivation depends upon the rapid growth of the plants, and this is obtained not by growing them in a close, warm atmosphere, but in a light, airy greenhouse and using rich potting loam, not stinting the plants for pot room. The top should be pinched out when the plants are 3 inches or 4 inches high, and this will cause four or five shoots to start quite close to the surface of the ground, and will form the foundation for a handsome specimen. Roots are freely produced in a good potting compound of three parts loam, one of leaf-mould, and one of decayed manure, with the addition of some coarse sand to keep the material in a porous condition. The plants must not be allowed to remain in the small pots until they are anything like root-bound, but must be repotted as soon as it is seen that the roots are likely to become matted round the sides of the pots. Plants that have been produced from cuttings early in the autumn may be flowered in 6-inch and 7-inch pots the following summer. They would flower freely in a warm greenhouse in April and May, and planted out of doors they will produce their flowers freely until frost cuts them down. In some seashore districts (as in the illustration) the plant becomes naturalised, and grows and flowers freely year after year. All that it needs is good deep loam with a liberal dressing of decayed manure. No tying or training of the shoots is needed. An isolated specimen forms a mass of flowers, the lower ones almost touching the ground. Where the plants are placed in masses they support each other, and the stems are drawn up taller. The plants may be set out at a distance of about 18 inches from each other. J. D.

Saxifraga aretioides primulina.—Among many beautiful and rare kinds the above little gem is one of the neatest and most lovely. It has been in flower nearly a fortnight, and will yet afford pleasure for fully that time longer. The pale primrose-yellow of its flowers and the profusion in which they are borne render it an extremely desirable and beautiful kind. The slender flowering stems are not more than 3 inches higher than the neat and miniature rosettes of leaves, which latter form themselves into perfect little hillocks. Even quite small plants not more than 2 inches across have a dozen spikes of flowers, and each of these spikes bears about four or five blossoms, so that in a very small space indeed we have quite a display of this charming plant. It was raised by the late Mr. James Atkins, of Painswick, who in his time not only was singularly successful in the culture of these interesting and beautiful plants, but he left as a legacy to our gardens some beautiful hybrids, and among these the one above named. Everyone who loves alpine should possess this one. It is naturally a slow grower. Some good yellow loam with plenty of sharp grit or silver sand added suits it well. A very suitable compost for many of these plants is a soft brick broken to the size of a hazel nut.—J.

Tree Pæonies.—Each recurring spring the value of the Tree Pæonies for flowering under glass is still further exemplified, and they will doubtless in time be very commonly grown for that purpose, as with reasonable attention they are sure to give satisfaction, while out of doors, unless in a few districts, they cannot be depended upon. This, singularly enough, applies more to the southern part of England than it does to the northern, while in many parts of Scotland they do well. This peculiarity is owing to the fact that in milder districts the plants start into growth early in the season, and consequently the young tender leaves and flower

buds fall an easy prey to late spring frosts, while in colder districts they do not begin to grow till all danger in this respect is past. This early flowering quality of course stands them in good stead when needed for blooming under glass, as with but the temperature of a greenhouse they may be had in flower at a time when all outdoor shrubs still wear their winter garb. Besides our own nurserymen, some of whom make quite a speciality of the Tree Pæonies, occasional consignments have within the last two seasons been sent from Japan in company with the hosts of Lilies, Iris Kämpferi, and other things.—H. P.

DOUBLE AND SINGLE PYRETHRUMS.

It is almost an impossibility to attempt to describe the great wealth of floral beauty that we now possess in these truly useful and extremely valuable border flowers, for they must be seen before anything like a true idea of their beauty or worth can be realised. Frequently at exhibitions they are mistaken by those who do not know them for Asters, and this, perhaps, is unfortunate, because to those unacquainted with them our Pyrethrums all sink into oblivion and the Asters have the credit of all. The Pyrethrums, however, come very early in the year, when there is little else to compete with them in point of usefulness, enriching our gardens in May and June with some of the brightest and showiest flowers. If proof were needed of their value, it is evidenced by the fact that they are grown by the acre for supplying cut flowers for the London market, where they find a ready sale at fairly good prices; while for home decoration or for exhibition they are unequalled. As decorative subjects in the hardy plant borders they are extremely attractive in or out of flower, and prior to sending forth the flower-stems, their tufts of elegantly cut leaves always find many admirers. When the flowers begin to expand, a good selection of these plants will provide an unceasing display for fully a month, that is, from the earliest produced spikes, and, of course, provided they are left upon the plants. If required as cut flowers in large vases, a purpose for which they are admirably adapted, they should be left till fairly well expanded, and then cut with from 18 inches to 24 inches of stem. Many of those who grow these flowers for Covent Garden Market might take a note of this, as too often they are cut with not more than 6 inches or 8 inches of stem. Consequently, the dozen flowers the bunches contain are huddled together in a mass, which by no means enhances their beauty or value. Nor are their flowers then nearly so well suited to many arrangements, since they are virtually robbed of one of their greatest charms, and sooner or later the fast-growing taste for natural arrangements of flowers will demand a much greater length of stem than has hitherto been employed, among the market growers at least. When cut and placed in water in a cool room they retain their beauty for quite a fortnight, which is no mean advantage. All that is necessary to secure this is to give them fresh water thrice a week and cut off half an inch of stem at each change. It is also an advantage where these flowers are continually in water to allow them to drain occasionally when giving fresh supplies of water, so that the stems may be refreshed when placed in the fresh water.

When regarded from a cultural standpoint we may safely be said to be entering a very important season when they should be taken in hand at once. Particularly is this the case when plants are obtained from the open ground, and these are very much to be preferred to the single crowns which are frequently sent out as plants, and that require some eighteen months' cultivation before you see a flower worthy the name. Far better to pay double for a good plant from the open ground than trust to small scraps that have been confined to pots. The only advantage ever found in the latter system is that they may be planted over a longer period, though this counts for nothing if the plants are losing stamina meanwhile from such confinement. Good plants for a beginner are of much value, and having these, the preparation of the soil is another item of importance, that is if it is intended to do them

justice. On most soils Pyrethrums are readily accommodated, but they never do well on such as are cold or retentive, and where such exist the best plan will be to remove the natural soil to a depth of 2 feet or even 3 feet, and replace it by other of a more open character, or if this be considered too great an undertaking, much benefit will be derived by the plants by dispensing with the lower half of the soil, returning that which was formerly uppermost to the bed, and freely mixing with it old potting soil, manure from old Mushroom beds, leaf soil, and any refuse from the rubbish fires, finally raising the beds well above the ordinary level. Such precautions, however, will hardly be needed in one garden out of a hundred; yet notwithstanding it should always be borne in mind that these Pyrethrums are very gross feeders, producing immense quantities of small fibrous roots, many of them quite near the surface, so that if it is desired to grow these plants to perfection, it is impossible to have the soil too deeply dug or too heavily manured. When thus liberally treated they should be planted at 18 inches or 2 feet apart, for with good plants to begin with they soon make considerable headway, and in less than twelve months handsome clumps will be formed capable of producing a grand lot of flowers. Pyrethrums are readily increased by division and by cuttings; the latter, however, need only be resorted to where grown in quantity by those making them a speciality. The plants may be divided and replanted at once or potted and planted out later on, or if preferred, the plants may be divided after flowering, in which case it would be advisable to pot them for safety, planting them out in their permanent places in early autumn. In the case of the single-flowered kinds, an extremely rich and varied assortment may be obtained from seeds, which are freely produced. Where permanent beds exist they should be given abundance of water and liquid manure in May and June, when they are sending up their spikes of bloom, and if cut down directly flowering is completed, the plants will yield a wonderful lot of bloom again through the autumn months; indeed, I have had flowers equally fine and in equal quantity from these plants in autumn as in spring. In the autumn months the Pyrethrums, whether single or double, are very telling by reason of their rich and varying shades of colour and elegant, graceful bearing. These are points in favour of their more extended cultivation which cannot be too widely known. In conclusion, I will name a few select kinds in each section that cannot fail to please. Among doubles, Captain Nares, J. N. Twerdy, Imbricatum plenum, Progress, Princess Teck, Mons. Barral are in the front rank among crimson and amaranth shades; Nemesis, purple-carmine with gold tips; Uzziel, buff; Vance, orange-yellow and buff; Solfaterre, sulphur and cream; Achilles, pink and bronze; Le Dante, similar to the last, but dwarfier and more compact; Enchantress, pale rose-lilac, very pleasing; Flora, bluish; Ceres, flesh-pink; while Mont Blanc, Princesse de Metternich, Candidum plenum, and Argentine are among the best of the pure whites. Of singles, the following are all good: Coccinea, Mrs. Bateman Brown, Sherlock, Hamlet, Duchesse de Brabant, Roseum, Orlando, Mathilde, Elegans, Exquisite, with many more equally attractive and useful.

E. J.

Corydalis nobilis.—This is rightly named, for it is a noble plant, and one of the most striking of the whole family. It appears to grow strongly and freely in Mr. Thompson's hot and light soil at Ipswich. The foliage, like that of other kinds, is much divided, and combines the elegance of a Fern in a plant of absolute hardness. The flowers are numerous and pretty in dense rosette-like clusters before they open. When fully expanded, the flowers are of a soft pale yellow at the base, deepening into golden-yellow towards the edges of the petals. The plant grows about 1 foot in height, and certainly should not be neglected or lost sight of.

Epimedium pinnatum.—A mass of this clustering against the terrace is worthy of a note; first, because it is one of the best members of the family; and second, for its present pretty effect; in fact, there are three distinct effects happily blended into one. The long old leaves are of a dark bronzy-green colour,

and from among them a crop of new foliage is springing of the palest grey-green colour, whilst above all the leafage is a graceful arching mass of flowers, which are light yellow and borne upon long stalks. It is a mistake to remove the old leaves in spring, as they protect the tender early growth and bloom, and enhance the effect of both.

CLIMBING PLANTS.

CLIMBERS are undoubtedly an interesting and attractive tribe of plants. Sometimes the chief beauty of a house depends on the climbers, or creepers, as they are often called, which adorn its outer walls. Whenever it is possible, the best way to give proper accommodation for such climbers is to cover the walls first of all with stiff wire netting, which is made in pieces to fit between the windows, &c. The architect of my house informed me that I should look as if I were living in a wire cage when I told him what I should require for my climbing plants, but before the autumn of the first year the greater part of the cage-wire was completely hidden, and the second year it could scarcely be seen. Meanwhile various climbing plants had been carefully trained to the wire, and the effect of so much greenery speedily took away all the prim and stuck-up sort of appearance which is inevitable in a house newly covered with stucco. A verandah gives special opportunities for the display of pretty climbers, as the pillars can be covered with both permanent and annual creeping plants. Houses surrounded by a verandah are most frequently met with in sheltered and romantic spots near the sea, or nestled among the hills in some well wooded country, and in such places even delicate climbers can be made to grow luxuriantly. As a creeper for covering a wall, perhaps nothing is prettier than *Tropæolum speciosum*, but, unfortunately, it is one of those wayward plants which seem to be gifted with a bad temper. Given everything they want, such plants will grow with great luxuriance, but otherwise they seem to sulk, and nothing will induce them to grow or flower well. *T. speciosum* is especially troublesome in this way. All travellers in Scotland are familiar with it, as it grows and flowers abundantly in that country. The grey old walls of Drummond Castle are a blaze of bright flowers with this *Tropæolum* in summer; it rambles about the quaint garden walls and covers them with beauty. In some parts of England you may find it growing equally well. But only too often you come across it struggling for existence, and throwing out only poor, weak, miserable-looking shoots with a few scattered flowers. Of course, its unfortunate possessor expected when it was planted to have a climber as beautiful as he had seen in Scotland. It certainly is a disappointing plant. *T. speciosum*, when it once begins to grow, will flourish well without any trouble. But how to make it do this is the puzzle. The secret is supposed to be light peaty soil, semi-shade, and a fair amount of moisture. But even with these combined, success is by no means certain. The whole family of *Tropæolums* is pretty, but very much neglected. *T. tuberosum* grows as readily as a Potato, for which it is said it is sometimes substituted. It is apt to run to leaf, but even so its foliage is very pretty, and its flowers, when it is properly treated and made to bloom, are pretty also, so that it forms an exceedingly good climber for some rough place where the soil is poor. The Canary Creeper, though so common and well known, always challenges attention where it is grown well, and few things are prettier for a pillar when it is mixed with other climbers. *Ecclerocarpus scaber* has usually to be treated as an annual, but in mild and warm places it will live on out of doors, dying down in autumn and reappearing in the spring-time, or sometimes not even dying down in a mild winter. This is one of the twiners. Sir John Lubbock, in carefully watching the habits of twining plants, found that they grew quicker without a pole than with one, and that when untwisted from a pole, take a tall Runner Bean, for instance, the plant straightens itself out in order to reach further in search of some stick or pole on which it may begin again to twine. *Ecclerocarpus* is an

exceedingly pretty pillar plant, its leaves are so beautifully serrated, and its peculiarly coloured flowers are produced in great profusion.

As a rule, climbers seem to be more free-flowering than other plants. Were not the tall Runner Beans familiar vegetables, there can be no doubt they would have found a place in the flower garden, and we should consider them highly ornamental. In this way several denizens of the kitchen garden might well be introduced into our flower gardens. What can be more handsome in foliage and flower than a fine specimen of a Globe Artichoke?

If there is trellis-work in any warm situation in the garden, the effect of *Lophospermum scandens* and *Maurandya Barclayana* growing together is exceedingly good. The growth of the latter is small and delicate, but the *Lophospermum* has handsome soft green foliage, and its flowers are exceedingly pretty. *Cobæa scandens* never seems to be quite happy out of doors, and it is a shy flowerer. In the greenhouse, if there is room for its rapid growth, it soon makes a fine plant, and its large pale blue bells are always attractive. If a rich border can be had against the wall of the house, Clematises will grow and make a fine display quicker than anything. They are a large tribe, but I have never seen any one of the large-flowering kinds exceed Jackmanni for profusion of flower. In the greenhouse one of the most beautiful plants which can be grown is *Clematis indivisa*. Its flowers come at a most useful time, before summer brings its wealth of blossoms, and they are excellent for cutting. If I were going to choose four climbers for a small conservatory I should take two *Roses*, *Maréchal Niel* and *Niphetos*, for pillars, and *Clematis indivisa* and *Tacsonia Van Volxemi* for the roof, adding, if there is any space for it, the beautiful *Bougainvillea glabra*. I suppose *Stephanotis* must always rank first as a stove creeper, but why do we so seldom see *Ipomœa Horsfalliæ*? It is one of the finest flowers to be found in a hothouse, except for the short duration of its flowers.

Prince among wall trees for covering the outside of a house must always be *Magnolia grandiflora*. But, alas! if the house is not an old one, and if the tree has not been planted by a former generation, it is useless to think of enjoying its beauty. I am the fortunate possessor of a large tree, which year after year gives me a number of its lovely huge flowers. Not only are the flowers beautiful and fragrant, but the foliage is most useful when it can be spared for cutting; the russet brown of the back of the leaf contrasts so prettily with the rich glossy green of the surface. Last winter with all its bitter frost and snow has left my tree unharmed, while young Hollies not far off are leafless and apparently dead. *Magnolias* seem to flourish in a somewhat damp climate. At the Bishop's Palace, Wells, there are finer trees than I have seen anywhere else, and the surroundings there give one the idea of a great deal of moisture both in the air and in the soil. Another good wall tree not uncommon in this neighbourhood is *Bignonia radicans*. It grows freely against a south wall, and requires a good deal of pruning every autumn. In early summer it makes vigorous shoots, which later on towards the end of the season produce quantities of long tube-shaped flowers of a dull red colour. I have never met with this wall tree outside Gloucestershire, but I have no doubt it is well known elsewhere. I have not succeeded in propagating it, but suckers might easily be obtained in favourable places. My tree is evidently very old, as it has a large trunk covered with old bark. I consider this *Bignonia* one of the most beautiful of our wall trees, and a good subject to plant with the common *Wistaria sinensis*. The latter would flower in spring, the other in autumn. Those who know St. Edmund Hall, Oxford, regret the loss of the grand old *Wistaria*, which was supposed to be, I believe, the largest in the kingdom, and certainly covered an enormous space of wall. It was a fine sight when covered with its pretty blue trusses. Did it die, as the poor say, because "its time was come?" or did some unknown accident befall it? Near the ground, or at any rate only on a level with the lower windows, *Pyrus japonica* is one of the first flowers to

greet us in the early spring-time. The blue Passion Flower should find a place if possible on every wall, and the newer *Passiflora Constance Elliott*, though rather disappointing considered as a white flower, is a worthy companion to *P. cerulea* and equally hardy.

Those are fortunate who can have great Myrtles growing up to the top of the house, as in the far West. They will do in a sheltered niche in this county until some winter, like the last, comes to destroy their beauty. A sprig of Myrtle covered with its starry white flowers is a great addition to any nosegay gathered from the outdoor garden in summer.

A GLOUCESTERSHIRE PARSON.

GRAPE HYACINTH.

THIS is one of the most charming and useful of all hardy spring bulbous plants, yet I know of no genus that gives the cultivator so much trouble in the way of names. You may have a dozen names in your collection, all from good sources, and on comparison, when in full flower, you will be able to reduce them to a very few. This at least is my experience. The most tantalising thing about the whole matter is that if you submit them to a botanist he will tell you that they correspond fairly with the plants so named originally, but that he can see no palpable difference between them. I have taken the trouble to look up Jordan's figures of the genus *Muscari*, with a view to fixing at least a few of them; this, however, only makes matters worse, and it is with the utmost difficulty that one can make more than three out of all those figured by Jordan. I have been trying to make out *M. atlanticum*, which ought to be distinct, and which apparently comes half way between *M. racemosum* and *neglectum*, and the result is that, counting intermediate forms, we make *M. racemosum* and *neglectum* the same in a broad sense, and that not by any means too broad for garden purposes. From the Continent we get *M. neglectum* var. *compactum*, which is nothing more than *M. Heldreichi*, and corresponds well with Jordan's *pulchellum*. This, however, is one of the most charming and free-flowering of all the Grape Hyacinths with which I am acquainted. It is what may be called a good doer, and increases very rapidly. Again, the difference between *M. Szovitzianum* and *M. micranthum* is at the least microscopic, and when one gets the two so-called species side by side, there is absolutely no line to be drawn between them. *M. Argæi*, which is now going the round as a new species, differs so little from *armenicum*, that I have had no hesitation in putting them together. It is a dwarf sturdy plant, very free and attractive, and will be found very useful for filling beds of standard *Roses*, and indeed any shrubs with leggy stems. *M. pallens* of Fischer is a very distinct species, and must not be confounded with the variety of *M. botryoides* that is known by that name; they can, however, be distinguished at a glance in the shape of the fertile flowers as well as in the colour. We are now getting so many forms of *M. Heldreichi* that the botanical characters (if ever there were any) are disappearing very rapidly between that species and *M. botryoides* in some of its larger forms. *Muscari* no doubt hybridise freely if grown together, and as collections are generally found in one bed or border, the seed collected may be anything but what we expect it to be. Let all this be as it may, however, it in no way detracts from the value of these charming flowers for the spring garden; indeed the variety rather enhances their value than otherwise, and as they are mostly of the easiest culture, the only surprise is that they are not more generally found in gardens. They may, however, be

used in many ways, as groups, as edgings, and also naturalised in the wild garden, where if the herbage be not too rank they flower vigorously. Amongst the best are *M. Heldreichi* and its varieties, *M. neglectum*, *M. botryoides*, *M. paradoxum*, *M. armeniacum*, and the pale *M. Szovitzianum*, &c. K.

NOTES ON HARDY PLANTS.

Soldanella minima alba.—Perhaps this is the least cultivated of the well-known kinds, and very likely it may be a scarcer plant than the larger types (*alpina* and *montana*), but one thing I wish to point out is that it may be easily grown where the larger sorts flourish, and, consequently, is readily propagated, so that there is no reason why rock or alpine gardens should be without this gem. It is, perhaps, the most minute of any of the *Soldanellas* in all its parts, excepting the flowers, and these, of exquisite form and pure white, are quite as large as those of *alpina*, and, better still, are freely produced.

Saxifraga retusa.—By many this is considered to be a variety of *oppositifolia*, but though much resembling that species, has it not some very characteristic differences? The squarrose, retuse, and poreless character of the leaves; the peculiar flat habit of growth; the scape-like flower-stems, with terminal clusters rather than single flowers, and some minor variations in the flowers themselves, as compared with *oppositifolia*, would all indicate its special typical title. What, however, may be of more importance is that it is exactly one of those charming, minute, and slow-growing creepers, such as are so much in request for the best arranged rockeries. The flowers are highly coloured, if not freely produced, as on the *oppositifolia* batch.

Erica vulgaris cuprea.—When one looks upon healthy pieces of this richly-coloured Heather in the months of March, April, and May, he feels that it might be employed in various ways to good effect, and especially for bedding and large rockeries. Some of the prettier varieties of the common Heather are so well adapted for showing off the dwarf spring flowers, that tasteful blendings would be at once unusual and richly effective. Imagine, for instance, if this kind, which is from 5 inches to 8 inches high, and has all its points tipped with bright chestnut or bronzed to a fine bright copper colour, were planted in groups or masses on the higher parts of rockwork or the miniature knolls, and the moister and deeper lines or miniature valleys were quite filled up with either common or coloured Primroses, with *Scillas*, *Snowdrops*, *Chionodoxa*, *Narcissus nanus*, *Primula rosea*, or any other early free-flowering kind, the effect could hardly fail to be approved. Close planting should be done with such cheap material. "What about flowers when these early ones are over?" Well, other bulbs set deeper could be arranged to come on later. There would be a host of beauty in the one dwarf species of *Lilium umbellatum* alone, i.e., with all its brilliant varieties. Many other things could, of course, be mentioned, but it is enough to name this to show what is meant, and, besides, the *Erica* itself would not look amiss. Anyhow, hundreds of things that are tolerated have a less tidy appearance after their prime show. There are some other *Ericas* of other species that are quite as richly coloured, but they lack the vigour and dense habit of vulgaris. Perhaps I have not been sufficiently clear so as to convey the idea that the high colour in spring of this kind belongs only to its foliage. Of course, it flowers freely in late summer into the bargain.

Anemone Robinsoniana.—I have found this to not only come true from seed, but the young plants flower in their second year—at any rate, most are doing so from seed of 1889, which might have been a more favourable seeding season than ordinary. Those who like to make experiments would, I believe, be pleased with the results if bits of limestone were placed among the roots. Of the section of which the common Wood Anemone is typical, this is undoubtedly the finest, be it a species or a mere variety.

Rheums.—These have justly come quite to the

front of late as decorative plants, and where there are space and harmonious surroundings for subjects of so large a type, few things can vie with them. The species, and varieties too, are so distinct, that they afford scope, and sameness need not be. The plants are, culturally, better for two things: set with their heads out of the ground, and for being lifted once in three years and trimmed or divided to single strong crowns. I make this statement, which I daresay will not commend itself at once to all, on the following grounds: In this district scores of acres of the common Rhubarb are cultivated for forcing, this necessitating the transplanting and dividing of the roots every two or three years, so as to get the best results, as regards heavy and large tops. From observing this I experimented with *Emodi*, *palmatum*, *tanguticum*, *sanguineum*, &c., and in every way they were much improved. A self-evident gain is a bulky crown, with an almost round caudex and numerous young roots with fibre close at home. My experiments were made in rather light soil.

Geum reptans.—Not only is this charming creeper the earliest of its genus to flower, but its habit is so characteristic and pleasing as to attract notice. Its ruddy stems and the ruddier half-opened flowers are welcome with the Daffodils, and to see it so happy after such a winter must be an ample pledge of its usefulness. The rock garden is the place for it, and it needs and deserves room to ramble.

Tropæolum speciosum.—Last autumn I mentioned in these columns that I was about trying an experiment in raising this from seed. Some of my friends were amused at the idea, not with regard to the object I had in view so much as that they believed that there could hardly be a shadow of a chance of success with seedlings when strong roots almost invariably failed. My idea was to get young plants with plenty of fibre for a start, for I had oftentimes noticed that the pieces of tuberous roots that happened to have a little fibre when taken from the old stock grew best. I admit that the plant is difficult to grow in most parts of England, but perhaps it would be more precisely correct to say that it is difficult to establish. When once established, it is just as difficult to kill. My seed has germinated and grown like *Nasturtiums* after standing out in a broken cold frame all the winter in pots, and the condition of the plants is such as to make one feel all but quite certain they must succeed. About the same time last autumn, tuberous or fleshy roots from the old plant were potted and plunged with care. These have not grown nearly so well as the seeds. In fact, I feel this to be one of those gardening lessons that impresses itself on one's mind very strongly, not only because it is the result of one's own experiments and observation, but because the results are so palpably superior. Of course, I have yet to deal with the seedlings, and transplanting may check them, but I am at least justified, I think, in speaking strongly as above as to the results so far as they have gone. J. WOOD.

Woodville, Kirkstall.

CROWN IMPERIALS.

THESE at the present moment are among the boldest and showiest of bulbous flowering plants, and for introducing into the shrubbery in large groups between other plants have no equal in their season. The rapidity of their growth is remarkable, many of the kinds growing from 2½ feet to 3 feet in the short space of six weeks. They are blooming much later than usual, however, owing to the backward season generally, but they are not the less beautiful on this account. In the open ground in the positions indicated above they appear in spring-time in bold relief to the too frequent and invariably sombre hues of many things, and for these reasons they should be grown somewhat extensively. When given these positions a little thought is necessary, otherwise a blank will be revealed as they go to rest in June, but if two subjects are used, say Japan Anemones and Crown Imperials, planting the latter behind the former,

the spot would be beautified by the *Fritillaries* in spring, and as these died down the space would be occupied by the handsome foliage of the *Anemones*. If the *Anemone* does not exist in sufficient quantity to make an effective arrangement, single or double *Dahlias* will do equally well, and make an excellent display. But just now the showy *Crown Imperials* are a host in themselves, with their handsome pendent cups of yellow and gold or red and orange. Nothing is more hardy or picturesque and certainly nothing more beautiful than the bold striking whorls of flowers near the summit of the plants, each spike surmounted by a crown or tuft of leaves. Apart from the general merits of the group as a whole, one cannot afford to overlook the unique grace and beauty of the variegated forms; these are equally hardy and robust, and as free flowering as any, while the variegation is sufficiently pronounced to render the plants conspicuous at some distance off. There are both silver and golden-leaved kinds, and these happily belong to the red-flowered section, a fact which renders them the more conspicuous. Beds of these fine forms should find a home in the flower garden more frequently than they do, and by planting them 6 inches or 8 inches deep, the beds may, when these have done their work, be planted again with *Begonias* of the tuberous-rooted section, and thereby provide another fine display for the late summer and autumn months. The golden-leaved form is now the grandest ornament in the hardy plant garden, and those who do not possess it should procure it early in the ensuing autumn. E. J.

SEASONABLE NOTES ON HARDY FLORISTS' FLOWERS.

THE AURICULA.—The last of the flowers are passing away, and when the bloom is over it is too true that many amateurs lose interest in their plants, allowing them to be neglected. The decaying or decayed blossoms do not drop off as they do from some plants, but have to be removed carefully with the fingers if it is intended to save seeds, for the seed-pods will sometimes break off with the decayed flowers unless both hands are used to remove them. If seeds are not wanted, remove the seed-pods with the decaying flowers. It is best, I think, as soon as the plants have finished blooming, to remove them from the Auricula house to the frames, which ought to be placed on the north side of a wall or fence, but before doing so it is as well to see that the plants are free at least from green-fly. This troublesome pest sadly cripples the strongest plants if it is not destroyed on its first appearance. We have gone carefully over our entire collection, removing any decayed or decaying leaves, and dusted those plants with green-fly upon them with tobacco powder, and as a further precaution the house was fumigated with tobacco smoke, so that the plants may be quite free from this pest before they are placed out in the frames, as it is much more difficult to get at them in frames than it is when they are in a small span-roofed house. When quite clean, remove the plants to the frames, from which the lights can be removed whenever the weather is fine. Seedlings from seeds sown when ripe last summer are now growing freely, and require pricking out and planting into larger pots as they increase in size. They are not large yet, but when strong enough to be planted singly into 3-inch pots they grow very rapidly. The white *Auricula aphids* we do not like, but cannot quite get rid of it, and during the summer it has a good chance to increase. If the plants are kept for seeds they cannot be repotted, but if no seeds are wanted it is better to repot at once.

LACED POLYANTHUSES are also very brilliant early spring flowers, coming in before the *Auricula* under the same conditions, but they do not take kindly to our dry atmosphere and hot summers near London and other places in the south. The decline of the plants is generally owing to the leaves being attacked by red spider. To prevent the appearance of this pest we plant in a shady part of the garden, and are careful that the plants do not suffer from want of water at the roots. Our

stock grew well and flowered most profusely this year, but they were from the north of England. We have planted the whole of the stock in good loam, well manured, and take pains to shade them from the forenoon sun; they are shaded after 11 a.m. by a high wall, under which they are planted.

THE ANEMONES have come up strong and well, not a failure amongst them; they have been followed quickly by the *Ranunculi*. As but little rain has fallen since they appeared above ground, and the ground is made rather light with sand and leaf-mould where they are planted, we have found it necessary to water them, and will continue so to do about twice a week until we have a shower of rain. The soil between the rows has been hoed once, and will need to be done a second time to get them quite free from weeds; after that if the dry weather continues a dressing of decayed manure will be spread over the surface to retain the moisture in the soil. *Anemones* can stand dry weather fairly well if they have a subsoil of good clayey loam to push their roots into, but continued dry weather is disastrous to the *Ranunculi*; artificial watering does not help the more delicate varieties much, especially if the weather should be hot as well as dry.

PINKS.—These have now started to grow freely. Those favoured by the old florists are now termed laced Pinks, and to obtain the most beautiful and best laced flowers, the plants should be set out in beds of good soil as early as September. If they are wintered in pots, as some people treat them, and planted out in the spring, the lacing is broken or otherwise defective. The plants must now have good treatment, the surface of the bed should be mulched with well-decayed farmyard manure, and water be applied freely whenever it is required.

CARNATIONS AND PICOTEEES are responding to the hot sunshine and warmer nights. They are certainly later this year, for we generally place sticks to the plants about the first week in May, but it will be time enough to do so this year nearer the end of the month. In our exposed garden, open to the north and east, we grow a selection of the best varieties in pots, and these are protected in glass frames until the danger of cold frost winds from the north and east has passed away. The sticks may now be placed to the flower-stems, stirring the surface soil at the same time. A good dressing of manure to the surface of the beds on which the seedlings intended to flower this year are planted will give greater vigour, and as a result better flowers will be produced. Should the season be a dry one, as it promises at present, water will also be required for the plants; this is better applied through the coarse rose of a water-pot, and the manurial properties of the surface dressing are not only washed into the ground, but the manure itself retains the moisture, and prevents cracking of the surface, which is a frequent occurrence in heavy soils. Seedlings in preparation for flowering next year are now growing in boxes, and they are so far advanced as to be placed in the open air. They will be ready to plant out where they are to flower this year about the last week in May. The soil ought to be well prepared for them by being trenched as deep as 18 inches, and it should also be well manured. The plants grow very large by the end of the season, and should be from 15 inches to 18 inches apart. Plants raised from seeds in April of the present year will flower in July, 1892, and so freely are the flowers borne that the larger specimens will produce upwards of 200 flowers. The young plants are liable to be attacked by a maggot resembling the bud worm, which eats into the heart of the plants; these should be looked for and destroyed, as they do much mischief.

HOLLYHOCKS.—The seedlings have been pricked out in a border of fine soil about 6 inches apart; a good piece of ground will also be prepared for these, and they will be ready to be planted where they are to flower next year about the end of June. A distance of 3 feet ought to be allowed between the plants. The seedlings which have not flowered stand well out of doors through the winter. If the named varieties wintered in frames have not yet been planted out, see to it at once. The plants

propagated the previous summer or in the early autumn months may usually be planted out about the middle of April, although the spring-propagated plants may not be strong enough for a month later. The old plants wintered in store pots for propagating have had all the growths but one removed for cuttings or root grafts. This single growth will make one of the strongest spikes and also be the earliest to flower.

DAHLIAS from cuttings or pot roots should now be strong enough to be placed in frames, from which the lights can be removed on all favourable occasions. The object of the cultivator is gradually to inure all such plants to stand in the open air, and this should be done without seriously checking their growth.

THE PENTSTEMONS produced roots very slowly this year. The cuttings were planted in October and the cold was too severe for them, as in many

be done by pulling old roots to pieces; they will bear dividing to almost any extent, for they are full of buds or eyes, and are sure to break and form young shoots. A good way of managing them is to dig shallow trenches, making them just below the surface level, and enriching the ground by working in manure, as is done for Celery; then the portions of roots of the Solomon's Seal should be planted in rows, and, as they grow, the earth may be drawn to them, so as to fill up the trench, which is all the attention they require during the summer except keeping them free from weeds, and, it may be, giving a soaking of water or liquid manure should the weather happen to be unusually dry. In winter the best plan is to take the whole of the plants up, as then the strongest roots may be picked out for potting, and the weaker laid

THE SAXIFRAGES.

THE genus *Saxifraga* is truly one of the most alpine of alpine plants, as most of the plants which it comprises are confined to the region of snow in whatever part of the world they may be found. They are chiefly natives of the Northern Hemisphere, the exception being some species which are found on the Andes in S. America. Up to the year 1862, in which Professor Engler brought out his "Monograph of the Genus *Saxifraga*," the botanical arrangement of the Saxifrages (especially those of the polymorphous species, such as *S. muscoides*, *S. rotundifolia*, and *S. hypnoides*) was in a state of great confusion, as will be apparent to anyone who looks over the horticultural publications of the previous years. Thus, Paxton, whose "Dictionary" may be considered a standard work, gives a list of the species which is very incomplete, and contains some grave errors. All the horticultural publications, moreover, are in an equally bad plight, and I have many times discovered a similar disorder and confusion existing in collections of alpine plants, even in a large number of botanic gardens. In consequence of this we are now establishing in the alpine botanical garden of the Linnaea in the valley of Entremont (Alps of Valais), at an altitude of 1690 metres, a "*Saxifraganorum*," or model collection of Saxifrages, which we expect will be perfect enough to stand the test of the closest examination and the keenest criticism. In the meantime we are endeavouring to purify our own special collection in the alpine garden here, so that we shall be in no danger of selling any plants that are not true to name.

At the present time 184 species of Saxifrage are enumerated in addition to a great number of varieties or forms, many of which are very distinct, and are often found cultivated under the names of species. Engler divided these species and varieties into fifteen sections, but as he separated from them and made a distinct genus of the *Bergénias*, which in a horticultural sense still continue to be Saxifrages, the number of sections may be put down as sixteen.

I should have a good deal to say on the subject of the varieties of Saxifrages, as these plants, when cultivated, intercross with one another with the greatest readiness. In the great majority of cases fertilisation cannot be effected spontaneously, but Nature has provided the flowers of these small plants with nectaries or honey-bearing glands which attract swarms of insects, so that the intercrossing of different species is a matter of frequent occurrence, especially among the species of the group named "*Eu-aizoonia*," in which it takes place to such an extent that we find it very difficult to keep the seed pure, so that, as regards the species which are nearly allied to *S. aizoon*, we can no longer offer for sale any seed that has been gathered on our own rockeries, where the species are very much mixed. Hermann Müller has noted 126 species of insects which frequent the flowers of *S. aizoides* alone, and 91 species which are attracted by the flowers of *S. aizoon*. From this one may imagine how easily these plants can be intercrossed, more or less in proportion as the species are more or less nearly allied to one another. This extreme readiness to intercross and the extensive polymorphism which results from it are important factors of the confusion which reigns in horticulture on the subject of the genus *Saxifraga*. In the following descriptive review of the species known to-day I shall endeavour, as far as I can, to assist those readers of *THE GARDEN* who may wish to be clearly informed on these matters,



Solomon's Seal as a room plant.

cases they did not produce roots, but seemed to live in a state of suspended animation, and are now rooting freely. They will soon be planted in a bed of rich deep soil where they will flower.

J. DOUGLAS.

SOLOMON'S SEAL.

AMONG the many good old-fashioned hardy plants, few are better than this for forcing; as though very chaste and beautiful outdoors, it is far better under glass, especially when forced, as then the delicacy of the green of its foliage is simply charming. In a cut state I know of nothing to equal it, as, besides the form and colour of the leaves, the stems arch over most gracefully, and are adorned with a profusion of pendent, silvery-looking, bell-shaped blossoms that render them quite unique. To have good strong plants for potting, fresh plantations should be made in the spring, which may easily

be done by pulling old roots to pieces; they will bear dividing to almost any extent, for they are full of buds or eyes, and are sure to break and form young shoots. A good way of managing them is to dig shallow trenches, making them just below the surface level, and enriching the ground by working in manure, as is done for Celery; then the portions of roots of the Solomon's Seal should be planted in rows, and, as they grow, the earth may be drawn to them, so as to fill up the trench, which is all the attention they require during the summer except keeping them free from weeds, and, it may be, giving a soaking of water or liquid manure should the weather happen to be unusually dry. In winter the best plan is to take the whole of the plants up, as then the strongest roots may be picked out for potting, and the weaker laid by for replanting to grow on again. The way in which I think Solomon's Seal looks best and is most useful for small vases or furnishing stands in windows is in 6-inch or 7-inch pots, as in the illustration, in which the pieces of roots having good crown buds should be potted. Its singular nobility, refinement, and delicacy both of form and colouring make it highly suitable as a room ornament. The sized pieces I use are from 2 inches to 3 inches long, and these we arrange regularly in the pots, and then I cover them over with soil, so that when finished they are about an inch or so deep. The pots are then set in any cold frame, to be drawn from as the plants are wanted for use. As regards the forcing, that is a very simple matter, as the plants respond readily to heat, and may be started almost anywhere—in the Mushroom house, under stages, or any dark place, as they do not require light till they get well above ground.

S. D.

SECTION I.—CYMBALARIA (Grisebach).

SAXIFRAGA CYMBALARIA, L. (syn., *Saxifraga orientalis*, Jacq.).—A pretty little annual species. Flowers small and of a bright golden-yellow colour; stems long, erect, branching; leaves small, roundish, longer than broad, and of a lively green colour. A native of the East, where it is met with in cool moist spots between blocks or masses of rock. It is often confounded with the following species:—

S. HUETIANA (Boiss.).—This, which is also an annual, very much resembles the preceding species, but is distinguished from it by having leaves that are quite round and heart-shaped, very slender, prostrate, and shorter stems, and flowers disposed in a more closely-set panicle. A native of Cilicia, where it grows in moist places among umbelliferous plants.

The foregoing two species are very easily cultivated in a moist part of the garden. M. Boissier grew them in his botanic garden at Valeyres-sous-Rances (Vaud), escaping from which they have now naturalised themselves on a moist wall in the vicinity. They can be multiplied with the greatest ease by sowing the seed.

S. HEDERÆFOLIA, Hochst (syn., *S. abyssinica*, Reich.).—One of the gems of the African alpine flora. It grows at an altitude of 3000 mètres to 4000 mètres on the high mountains of Abyssinia, and forms very pretty patches of foliage. Leaves abundant, triangular in shape, light green, diversified with brown dots. Flowers small, citron-yellow, and borne on small, unbranched stems. Not in cultivation.

S. HEDERACEA, L. (syn., *S. parviflora*, Biv.).—A native of the south of Europe, the north of Africa, and Asia Minor. From its appearance, as I saw it in the herbarium of M. Boissier, this species is not very distinguishable from *S. cymbalaria*, and only so by the shape of the leaf and the smaller dimensions of the plant. Annual or biennial and not in cultivation.

S. SIBTHORPI (Boiss. and Spr.).—A native of Greece. This is a very similar form to *S. cymbalaria*, from which it is distinguished by its thin and very feeble branches, its thicker leaves, and its very large, bright yellow flowers. Not in cultivation.

SECTION II.—TRIDACTYLITES (Haw.).

All the species of this section except *S. petræa* are annual plants with small white flowers and slender stems.

S. PETRÆA, L. (syn., *S. Ponæ*, Sternb.).—A native of calcareous districts in the Southern Alps. It is a pretty little biennial plant, growing about 3 inches high, with thick, light green palmatifid leaves and comparatively large flowers of a very pure white colour. It requires a cool shady position and is propagated from seed.

S. TRIDACTYLITES (L.).—A small annual species, very common in Europe, Asia and N. America, and varying in height from little more than an inch to 4 inches, according to the conditions under which it exists. The flowers are white and of small size. The plant is not worth cultivating, being interesting only to botanists.

S. ASCENDENS, L. (syn., *S. controversa*, Sternb.).—This is also an annual species and is found growing in mountains in Europe and N. America. It hardly differs from the preceding species except that its forms or varieties are much larger. Of these varieties I may mention *Linneri* (Boiss.), *Bellardi* (All.), *Scopoli* (Vill.), and *parnassica* (Boiss. and Heldr.), which, however, are not in cultivation. In our Jardin Alpin d'Acclimatation here we have a form of *S. ascendens* which we consider to be a distinct species, because it differs so much from the type, especially under cultivation. This is *S. Blavi* of Engl., seeds of which were sent to me from the mountains of Servia, of which it is a native. It is a very pretty and pleasing annual, which all through the summer produces an abundance of milk-white flowers borne on purplish rose-coloured stems furnished with glandular hairs.

SECTION NEPHROPHYLLUM (Gaud.).

The species of this section are perennial and bul-

biferous, with deciduous foliage, which disappears when the seeds have ripened.

S. GEMMULOSA (Boiss.).—A very spreading caespitose species from the Sierras of Southern Spain, forming strong tufts of palmate and tripartite leaves of a very deep glistening green colour, from which rise slender flower-stems, terminating in few-flowered spikes of white flowers. Not in cultivation.

S. BOISSIERI (Engl.).—A native of Southern Spain. The plant is entirely covered with hairs, and has very slender leaves of a light green colour, and toothed at the margin. Flowers white, borne on ascending, erect, dichotomous stems in broad panicles of milk-white blossoms of a very pleasing appearance. Not in cultivation.

S. BITERNATA (Boiss.).—A native of Spain and Algeria, hispid and caespitose, forming handsome tufts of foliage of a lively green colour, which at blooming time are covered with numerous white flowers of comparatively large size, and borne on short flower-stalks. This species requires a sunny position and a retentive sandy-peaty soil. It is multiplied from seed or by dividing the tufts.

S. ARACHNOIDEA (Sternb.).—A native of the Tyrol and Dolomite districts. A very singular species, with slender light green leaves, which are covered with white, woolly, interlacing hairs or threads, giving the plant, as seen growing in the wild state, the appearance of being completely covered by a thick spider's web. Flowers small and of a lemon-yellow colour. Leaves three-lobed. We have made many attempts to grow this species here, but up to the present have not succeeded. Next year we hope to acclimatise it in our alpine botanic garden of the Linnaea, which stands at an altitude of 1690 mètres above sea-level. M. Ed. Boissier grew this species very successfully at Valeyres in a sheltered nook of his rockery.

S. BOURGÈANA (Boiss. and Reut.).—A native of Southern Spain. Leaves large and of a lively green colour. Flowers white, comparatively large, and disposed in thin spikes on the tops of the stems. Not in cultivation.

S. HAENSELERI (Boiss. and Reut.).—A native of the Sierra Nevada. A tallish species with stout flower-stems bearing white flowers. Leaves trifid and of a deep green colour. Not in cultivation.

S. LACTEA (Turcz.).—A native of Eastern Siberia. A very singular species, forming large panicles of white flowers, which issue from a strong broad tuft of foliage. I have only seen this species in herbariums, and the specimens of it were in a very bad condition; my account of it is consequently limited to what I have thus seen of it. Not in cultivation. The species which is grown under the name of *S. lactea* is not the *S. lactea* of Turcz.

S. IREIGUA (M. B.).—A very pretty species from the Caucasus and Taurus Mountains, which for some time past has been grown in gardens and is highly appreciated. It is of strong, vigorous growth, forming a pyramid of flowers from about a foot to 15 inches in height. Leaves handsome, reniform or tripartite in shape, covered with glandular hairs, and of a fine green colour. The flowers are large, numerous, of a pure white colour, and are produced in succession during the whole of the summer season. This species is biennial, and, from what I have observed of the plants grown by me, should more properly be placed in the *Tridactylites* section than in the present one. It likes a retentive soil and a half-sunny position, and is multiplied by sowing the seed.

S. COSSONTIANA (Boiss. and Reut.).—A native of Eastern Spain. Leaves three-lobed, deep green, and hairy. Flowers white, in small thin panicles. Requires the same treatment as *S. biternata*.

S. DICHOTOMA (Willd.).—A native of Southern Spain and Northern Africa. Robust in growth and of stiff habit. Flower-stems erect, simple, bearing each from three to seven white flowers. Lower leaves reniform. Not in cultivation.

S. ATLANTICA (Boiss. and Reut.).—A native of Spain, Sicily, and Algeria. A tallish species, with stiff flower-stems about 10 inches high. Leaves hairy, deep green, and round. Flowers white, in small panicles. Not in cultivation.

S. GRANULATA (L.).—A well-known species, in-

digenous in England, and also distributed throughout Europe and found in Algeria and the Western Himalayas. Stems erect, stout, sometimes attaining a height of from 12 inches to 18 inches, and bearing each a light panicle of white flowers. It requires a light, well-drained soil and a sunny, but somewhat moist position. The varieties *glaucescens* (Reut.), *Russi* (Presl.), *Hochstetteri* (Engl.), *gracilis* (Engl.), and *uniflora* (Engl.) are not in cultivation. *S. granulata* var. *græca* (Boiss. and Heldr.) is grown in our alpine garden here. It is a smaller and dwarfer form than the type.

S. ODONTOPHYLLA (Wall.).—A native of the Western Himalayas. This species comes very near the preceding one, but is distinguished from it by its larger dimensions, its leaves being more deeply toothed and its flowers larger and of a brighter white colour. It likes a sunny position and well-drained soil. Propagated by means of seed or by division of the tufts.

S. BULBIFERA (L.).—A well-known species from the mountains of Southern Europe, the stems of which bear bulbils from which the plant reproduces itself. Flower-stems erect, from 8 inches to 10 inches high. Flowers white, few in number. This species comes near *S. granulata*, and requires similar culture.

S. SIBIRICA (L.).—A native of the mountains of Central and Northern Asia. A very pretty species, with slender, hairy, branching stems and cordate hairy leaves of a dull green colour. The flowers are large and of a fine pure white. The stems also bear bulbils, which, falling to the ground, take root and produce new plants. It is cultivated in the same way as *S. bulbifera* and *S. granulata*, but requires a lighter and, if possible, turfy soil mixed with loam. It is multiplied from seed, and, when it can be done, by dividing the tufts, an operation as to which prudence must be exercised, as the plant does not very well bear any disturbance of this kind. The variety *S. mollis* (Smith) is not in cultivation.

S. EXILIS (Stephan.).—A native of the northern parts of Asia and America. This species comes very near the preceding one. Not in cultivation.

S. CARPATHICA (Rchb.).—A small species from the Carpathian Mountains. Stems slender and not more than 3½ inches high. Leaves glabrous, light green and cordate or palmate in shape. Flowers white, good-sized, borne in handsome little clusters. This species requires a calcareous, spongy, retentive, yet not moist soil and a half-sunny position. It is propagated from seed, division of the tufts being injurious to the plants.

S. RIVULARIS (L.).—A native of the arctic and northern regions of Europe, Asia, and America. A dwarf caespitose species with slender, erect hairy stems and reniform palmate leaves, forming Moss-like tufts of a light green colour, from which ascend the flower-stems, forming light panicles, which are seldom more than about 2½ inches high. This pretty little species is deserving of being introduced into cultivation on account of the handsome tufts of foliage which it forms. I do not think it has as yet been cultivated, although it seems to be easily procurable, as it abounds in the northern parts of Europe, and is even found on some mountains in Scotland. The following varieties of it are known, viz., *S. pedunculosa* (Ser.), *S. petiolaris* (Br.), and *S. Laurentiana* (Ser.).

S. CERNUA (L.).—A native of the snowy region of the mountains of Europe and throughout the entire arctic and northern zone. A very curious little plant with bulbiferous leaves and stems. The leaves are glabrous and of a light green colour. Stems slender, trailing on the ground. Flowers white, in a handsome corymb. It is cultivated in the same manner as *S. carpathica*, but it dislikes heavy showers of rain or too much moisture in general; it should therefore be planted in a sheltered nook of the rockery, or in a well-drained position elsewhere. It is easily multiplied by sowing the seed. The following two varieties are met with in herbariums, viz., *S. ramosa* (Gmel.) and *S. debilis* (Engelm.). [Of this species (*S. cernua*) Dr. Hooker says: "I doubt if this is more than an alpine and arctic state of *S. granulata*."—ED.]

S. LATIPETIOLATA (Willk.).—A native of the Sierras of Spain. A tomentose species, with silky

leaves of a light green colour. Stems slender and weak, each bearing a few scattered flowers of comparatively large size. We grow it in our alpine garden in the same way as *S. carpathica*.

SECTION PELTIPHYLLUM (Engler).

This section contains only one typical species, viz., *S. peltata* (Torr.), which is found on the banks of streams in California. This is now a well-known plant, although it is not more than twenty years since it was first introduced into cultivation. It is a Saxifrage of gigantic size, the naked, very hairy flower-stems, which are of an almost purplish-red colour, sometimes attaining a height of more than 3 feet, and terminating in a large umbel of white flowers with bright rose-coloured anthers. The leaves, which resemble an inverted parasol in shape, are of large size and dark green colour, and are borne on thick, flesh-coloured, hairy, scarious stalks. They do not make their appearance until after the plant comes into flower. This plant is very successfully grown in England, where the climate is moister than on the Continent. It requires a rich, deep, spongy, and retentive soil and a half-shaded position, sheltered from dry cold winds. It is multiplied by division of the rhizomes, and also by sowing the seed.

(To be continued.)

KITCHEN GARDEN.

BROCCOLI.

THAT Broccoli is not able to withstand the severest frost has been amply demonstrated during the past winter, as in the majority of gardens it was killed. Not only during the past winter, but even during ordinary winters in many gardens the Broccoli gets cut up severely. Ordinary observers will have noticed how well the Broccoli which is cultivated in the open fields by growers for market withstands the winter, while in the walled-in gardens the crop very often fails. Here we have proof that to produce plants able to withstand the frosts which we have during ordinary winters, the plants must be grown in an open position, and the higher and more exposed the better. That the majority of people have but little choice in the matter I am well aware, as they have to make the most of what they have, but there are many cases in which a change in the course of culture adopted may well be made. The seeds are more often than not sown far too early, with the result that the plants become drawn up or over-grown by the time the ground is ready for them. Very often, if planted out as soon as ready, the plants grow a deal too strong, and when in this condition they are not able to withstand a severe frost. Raising the plants too early and planting on loose and heavily manured land tend to the same evil. Planting between rows of Potatoes should also not be adopted, unless such close cropping is absolutely necessary. That Broccoli will succeed well on very firm ground has been proved over and over again, as they will thrive well on the site of an old Strawberry plantation, the only preparation necessary being the chopping off of the old stools and hoeing the ground over to clear away weeds. The ground being so firm, many cultivators use an iron crowbar for making the holes for the reception of the plants. In many gardens the Broccoli crop follows Peas and early Potatoes, levelling of the ground being all that is necessary in the case of fertile soils. It must not be inferred that the plants will succeed on poverty-stricken ground, as the club, or other of the ills Brassicas are heir to, will surely follow, especially if the soil should be of a light or gravelly description. To show the value of a dressing of freshed slaked lime to the quarter to be occupied by Broccoli, in one garden I am acquainted with Broccoli would not succeed at all until

such an application was given, after which the growth made was very healthy and free from club. The ground previous to planting should be well whitened over, afterwards hoeing the lime in. During the operation of planting, some of the lime would be worked down to the roots with the dibber. In gardens where the Brassicas are habitually affected with club, a dressing of lime should certainly be applied, and care also be taken not to allow the Broccoli to follow any other Brassica, a change of soil in such cases lessening the evil of clubbing considerably. It being very essential that sturdy plants only should be planted, sowing the seeds thinly in drills in an open position is much the best system, and if at all too thickly together, as soon as through the ground the young plants should be thinned out, so as to induce a sturdy and hardy growth. I very rarely adopt the practice of pricking out the plants previous to permanently planting out. It must be understood that I am referring to such plants as are grown freely exposed in an open position, and not those which are huddled together on perhaps a square yard or so of ground and on a warm border.

Plants raised as I have suggested are also well able to stand against drought, and beyond a watering at planting time if the weather should prove dry, it is rarely this operation is afterwards required except during an exceptionally dry time. If the weather should happen to be dry by the time the plants are quite ready for planting out, and not any likelihood of rain, the roots are the better for being dipped in a puddle immediately preceding planting, this puddle being formed by mixing some soil with water, so that it will adhere to the roots when these are immersed. Pulling the young plants up roughly by the hand is a very bad practice to adopt, this breaking the fibrous roots clean off; consequently the plants do not take to the soil so soon as they should do, and during a dry time they are quite likely to utterly collapse. If during a dry time the rows should be soaked with water over-night, and with the aid of a fork for gently raising the soil under the plants, these may be drawn out with a bunch of fibrous roots attached. Close planting, again, should not be practised; a distance of from 26 inches to even 30 inches apart is none too far apart both between the rows and in the rows. Close planting also causes an undue length of stem, which is not at all desirable. The closer the lower leaves are to the ground the better, this protecting the stems as much as anything. However desirable a mild autumn and early winter may be for many subjects, it is not at all suitable for winter and spring Broccoli, as the plants are kept growing; consequently they are in danger of becoming gross.

In sheltered gardens the old, but no doubt beneficial operation of laying deep the plants to tide over the winter safely is practised, but thrusting a spade under each plant and partially lifting so as to give the plants a check, is equally useful, if not better, and especially so when the plants are not overgrown. But where the garden is situated so that the plants may be grown fully exposed, and where the practice of not sowing too early is adopted, and the plants thinly grown from the first, the operation of either laying or lifting is not at all needed.

In answer to the query of "M. T.," p. 404 of THE GARDEN, as to the percentage of Broccoli that has survived through the winter, in my case I have quite 80 per cent. of Veitch's Model and Ledsham's Latest of All. The main crop was almost completely killed, but the above were from late sown, and also planted

late. The plants are growing in an exposed position, and the soil is a heavy limestone marl. The heads certainly will not be large, but, nevertheless, in a season like the present they are much appreciated. A. Y. A.

SOME GOOD BROCCOLI FOR LATE USE.

THE past winter will have destroyed many of the Broccoli, and even those who took the timely precaution to heel over their plants in the autumn will have lost a large percentage of their crops—at least such is my experience and that of many others for miles round. I rely largely on Model for the May supply, and it is the only kind that stood the severe weather, and many of the earliest of these succumbed. Only those planted for June cutting survived the rigours of last winter, and these I must admit were sheltered from the east winds which played such havoc with the crops after the snow covering had disappeared. I planted the last lot for June cutting on very hard poor ground, and was rather later than usual; thus the plants made short sturdy growth with hard stems. These were the only ones I saved. Of course, the heads are small, but doubly welcome. The seed for this late lot was sown the third week in May and very thinly, and afterwards transplanted into beds, thus preventing them becoming leggy. I attribute our good fortune in saving these by late planting and by the transplanting in the summer, as the plants were close to the ground and escaped the injury to the stems. I formerly grew Cattell's Eclipse, and it is a sterling variety; its only drawback is that it has not a pure white curd, but it is very hardy, and I have half regretted discontinuing its cultivation, as I believe it to be one of the hardiest Broccoli grown. Again, it is not so dwarf as some, and in severe seasons like that we have passed through a dwarf Broccoli can be more readily protected. Another kind of late growth and an old favourite is Miller's Dwarf Late White; this kind did well with me years ago on a heavy soil, and is of very compact growth, and worth a trial in such seasons as we have had. I do not care for the large-growing kinds for very late work, as I consider there is little gained by them; they take up more space and in my opinion suffer more from frost and are not nearly so good as small ones when cooked. Late Queen is also good, but I prefer Model, as the habit of the plant is very dwarf, having short-set, thick, hard stems with abundance of leaves folding closely over the head, thus protecting it in severe weather, and in the late spring acting as a screen to preserve its colour and protect the head or flower from the sun. Therefore, for sowing at this date (May 9 or early in May) I would advise Model and sowing thinly also, transplanting in case the ground is occupied with other crops. I also recommend Cattell's Eclipse to those who prefer a good late kind, sowing these two kinds and at two different dates, the earlier date a month or three weeks in advance of that advised for the last sowing; by this means no difficulty will be found in keeping up the supply till the early Cauliflowers are in. I will also add a word as to our old favourite Walcheren Broccoli, one of the best of its kind ever introduced for summer work and one of the most valuable summer Broccoli we have. Though it does not come under the heading of late kinds, it fills up a void where others fail. Some years ago, having to have Cauliflowers or Broccoli if possible every day in the year, this vegetable being a specialty with my employer, I found out the value of this variety, as most of our early Cauliflowers bolted. The Walcheren never failed in the hottest seasons, and though it is not so nicely shaped as a perfect Cauliflower, it bears a good head with a nice white curd, and comes into use very quickly. I sowed several times during the spring and early summer, and the supply was kept up till the Autumn Giant Cauliflowers came in. For a light sandy soil I can recommend it, and feel sure such Cauliflowers as Early London will not be planted after it has been tried. I also advise it for autumn sowing; it is very hardy, and not so liable to run in the spring as many Cauliflowers; indeed I may say it is the only kind that stood the frost this winter in a rough frame. Though

an old variety, for hot, burning soils it is unequalled in my estimation. I have in previous winters since 1881 always had some plants under a south wall only protected by Bracken, but this year they were killed. Those in a frame are as robust as one could wish. The spring-sown lot in a cold frame are now being planted out. These were sown in February and protected, and they form a valuable succession to the first named or autumn sown.

S. H.

EXHIBITION POTATOES.

It has been urged that it was desirable to resuscitate or reconstitute the old International Potato exhibitions. That those gatherings tended immensely to popularise the Potato and to bring all its many merits prominently before the public there can be no doubt. Still I have grave doubts as to whether any good would now result from a similar series of exhibitions. It must be remembered that when the shows were originally promoted some 18 years ago, the Potato was in rather low water; we had scarcely a variety which did not suffer severely when the disease raged, and it was exceedingly difficult for many growers to save their stocks. The Ashleaf Kidney, Early Rose, Dalmahoy, Regent, Victoria, &c., the principal Potatoes of those days, used to rot wholesale in bad seasons, and terrible was the loss often sustained. It is true that for several years the International Potato shows simply reproduced these and similar kinds, not specially meritorious, but at least the special prominence given to the Potato by them did cause much additional interest to be taken in the production of new varieties; hence there gradually grew up such a number of fine sorts, all more or less, and generally more disease-resisting, than even when the disease was at its worst, and it was very bad last summer, we have had plenty of Potatoes left. The comparative scarcity which now exists in the Potato supplies, and it is only because we have had such exceeding abundance for several previous years, is as much as anything due to the damage done to stored crops through the intensely severe weather of the past winter. However, once again, and not dismayed by disease or frost attacks, growers have planted even more extensively than ever, and we may look with very considerable confidence to a large crop of Potatoes during the ensuing summer. That fact militates against the request that the old International Potato shows should be reinstated, because the same reasons for their existence as were found twenty years ago do not exist now. There was a time then when the Potato trade derived a remarkable stimulus from the exhibitions. That arose at once from the need which existed for better Potatoes, and the excitement and curiosity of the public by the seeing before them on the show tables so many varieties which were new to them, and in the merits of which they felt constrained to take an interest. Then at that time we had very few persons who engaged in the work of cross-fertilising, and producing really new or distinct varieties. Even the most knowing of these for a long time groped in the dark, ignoring too much the requirements of the markets, and of the grower for market who needed varieties which would not only produce large crops, but resist the disease. With the advent of *Magnum Bonum* came the first real check to the attacks of the disease, and from that variety has come literally an army of seedlings, which, some less good, some even better than its parent, have given to us now such abundance, that Potatoes, whether for seed or for consumption, have long been absurdly cheap. The stimulus to raise new varieties is gone, so also indeed is the interest in exhibitions. With prices fully 50 per cent. below what they were when the International Potato shows started, it is idle to assume that the general public have derived no benefit from them. Really it is a fact that the general public have got nearly all the benefit. Because of the enormous crops of Potatoes now raised, it is almost impossible, except under specially favourable conditions, that Potatoes should recoup the grower just beyond what he has had to expend in the cultivation. But outside of all these considerations there remains the fact that Potatoes

did and do still make very pretty shows. It is doubtful whether even Apples create better effect or generally more interest in the public mind than Potatoes do. Not a few persons at the time the exhibitions were being held indulged in a good deal of absurd criticism with respect to the polishing of the tubers that was supposed to take place, to the existence of a special race of show Potatoes, &c., all of which was pure nonsense; but still it was hard to make sceptics believe that the beautiful smooth skins found on many of the tubers were natural. Growers knew that there were soils of a soft, sandy, deep, cool, yet quick nature, which, by producing rapid tuber growth and where there was an entire absence of insect life, did very naturally create these very features in the tubers which were ascribed to art. All the art in the world could never succeed in giving to a Potato that smoothness and beauty of skin which Nature does so well under certain conditions. It is true some did, in the endeavour to reduce the rough coats of their tubers to the desired smoothness, scrub them unduly hard, but the thing was so apparent and became farther, in the estimation of the judges, a real cause for disqualification, that the practice soon died out, as did another foolish plan of oiling the skins of coloured Potatoes. These were the conceits as well as deceptions of the quack exhibitor, but they were never favoured and eventually died a natural death.

The chief Potato exhibition in London is that seen at the November show of the National Chrysanthemum Society, and there year after year do we see the prizes going to tubers grown on certain highly favoured soils in the neighbourhood of Banbury, next to which come in order of merit certain other soils in Kent. These beautiful prize tubers, and it matters not what the variety, all have highly refined smooth clean polished skins, the product at once of specially suitable soils and of good cultivation. Intending exhibitors of Potatoes should therefore be careful as to the quality of the soil they may have at disposal before they embark in any such undertaking. There are many vegetables which we can grow as well on stiff soils as on fine light soils, perhaps very much better. Potatoes are exceptions. Not only do they derive outside beauty and refinement from the soil if good, but their quality and flavour are also very largely dependent upon the soil, or, in other words, the constituents found in it. We may do much to help the production of eating quality by the addition to soils of superphosphates, soot, lime, kainit, or other constituents, but all the same it is exceedingly difficult, if not impossible, to obtain from harsh strong soils those beautiful tubers which come so freely and readily out of light friable soils. One of the reasons which conduce so much to the charm incidental to the old Potato shows was the division of tubers into rounds and kidneys, white and coloured. In that way there was always found a goodly proportion of colour, especially pink, red, and purple. Exhibitors of large collections found them much more attractive when dishes of coloured and white varieties were duly mixed in equal proportions. Beyond the purple, red, and pink self-coloured tubers, some very pretty varieties exist of a piebald nature, such as pink, red, purple, carmine spotted, both of rounds and kidneys. Of many of these perhaps some are now difficult to find, but they were not only handsome, but also good. *Radstock Beauty*, with its pale red markings and white skin, was always one of the handsomest, and it was, or rather still is, of exceedingly good quality. The same may be said of one of its children, *Conference*. *Blue Eyes* has purple blotches and is equally good. In the matter of self-red varieties, we never found a better round than *Reading Russet*, and of purple rounds, *Vicar of Laleham*. These two Potatoes became the most popular and widely grown for exhibition in the kingdom, invariably taking the chief prizes in the coloured classes. It is hardly probable that for cropping or beauty these two Potatoes will be beaten. With the dying out of the Potato shows there has naturally been less demand for coloured Potatoes, not that they do not have amongst them plenty of good croppers of excellent quality, but they do

not find favour in the market in the same way that white-skinned varieties do. As to these latter, we see *Reading Giant*, *Magnum Bonum*, *Chancellor*, *Governor*, *Snowdrop*, *The Canon*, and others of similar fine quality generally shown amongst kidneys, and Satisfaction, Schoolmaster, London Hero, Sutton's Seedling, and Fidler's Prolific amongst rounds. One of the most interesting Potato competitions of the year will be found at the November show at the Royal Aquarium, Westminster, when valuable prizes are offered for nine dishes of white-skinned Potatoes, put into commerce only during the past three years, and suitable for field cultivation and market sale.

A. D.

SHORT NOTES.—KITCHEN.

Asparagus.—I send you a small sample of unforced Asparagus planted in the open ground April 28, 1890. Two-year-old plants of French growth were used. Wireworm has given us much trouble.—J. WHITWORTH SHAW, *New Place, Lindfield*.

*** A very good sample.—ED.

Parsnips.—Last year green-fly attacked the tops of both Parsnips and Carrots almost as soon as through the ground, and in many gardens the crop was almost totally destroyed. There may not be a repetition this season, as it is rarely this happens, but if such should be the case a light dressing of soot in the early morning, while the foliage is wet with dew, will keep the fly in check.

Early Cauliflowers.—These must have generous treatment, for if allowed to become stunted, premature buttoning will be the result. Surface hoeing must also be practised as long as it can be done without injury to the leaves, this causing a free growth as much as anything. As soon as the plants are well advanced and growing freely, they where set out in drills should have the soil drawn in about the stems, this immediately following on a soaking of liquid manure where this is likely to be needed.

GARDEN FLORA.

PLATE 806.

HYBRID CYPRIPEDIUMS OF THE FAIRRIEANUM GROUP.

(WITH A COLOURED PLATE OF C. NIOBE.*)

ONE of the most notable developments in horticulture during the last ten or fifteen years is the enormous amount of attention that has been given to the production of hybrid Orchids. Before that time this work was confined to a few professional experts; whereas now it is carried on both by amateur and professional growers all over the country. *Cypripedium* is a genus that lends itself more readily perhaps than any other to the hybridiser's art, and for this reason, as well as the popularity of the genus itself, the hybrids raised from its numerous species far outnumber those obtained from all other Orchid genera added together. It is probable that there are at least 150 named hybrids now in cultivation, and these may be considered a mere fraction of what are now being raised throughout the country. The occupation of hybridising is in itself, no doubt, one of the most fascinating and pleasurable in horticulture—the creation of new forms in plant life could not well be otherwise—and many workers are impelled by nothing more than pure love of it. A greater incentive, however, to its adoption has existed in the extravagant prices that have been paid in past years for mule Orchids.

* Drawn for THE GARDEN by H. G. Moon in Messrs. Veitch's nursery at Chelsea, January 23, 1891. Lithographed and printed by Guillaume Severeys.





Although, probably, the days have gone by when a hybrid *Cypripedium*, merely because it was a hybrid, could secure a price utterly disproportionate to its intrinsic value, a really good hybrid can even now command a high price, as recent sales have shown. There can be no doubt that, with a few notable exceptions, the later hybrids are a vast improvement on those produced in the early days of hybridising, and they are certainly entitled to rank amongst the most beautiful of Lady's Slippers. This improvement is due both to the large number of new species which the labours of Orchid collectors have made available for this work, and also to a more careful and judicious selection of parent species.

There is one group of hybrid *Cypripediums* which we may safely conclude will never become common nor greatly deteriorate in value. It is the group which claims *C. Fairrianum* as one of the parents, and the one to which *C. Niobe*, the beautiful variety illustrated in the accompanying plate, belongs. *Cypripedium Fairrianum* is one of the rarest and most beautiful of Lady's Slippers, and its history is as curious as any contained in Orchid lore. The first occasion when it was brought into notice was in 1857, when both Mr. Reid, of Burnham, in Somersetshire, and Mr. Parker, of Hammer-smith, sent flowers to Sir William Hooker at Kew. In the autumn of the same year a flowering specimen of it was exhibited at a meeting of the Horticultural Society by Mr. Fairrie, of Aigburth, near Liverpool, in honour of whom it was shortly afterwards named by Dr. Lindley. The precise manner of its discovery and introduction has never been ascertained, and no collector has ever succeeded in finding it again, although it has been searched for repeatedly. It is now considered to be either extinct in a wild state, or else confined to some very restricted or inaccessible position. Its native country is believed to be Assam, as the original plants were obtained at a sale of Orchids imported from that province. It does not appear to be so easily cultivated as most *Cypripedes*, and a bar to its increase exists in its impatience of disturbance at the root. We know of more than one instance where a plant has been lost by having been divided. One of the finest plants now existing is in Baron Schroeder's collection. It was shown at one of the spring meetings at the Drill Hall, Westminster, and was then bearing seven flowers. Both in the form and colour of its flowers it is one of the most attractive of *Cypripediums*. The flower is borne singly on a slender scape about 6 inches high, the dorsal sepal being white on the upper part, yellowish green at the base, and streaked with brown-purple. The petals are similar in colour and fringed with black hairs, the curious manner in which they are deflexed and twisted back rendering them the most characteristic feature of the flower. The lip is purple suffused with brown and marked with green veins. An adequate idea of its beauty cannot be obtained from a mere enumeration of the colours; its flowers are, however, as was said at the time of its first

appearance, amongst the most exquisitely coloured and pencilled in the genus. Up to the present five hybrids have been described whose parentage is shared by this species, four of which have been raised in Messrs. Veitch's establishment at Chelsea.

C. NIOBE.—This beautiful hybrid was first flowered in the latter part of 1889, when it was exhibited at one of the Royal Horticultural Society's meetings. It is the offspring of *C. Spicerianum* fertilised with the pollen of *C. Fairrianum*, the seed having been sown in 1884. The leaves, as will be seen in the plate, bear a near resemblance to those of *C. Spicerianum*, although they are not so large, being from 3 inches to 5 inches long, and of a rich uniform green. The dorsal sepal is proportionately very large, measuring upwards of 2 inches across; besides the broad band of brownish purple down the centre, there are numerous branching veins of purple on either side. It is in the deflexed and recurved petals that the influence of *C. Fairrianum* is most distinctly shown; they are light green with several rows of purplish dots running lengthwise; the upper margin is much undulated, whilst the lower one is nearly straight, both being ciliated, as in *C. Fairrianum*. The ground colour of the lip is a light green, but in front it is deeply suffused with purple and brown. Altogether the characters may be described as fairly intermediate between both parents.

C. VEXILLARIUM.—It is to the skill of the late Mr. Dominy—the pioneer of Orchid hybridising—that we owe this charming plant. It was raised from *C. barbatum* pollenised with *C. Fairrianum*, and flowered for the first time in Messrs. Veitch's nursery in 1870. In habit it is dwarf, the leaves being tessellated in light and dark green. The upper sepal is white at the base veined with green, but towards the apex the colour changes to a vinous purple, with veins of a deeper shade. The petals are deflexed and twisted back, as in *C. Fairrianum*, the margins being wavy and ciliated; in colour they are purple, veined and shaded with green. The lip is brownish red with the infolding lobes pale green, spotted with purple warts. The influence of *C. Fairrianum* may be said to predominate.

C. ARTHURIANUM.—The parentage of this variety is shared by the old *C. insigne* and *C. Fairrianum*. It is of dwarf habit, and closely resembles *C. insigne* in foliage. The upper sepal is apple-green with brownish purple veins and spots, the apical portion being white, as in *C. insigne*. The petals are of a pale yellowish green veined with brown-purple, and, like the other hybrids mentioned, show the influence of *C. Fairrianum* most markedly in their being deflexed and recurved; the lip is light yellowish green, veined and mottled with brown. It was first flowered by Messrs. Veitch in 1874.

The two remaining hybrids are of such recent origin, that little is as yet known of them. The first of the two is named *H. Ballantine*, having been raised by Mr. Seden from *C. purpuratum* crossed with *C. Fairrianum*. It is of dwarf compact habit, with bright green, faintly tessellated leaves; the general appearance of the flower closely approaches *C. purpuratum*, although unmistakable evidences of the other parent are visible. It was to be seen in flower in Messrs. Veitch's nursery in the latter part of last summer.

The latest addition to the group is named *Juno*, and it opened its first flowers as lately as March, 1891, in Mr. Drewett's garden at Mill-on-Tyne. The seed parent is *C. callosum*, but the more prominent features of the flower appear to favour *C. Fairrianum*. This hybrid has reached the flowering stage in less time than any *Cypripedium* yet raised in this

country, the seed having been sown in August, 1888. W. J. BEAN.

THE WEEK'S WORK.

PLANT HOUSES.

ANNUALS FOR THE CONSERVATORY.—Now that relief is in a great manner effected against overcrowding by the removal of the major portion of the bedding-out plants to their summer quarters, there will be more room at disposal for plants in pots raised from seed. One does at times see frames lie empty for some time; this should not be the case if there is any prospective view of a good demand later in the year for a considerable display of flowering plants either in the conservatory or in the house. There is not nearly enough of this kind of material grown for decoration; if more were cultivated instead of depending so much upon plants of a permanent character (flowering and foliage), these latter would not be so frequently exposed to injury as they now are. *Celosias* sown early will now be of fair size; do not allow them to become pot-bound or overcrowded. The earliest will now be possibly fit for 6-inch pots or even larger; from that size up to those 9 inches in diameter will be quite sufficient. The smaller plants will be useful for vase and basket work, the larger ones for groups in the conservatory. Do not allow them to run away at their own sweet will, otherwise they will more often than not be of unsightly character by the time they are in flower, with possibly only a terminal head of any importance. By a few pinchings a good bushy plant can be obtained which later on will be a creditable specimen. From now onwards these *Celosias* can be easily grown in frames. If one is at liberty which has been used for early Potatoes upon a bed of leaves and manure no better place need be sought after. By mixing up a little fresh fermenting material (so as to secure a gentle bottom heat) into which the pots should be plunged, both top growth and root action will be greatly facilitated. Grown in this manner they are not nearly so liable to attacks of red spider as when kept in a more arid atmosphere. By frequent dampings overhead the atmosphere of a frame just suits the *Celosias*. When first plunged the plants should be near the glass, then as growth proceeds the frame can be lifted as required. In potting these plants a light soil should be used, merely pressing it down with the hands chiefly, hardly making use of a potting-stick at all. Refuse peat or leaf-mould with a little light loam will suit them well. Do not disfigure the plants later on by the use of sticks; no more than one to each plant ought in any case to be allowed. For latter batches for use in September and October another pinch of seed should be sown at once; there is plenty of time to procure medium-sized plants between this and then Cockscombs do well under the same treatment, save in respect to the pinching. These plants should be kept dwarf from the very first by early potting and full exposure near the glass to plenty of light. If any red spider is seen keep the plants well syringed with soot water made as advised last week.

TORENIAS may very well be grown under the same conditions as just advised for *Celosias*. Dwarfier plants can thus be had than if kept in the ordinary run of plant houses in private establishments. These should also be frequently stopped, as their value will be more apparent during July and August than earlier. If three or more plants have been potted up together (which is a very good plan to adopt), these should be pegged outwards. Large plants can in this way be had in 6-inch pots, beyond which size it is not advisable to proceed. If any spare baskets for hanging purposes are empty, these may be advantageously filled with *Torenia*s. If placed fairly thick over the surface, then pinched in once or twice, these will make a pretty show in their season. *T. asiatica* is probably better than *T. Fournieri* for basket work, but the latter can be so employed, whilst for pot culture it is by far the better one to grow.

BALSAMS, too, should be grown in frames. Of

these seed may still be sown for autumn flowering. Young plants now in small pots should be potted on before they are in any way starved, keeping them as low down in the pots as possible. Unlike the *Celosias*, however, this annual ought to be more freely ventilated, and no additional stimulus in the way of bottom-heat is required. Plants of the *Balsam* grown in this manner are far in advance of those reared and kept in houses. Under the head of *Balsams* should also be included the *Impatiens* usually grown in warm houses. Of these *I. Sultan* and its varieties may be easily reared, but more warmth is required to grow them successfully. Under exactly similar conditions to the *Celosias* these may be easily cultivated, save confining them to smaller pots. It is now too late to raise from seed to get good plants this year, but cuttings from old plants will soon make good headway.

GLOBE AMARANTHUS.—Those sown earlier in the year should now be fairly good plants. These when young will endure a goodly amount of warmth. I have grown them on until about fit for 4½-inch pots in a Melon pit, where the latter had only recently been turned out. This treatment is congenial to them at this early stage, but thence onwards they will thrive well with the *Celosias*. These may, if potted singly, be flowered in the size of pot just named, but by putting three together larger ones can be used. The plants, if not wanted in flower quite so soon, can be pinched once or twice from now onwards. For a late batch of plants seed may yet be sown; these will be useful plants to flower in small pots. For general purposes the purple variety is to be preferred to the other shades of colour, being far more decided and distinct in this respect. J. HUDSON.

ORCHIDS.

THERE is plenty of work now among Orchids. Coke pounded up into pieces from the size of a boy's marble to that of a Walnut is as good a material as anything to stand Orchids on. It retains the water, giving it off slowly by evaporation during the day. Those who raise seedling Orchids will find this surface of pounded coke a good seed-bed. Some years ago I saw seedlings growing freely amongst the coke in Mr. Cookson's garden at Oakwood, Wylam-on-Tyne, owing to the seeds being accidentally scattered from the ripened pods before the gardener was aware they were ready to gather. We use broken shells, as the appearance of coke on the stages is objected to; these shells, which we obtain from the sea, answer the purpose admirably. Watering the plants is a matter of considerable importance, and no one can be a successful cultivator who does not study the natural requirements of each plant under his care. One can readily tell by the appearance of any plant what is the state of its roots, and will treat it accordingly. A *Dendrobium* or a *Cattleya*, for instance, that has been growing vigorously in the same pot for twelve months or more should be watered freely whenever it appears to be on the dry side; whereas, a more recently potted plant of a weakly growth may have few or no active rootlets to take up water; therefore such a plant should only have enough water to keep the potting material moderately moist. The man who has charge of the watering of the plants should look carefully over them, making it his first work after he has seen to the ventilation, and there is no need to be so sparing with the water-pot now as it was necessary to be in late autumn, winter, or early spring. We are repotting any plants that really need it, for with long days and a higher night temperature they soon make fresh young roots. By the time *Dendrobium Wardianum*, *D. crassinode*, *D. Ainsworthii*, *D. Leechianum*, *D. nobile*, or any of these free-growing deciduous species have passed out of bloom, the young growths will have made considerable development, sometimes as much as 6 inches or more, but the rootlets will not have pushed out much, and the repotting or re-basketting of such plants does not check their growth in the least. What they require after the flowering is over is a high temperature with plenty of moisture in the atmosphere and no lack of it at the roots of the plants; place them as near as pos-

sible to the glass lights and use the shading no more than will keep the leaves from being injured. I like to remove the shading in the afternoon while the sun has yet enough power to raise the temperature to 95°. I have seen it on many occasions touch 100° with the moisture condensed on the glass. I remember an Indian gentleman going into such a house after we had shut it up, and he declared it was like Bengal in the rainy season. I took this as a hint that we had hit off the temperature exactly. I have treated the *Dendrobiums* in this way for many years and am quite satisfied with their free growth and free flowering. The evergreen species are placed in the same house, and such vigorous growing *Dendrobies* as *D. Dalhousianum* and all of the *D. thyrsoiflorum*, *D. Farmeri*, and *D. Paxtoni* group. All the nigro-hirsute section may be treated to the same temperature. In repotting any of these plants or placing them in fresh baskets, it is best to remove them out of the old ones carefully first; it may be necessary to break the pot with a hammer and remove the broken portions bit by bit, or the baskets may have to be pulled to pieces one rod at a time. This to many growers may seem superfluous advice, but I have known *Cattleyas* and *Laelias* to be shifted by placing one pot within a much larger one and packing the potting soil all around it, and repeating the process in a few years again, and on one occasion I had a valuable plant of *Dendrobium Ainsworthii* sent to me in a pot very much too large for the size of the plant. It was sent because it was not in good health, thinking that I might get it round again, and I found out the reason of using such a large pot; it was because it had been growing in a teak basket, and the square receptacle had been placed in an ordinary flower-pot, with the result that the potting material had decayed and with it nearly all the roots. I had no trouble to get the plant out of the pot, and next out of the basket almost rootless, and it was easy to get it into a very small pot, and in some nice new potting stuff, good peat and Sphagnum new roots were speedily emitted from the base of the new growths, but it was three years before the plant regained its wonted vigour. There was considerable gain in another way, for many of the growths produced plants from the nodes, as such *Dendrobiums* generally do when they get into bad health—doubtless a wise provision of Nature to propagate the species when the existence of the old stock is endangered. We have hit upon a good method of successfully cultivating *Cypripedium caudatum* by repotting the plants as soon as they pass out of bloom (which this year will be the end of May) in a compost of good fibrous loam in equal proportion with the fibrous peat. The plants not only grow more freely with the use of the loam, but produce a greater number of and better flowers. I find the loam has not such lasting properties as the peat, and it is necessary to repot the plants annually. In fact, all Orchids planted in loam require repotting more frequently than those in a peat and Sphagnum compound.

J. DOUGLAS.

THE KITCHEN GARDEN.

HOEING AND THINNING CARROTS.—The early Horn Carrots which were sown first on warm borders have germinated well and are now growing away freely. Where these are sown thinly very little if any thinning out is necessary; the young Carrots as soon as they are large enough being pulled for use, the remainder have space to grow. Hoeing between the rows must not be neglected, this stimulating growth and keeping down weeds. The main crop Carrots are also now appearing, and hoeing must be practised on every possible occasion, and up to the time that the tops are fairly covering the rows, after which no weeds will be troublesome. The thinning of the young seedlings must also be proceeded with. Where the Carrot maggot is known to be troublesome the thinning out must not be done too severely. On some soils the Carrot grub is very troublesome, but there is little that can be done at this stage to ensure its banishment, the safest cure being to dress the ground over in the autumn with gas-lime and salt, and where the precaution was taken of applying a

dressing of soot at sowing time there need be little to fear from the ravages of this destructive Carrot pest.

LETTUCE.—Lettuce sown at this date do best on an east border, and if the seeds are sown thinly in drills, the site previously having the addition of some fresh and light soil, the plants will lift well. On those soils where Lettuces do not transplant well, the best results are obtained from sowing in the open where the crop has to come to maturity. To produce good summer Lettuce it is of no use sowing on poor or badly worked soils, as in these cases the plants run to seed almost immediately on coming to maturity. The ground must be well dug and also well manured where needed. The drills should be drawn 12 inches or 15 inches apart, and during a dry time these should be soaked with water previous to sowing the seed. As soon as the seedlings are large enough they must be thinned out, the thinnings coming in for planting on cool north borders on dry soils, but on heavy soils I plant direct to the open. Where Lettuces are being transplanted during a dry time, each plant should be covered with a small flower-pot for a few days, or until the roots commence to take to the soil. The above practice will often be the means of saving a crop, as it is well known how quickly young Lettuce plants suffer if a hot and parching day should follow planting out.

EARLY CELERY.—Where very early Celery is needed the plants will be ready for placing in the trenches, but it is only in exceptional instances or for exhibition that such early planting is practised. Where this practice is adopted, the precaution should be taken of not planting too many. The very earliest sowings are also more apt to bolt than any other. Early matured Celery keeps indifferently, and decay must be attributed more to this cause than any other. Take particular care that these early plantings do not suffer from the want of water when placed in the trenches, or else the greater portion will surely bolt. Care must also be taken in the transplanting. Each plant must be lifted up with a good ball of soil attached, previously removing all sucker growth. Attention to this matter will save almost endless trouble later on, as when the removal of the suckers is neglected this hinders the after growth.

SUCCESSION CELERY.—This must be kept pricked off as soon as the young seedlings become ready, it being very essential that the plants be kept growing steadily, the evil of bolting being more often than not laid in the early stages, and especially through being checked for the want of early pricking out. This has special reference to those seedlings which are raised in pots and boxes.

PEAS.—These must now have regular attention, as any neglect in either hoeing or staking, as also in not sowing at intervals will surely be felt later on. If a dry time should ensue, and especially on very light soils, south borders are apt to get very dry. To guard against this, early mulching along each side of the rows will help the plants considerably. On light soils sowing in trenches is much the best system to adopt, as the manure being placed directly under the rows the roots receive the full benefit. Peas sown at this date, if a dry time should ensue, have a very trying time before them, but by giving generous treatment and having the rows far enough apart, so that the sun and air can have free access to the bottom part of them, there should not be any difficulty in maintaining the supply.

EARLY FRENCH BEANS.—Those being raised early in pots or boxes for transplanting on to warm borders should not be allowed to suffer for the want of planting out, as after now there should not be any danger of late frosts. Where the plants have been allowed to become stunted, it will be a difficult matter to obtain early produce. Plants which have had the protection of portable lights should now have these removed from off the rows, as the plants succeed much better with free exposure than by coddling up. When planting out some rich soil should be pressed firmly around the balls. If the weather should happen to be dry, two

or three waterings will soon enable them to become established. Y.

FRUIT HOUSES.

PINES.—The earliest started, notably Queens, are now swelling their fruit rapidly, and in order to have them as large as possible keep them uniformly moist at the roots, guano and other liquid manure being applied till colouring commences. A moist atmosphere and strong heat also favour swelling, and the day temperature may well range from 80° to 85°, closing early so as to run up the thermometer to 90° or rather more. Then if the fires are started early, the night temperature can easily be kept at about 75°. Not more than one sucker should be allowed to develop on each plant, everything being done to concentrate the vigour of the plants on the swelling fruit. The quality of ripe fruit will be greatly improved if they can be shifted to a cooler or more airy structure for a few days prior to cutting. The plants of Smooth Cayenne and other late varieties that are intended to produce fruit for the autumn ought now to be showing colour; any not doing so should be kept drier at the roots for another fortnight or three weeks, and this check will most probably cause them to fruit. In each and every case directly the fruit can be seen, look well to the roots, as they will require to be kept well supplied with moisture, and a higher temperature and a moister atmosphere may be maintained with advantage.

SUCCESSIONAL PLANTS, or those shifted into their fruiting pots in March or thereabouts, ought now to be growing strongly, but should not be subjected to very high temperatures or an excess of atmospheric moisture, or otherwise the leaves will be drawn and soft in texture. The night temperature need not exceed 65°, but no harm will be done if the maximum 70° is reached. In the daytime give sufficient air to keep the figures near 75°, closing early enough to run the heat up to about 90°. Keep the path, walls, and other surroundings moist, and when the house is closed very lightly syringe the plants overhead. A strong sunshine is liable to brown and perhaps burn the foliage, and it is advisable therefore to shade lightly during the hottest part of the day. The soil in the pots as yet being only partially occupied with roots, the watering must be carefully conducted or otherwise souring may take place. At the same time the other extreme or excessive dryness must not be reached, or premature fruiting most probably will be the consequence.

BANANAS.—Strong fully grown plants that have been first rested and kept somewhat dry at the roots and then excited last March or April ought now to be showing fruit. The presence of the latter can be detected by the thickening of the stems, and another sign of fruitfulness is the fact of no strong fresh leaves being formed. If strong leafy growth is going on, there is little or no likelihood of a cluster of fruit being thrown up this season, the Banana, in common with the Pine-apple, fruiting from the centre of the stems, and only once in its lifetime. Fruiting Bananas will bear almost any amount of feeding, and must have it, too, or the cluster of fruit will not be large. The great hungry roots revel in the richest of top-dressings, and liquid manure should be given whenever the soil approaches dryness. The ordinary plant stove temperature suits Bananas well, and a light shade during the hottest part of the day is beneficial rather than otherwise. Plants intended to fruit next season ought now to be growing strongly, and be sufficiently large and well rooted to shift into their fruiting quarters at once. They will succeed in bushel or larger pots, tubs, or small brick pits. Give sufficient drainage to carry away the abundance of water given them both during the growing and fruiting periods, and use a compost consisting of two parts of roughly broken up turfy loam to one of good rotten manure, lumps of charcoal and half-inch bones being freely added with advantage. Remove all suckers as they form, or they will soon rob the parent plants of much needed food and moisture. The fruiting plants will soon produce what suckers may be needed for

propagating purposes. Musa Cavendishi is the best of the kind for fruiting under glass.

SHADING VINES.—A spell of exceptionally bright weather, the sunshine being as strong as it is often experienced in July or August, coupled with cold winds, has left its mark on many Vines. It was hardly possible to keep down the temperatures to safe figures without admitting front air freely, while the cold nights necessitated a rather free use of fire-heat. Such conditions are very favourable to the spread of red spider, and burning, consequent upon excessive exudation of moisture by the foliage, takes place in some cases. Old-fashioned houses, or those in which there is much woodwork in the shape of sash-bars and heavy rafters, are the least affected by extremes, but modern structures, with their slight woodwork and large closely fitting squares of glass, are more difficult to manage metallic houses being even worse. In these cases a temporary shading may well be applied in very hot weather, and especially when easterly or north-easterly winds prevail. Fish netting loosely stretched over the roof during the hottest part of the day is the best form of shading, being both light and quickly removable. A very thin wash made with whiting and water, this being thinly and lightly sprayed over the roof with a syringe, also answers well, and seeing that the first heavy rain will wash it off, it is not likely to unduly shade in dull weather. These temporary shadings check a too rapid evaporation of moisture, therefore obviating the necessity for admitting air in injurious quantities, red spider being checked accordingly. Unless the foliage can be preserved in a clean, healthy state the crops will finish badly, but it must also be remembered that shade recklessly applied will do very much more harm than good, and it is only in extreme cases that it ought to be applied.

PRACTICAL.

STOVE AND GREENHOUSE.

TETRATHECAS.

(TREMANDRA.)

AMONGST the pretty, free-flowering hard-wooded plants which one now seldom meets with are the Tetrathecas. Twenty or thirty years ago there were few greenhouses where anything like a fair assortment of subjects was grown in which these beautiful plants were not to be found. Their distinct character and profuse habit of flowering, combined with the length of time they continue in bloom, are worthy of being taken into account by those who require an effective display in greenhouses and conservatories. Another point deserving of notice is that the plants are naturally elegant in appearance. The branches are slender and drooping, yet for ordinary decoration they require little support, nothing more being necessary than a limited number of sticks and ties to hold the strongest branches in position, leaving the weaker lateral shoots to hang loosely.

The two species that have alone found much favour with cultivators (*T. ericæfolia* and *T. verticillata*) are wholly distinct in their general appearance and differ in their habit of flowering. The first named species blooms in spring, and will continue flowering for six or eight weeks. *T. verticillata* keeps on blooming almost continuously all through the spring and summer, only stopping when the shoots cease to extend late in the autumn. The plants are easily propagated, striking freely from cuttings made of the points of the shoots when the wood is in a half-matured condition. The time that suitable cuttings are obtainable, as a matter of course, depends on the time the plants begin to make growth in spring, consequent on the temperature they are kept in. When wintered in a house or pit where the night temperature

runs to something near 45°, the growth begins to move considerably earlier than where no more heat is maintained than will safely exclude frost. With early growth the cuttings may be had in right condition in July; where it commences later, in the ensuing month. They should be taken off with three or four joints each, removing the leaves from the joint which is to form the base. Insert them moderately closely together in 5-inch or 6-inch pots filled with sand, cover with propagating glasses, and stand in an intermediate temperature. No attempt should be made to give them bottom-heat, or the chances are that the whole of the cuttings will damp off. Shade closely from the solar rays until well rooted, after which a little sun morning and evening will be beneficial, but it must not be allowed to reach them in full force during the middle of the day. As soon as top-growth begins to move put them singly in small pots drained and filled with sifted peat to which a liberal amount of sand has been added. Through the autumn and winter the little plants should be kept on a shelf not far from the glass in a temperature of from 46° to 50°. Early in spring pinch out the tops, so as to induce the production of shoots from the lower joints. It is essential to attend to this in good time to ensure bushy, well-furnished specimens. Later on it will be necessary to move the little plants to pots about two sizes larger. Give them peat of a similar description to that used previously. This is the most suitable material for them, as, in common with other fine-rooted subjects, they usually do better in it than in loam. They will require stopping again once or twice through the summer; this should be done before the shoots have attained an undue length. During the growing season keep the plants near the glass. The growth of both species is very slender and inclined to get long and straggling, unless stood where a maximum amount of light can reach them. A thin shade should be used in bright weather whilst the plants are small—that is, during the first two years after propagation—as the small amount of soil which the little pots contain in which it is necessary to keep them through their early stages so soon dries up, that there is danger of the roots suffering for want of water in dry, parching summer weather. To further ensure them against this, the pots should be stood on moisture-holding material, such as sand or fine coal-ashes, which ought to be kept slightly damp, but not too wet, or the pots are likely to absorb more of the moisture than is good for the roots. In the growing season syringe once a day at the time the air is shut off in the afternoon.

The second winter the plants may be kept a little cooler than in the preceding. Before growth commences in spring all the shoots should be cut back to within a few inches of where they were last stopped. When an inch or two of growth has been made, give pots two sizes larger. A few little sticks should now be used to tie the strongest branches out; bring them well down so as to nearly touch the rims of the pots. Treat as in the previous summer. *T. ericæfolia*, as already said, blooms in spring; the flowers are produced from the previous season's shoots; consequently these should not be stopped more than once this season, and the stopping should be done early enough to allow the growth to extend and to get matured before autumn. If all goes well, the plants, though yet comparatively small, will bloom freely in the spring, and will be very effective to stand in the front of groups of larger things. After the blooming is over, all the shoots should again be cut back. Shorten

them to within about 3 inches of the point where they were last cut in. This should be done every season immediately the flowering is over. As the plants increase in size, a little more length of the previous season's wood may be left. Each spring, as more pot room is required, a shift should be given when an inch or two of growth has been made after the cutting in. The size and strength of the plants, with the amount of roots they are found to have when turned out of the pots, will determine the increased amount of root-room which it is advisable to give. This species attains a much larger size than *T. verticillata*, large specimens sometimes reaching as much as from 3 feet to 4 feet in diameter. But even when much smaller than this, it is a telling plant either for exhibition or home decoration; the slender shoots are closely packed with their rosy lilac-shaded flowers, so as to make the whole plant a mass of soft delicate colour.

T. verticillata has purple flowers, individually larger than those of the last named species; they are produced at every joint formed by the slender thread-like shoots. So far as potting, stopping, and cutting back, the treatment recommended for *T. ericæfolia* will answer for this kind, except that being a summer bloomer with the flowers produced from the current growth, the annual cutting in should be done each spring just as growth is about to commence. This, as already said, being a smaller and weaker growing species, does not require nearly so much pot room as *T. ericæfolia*. Of the last named I may remark that there are two forms, one in which the leaves are hirsute, whilst those of the other are glabrous. In other respects they are almost identical. Like other fine-rooted plants of the hard-wooded section, *Tetrathecas* require care in watering; excesses in either direction, by withholding water until the soil has got too dry, or by giving it whilst the ball contains enough moisture, must be avoided. The time when the most care is required in this respect is after the plants have been cut back in the spring. Subsequent to this operation and until the new growth has made some progress, the roots are not in a condition to take up as much moisture as further on in summer, when both the root and the shoot extension are active. In the winter also, when the plants are at rest, it is necessary to keep the soil drier than in the spring and summer. *T. ericæfolia* sometimes is attacked by mildew in the winter, especially if the plants are kept in a low temperature; this is most likely to occur with large specimens where the growth is dense and the parasite is not so easily detected. It is necessary to look out for this pest from time to time. Its presence is indicated by the leaves beginning to fall off. Where any symptoms of this are observed the plants should be dusted with sulphur, which should be allowed to remain on two or three days before syringing it off. In all cases where sulphur is used the plants should be laid down on their sides so as to prevent its reaching the soil. The same precaution must be taken when it is syringed off, as if it gets to the roots in any appreciable quantity it will kill or injure them. It is well to keep up a stock of these plants by propagating a few annually. They take somewhat longer to strike and get established than some of the commonest greenhouse subjects, but there is no difficulty in the matter, and they are well worth whatever attention is bestowed on them.

T. B.

Fuchsia Countess of Aberdeen.—Anyone requiring a distinct Fuchsia should grow this variety. It is sometimes described as a pure white flower, but such is really not the case, as after be-

ing expanded for a day or two the prettily reflexed sepals become slightly flushed with pink. In foliage and general appearance the plant resembles some of those varieties with white tube and sepals and dark corolla, of which the first example was the now rarely seen *Venus Victrix*. Countess of Aberdeen is not a vigorous grower, but it branches freely and flowers most profusely. It is now three years since this variety was put into commerce, but it is as yet by no means common, perhaps from the fact that its almost self colour makes it really less showy than the older forms.—T.

HARDY PLANTS FOR THE HOUSE IN AUTUMN.

In large establishments the demand for plants for house decoration is often very great during the last five months of the year. In many of these places the glass accommodation for growing such is not extensive. This compels those who are so placed to resort to other means, namely, growing many things that will thrive in the open air during the summer. This is the position I am in, with the disadvantage that the rooms and cloisters are very high and large, and many places where plants have to be put in are close and dark. In such places tender soft-wooded plants, or those grown in a warm, close, moist house, would be useless. Another difficulty to contend with in growing for such purposes is the fact that it is in the very dullest season of the year that they are wanted.

Having to meet all these difficulties, and believing there are many others so placed, I will give the names of a few plants which I find here to do good service. Amongst the very best hardy plants I find the *Funkias* hold a most prominent place. I grow from one to two dozen plants in several kinds, and all are more or less good, but for autumn work I prefer the green-leaved kinds. Our best are *ovata*, *Sieboldi*, and *subcordata grandiflora*. I grow these *Funkias* in from 7-inch to 9-inch pots, potting them every other year. They are plunged in the open ground in pots all the winter and repotted in February. As soon as they begin to grow they are removed behind a north wall and allowed to remain till wanted in autumn. I grow *Hyacinthus candicans* largely. The bulbs are grown in 9-inch pots, and potted every spring just before they begin to grow, and then removed to a north aspect to retard the blooming as long as possible. *Bocconia cordata* is another most useful plant; its tall and stately habit, with large leaves and long spikes of feathery blooms, makes it quite distinct. *Lobelia* of the fulgens type are very showy, and last a long time. The long spikes of brilliant scarlet flowers on the deep bronze foliage of *Queen Victoria* are most telling. Grown in 8-inch pots in an open situation and given a good supply of manure water when the pots are full of roots, this *Lobelia* will be found very useful.

Michaelmas Daisies come in very useful when suitable kinds are grown. Only those with bright colours should be chosen. Last year I had several plants from cuttings in 7-inch pots from 2 feet to 2½ feet high and a mass of bloom. *Pyrethrum uliginosum* lends itself to this mode of cultivation. Last year I had some plants in 7-inch pots not more than 2 feet high with much larger blooms than those grown in the open ground. *Helianthus multiflorus* and other perennial kinds are most useful if grown from cuttings, which should be put in early in April. Last year I had some in pots about 18 inches high and covered with their bright yellow blooms.

Hydrangea paniculata grandiflora is also exceedingly useful when grown in pots. This *Hydrangea* can be kept in fine condition by pruning it in close every winter and repotting it every other year, giving abundance of manure water when the pots are full of roots. Lilies, too, are most desirable plants for autumn use. *L. auratum* I grow in 8-inch pots. The various forms of *L. speciosum* are of great service, blooming as they do so late in the autumn; these we grow three bulbs in an 8-inch pot. The long trumpet blooms of *longiflorum Harrisii* are quite distinct and have a noble effect mixed with other foliage plants. These we pot very late in

spring and plunge the pots till the growths begin to appear. Nor should the various kinds of *L. tigrinum* be overlooked by those who want variety, as these do well grown in 8-inch or 9-inch pots, three or four bulbs in each. *Gladioli*, too, come into bloom in the autumn; these, too, are very showy; some of the common scarlets make useful plants when grown three bulbs in a 7-inch pot. Many of the dwarf pompon or summer-blooming *Chrysanthemums* can be highly recommended. Last season I planted out a batch and just before they came into bloom I took them up and potted them, placing them in a close frame for a few days.

Forde Abbey.

J. C.

BROMELIACEOUS PLANTS.

AT last come some inquiries about these plants from Thomas Ramsbottom, of Manchester. He says he has seen some collections of them in France and he is delighted with them, and he asks for a dozen kinds for a beginning.

TILLANDSIA HIEROGLYPHICA is a magnificent plant, first introduced to this country by Mr. Bull, of Chelsea. It is vasiform in shape, with smooth leaves, sheathing at the base, the ground colour being yellowish green, marked with broad, irregular, transverse bands of brownish black. Native of South Brazil.

T. LINDENI, named after its introducer, is the finest flowering species of the genus, having a flattened spike with bracts more or less tinged with reddish crimson, from which emerge the large vivid blue flowers with a white eye; the plant is somewhat small growing, the leaves being narrow, green, streaked with lines of reddish brown. Native of Peru.

ANOPLOPHYTUM INCANUM.—A somewhat small growing plant, which does best, I think, on a block of wood. It has pointed leaves, each about 6 inches long, densely clothed with long hoary scales. Introduced by the Messrs. Rollisson, of Tooting, in 1876. Native of Brazil.

CARAGUATA ZAHNI.—This beautiful plant was introduced by the Messrs. Veitch and Sons about twenty-one years ago. The leaves are from a foot to 18 inches long, green, streaked with reddish brown, and frequently tinged with bright red; spike erect, having narrow leaves or bracts at the base wholly bright red tipped with green; the flower bracts rich yellow, tipped with red. Native of Chiriqui.

VRIESIA TENSELLATA.—A bold, large growing species, introduced by M. Linden; the plant has broad sheathing leaves each from 1 foot to 2 feet long, glaucous green with markings of white; a very handsome, large growing species. Native of South Brazil.

V. SANGUINOLENTA.—This is a very showy plant. I have not seen it in bloom. The leaves, each upwards of 18 inches long, are deep green above, spotted and blotched beneath with chocolate. The plant was found in the Choco district of New Grenada by Roezl nearly twenty years ago.

V. FENESTRALIS.—A superb plant, introduced by M. Linden twenty-one years ago. It is a bold grower, forming a large rosette plant with reflexed broad leaves of a lively green, with transverse dark green veins. Native of Parana.

ECHEMEA MARIE-REGINE.—Introduced by Mr. Wendland, of Hanover, from Costa Rica, and sent out by Mr. Williams, of Holloway. It is a large-growing plant; the leaves, some 2 feet or 3 feet long, armed at the edges with spines, are plain green, spike erect, flowers tipped with violet. Beneath the flower-spike are a quantity of very large, boat-shaped bracts of a soft red. It is called the *Flor de Santa Maria* in its native country.

BILLBERGIA BREACUTEANA.—This is a hybrid raised by our French neighbours between *B. pubescens* and *B. vittata*—both of exceptional beauty, the hybrid combining every good quality of both its parents. It is upright in growth, making a close compact rosette about 2 feet high, green on the upper side, furnished with numerous white scurfy bands beneath; the inflorescence is drooping, long, and many-flowered, below bearing several large red bracts; flowers large, sepals whitish tinged with flesh colour and tipped with violet, petals rich deep violet.

EUCHOLIRION SAUNDERSI.—A pretty plant forming a dense, vasiform rosette of recurved leaves, which are smooth at the edges, very glaucous green on the upper side, much spotted below with brown and carmine. The spike is erect, branched at the base; the bracts and flowers are canary-yellow. Native of Brazil.

NIDULARIUM SPECTABILE.—A stemless plant, producing a compact rosette of leaves about a foot long, edged with somewhat distant spiny teeth. The head of flowers rises slightly in the centre, surrounded with

rosy-purple bracts; flowers white tipped with violet. This handsome species was introduced by Mr. Bull from Brazil.

CANISTRUM Eburneum.—A plant with almost the same habit, but leaves more spreading, pale green mottled with darker green, with small marginal spines. The flowers, in a dense sessile head, are small and white, surrounded by a double whorl of ivory-white leaf-like bracts. Introduced by M. Linden from South Brazil.

The above kinds are a few of the most beautiful, and cannot fail to please everyone if properly treated. They should not be pushed away in the background beneath other plants, but should stand up above them, so that their leaves can develop. Do not forget that they like water in the crowns.

W. H. G.

BRUGMANSIA SUAVEOLENS.

THE subject of the accompanying illustration is about the best of its family for growing in greenhouse or conservatory borders (planted out, of course). It should be given a position fairly exposed to light and air to keep the growths as short-jointed and the leaves of as good sub-

Whilst in flower and advancing to that stage, occasional doses of either liquid manure or an artificial stimulating agent should be applied. A deep border is not necessary; in fact, it would tend too much to woody growth. Good lasting loam should be the soil chiefly relied upon for its culture; grown in this the foliage may not be of such a deep shade of green, but the plant will thereby be induced to flower more freely. It is not advisable too to plant out very young plants, otherwise they will run away into a sappy and soft growth with a tendency to decay later on. Mr. R. Frisby, The Gardens, Worden Hall, to whom we are indebted for the photograph from which the engraving was made, thus writes of this *Brugmansia*. It would be hard to find

A more noble-looking plant than *Brugmansia suaveolens*, that is, when planted out in a border under glass. It will continue blooming for the greater part of the year. The photograph sent is that of a plant about 14 feet high, 7-feet stem, and is but five years old. The old B. Knighti has but a very short season of blooming, and is not scented like



Brugmansia suaveolens. Engraved for THE GARDEN from a photograph sent by R. Frisby, The Gardens, Worden Hall, Preston.

stance as possible. Like others of this genus, this variety is troubled at times with green-fly, but if in a house where fumigation can be easily effected, this need not be any deterrent to its culture. A deal can, of course, be done in the way of syringing to keep down this and other insects which may infest it. Even when not in flower, but well clothed with leafage, it is no mean ornament, but when seen in full floral beauty it is one of the finest of flowering plants. Even one blossom will perfume an entire house so great is its fragrance, particularly at nightfall. After flowering, with no evidence of another crop following, the plant should be pruned once every year. This, if the plant be a large one, may be done pretty severely, otherwise it will be disposed to exceed its convenient dimensions. A species of weevil will at times attack and disfigure its foliage; this insect should be hunted up and killed. When it cannot be seen during the day, a close inspection must be made at night. Before the pruning is done, the plant should be allowed to get dry at the root, otherwise bleeding will ensue in most instances.

suaveolens. Like many other good things, *Brugmansias* are very seldom seen. As pot plants they make very ornamental specimens, and can be kept in bounds for many years by hard pruning. They are subject to bug and green-fly, and when once bug gets established it is hard to rid of, as the leaves will not stand insecticides. *Brugmansias* require a pretty rich soil, and must on no account suffer for want of water.

H. G.

Chinese Primulas.—Those of this section raised early for autumn-flowering should now be pricked off into pans or boxes, but if of good size placed in small pots. This should at least be done before they commence to draw each other up. Seed sown now will give an excellent batch of plants for the winter season. Old plants now seedling should be looked after; seed which sets later than this will be late; the points of the trusses may, therefore, be pinched out to encourage that already swelling. The double varieties should be propagated as soon as possible, if not already done. By adding finely sifted soil upon the surface and banking it up a little after removing the older leaves, this mode of increase can be relied upon. Each lead should be pegged into the soil, which will re-

quire to be kept fairly moist. *Primula obconica* is proving to be a valuable plant for a supply of cut bloom. Old plants which have been flowering continuously for months past will be greatly relieved if all the spikes now upon them are removed; same in the case of plants required for a supply of seed. Seedlings raised early this season should be kept growing on to give a good stock of plants for next autumn and winter. It is not too late yet to sow seed; this variety under the usual conditions will grow away quite freely, and even yet make nice plants by the end of the season.

Tuberous-rooted Begonias.—Old plants of this section of the *Begonia* family will now be making rapid advance. Those which, by the present appearance of the plants, indicate a need of larger pots should have a size larger given them at once. In the culture of these *Begonias* the great point to aim at is a sturdy and compact growth. If one shoot is disposed to assume too much of a lead, it had better be removed for propagation or stopped to encourage the weaker ones. From now onwards rather more shading will be advisable to preserve the foliage in good condition. The material employed should, however, only be of the lightest character. By the use of shading it is possible to damp the plants overhead upon bright and warm days. These *Begonias* delight in atmospheric moisture, but it must not be stagnant, else they will be disposed to damp off at the base. These old plants can be grown well in cool pits upon a bed of coal ashes, or upon the shaded side of a greenhouse, from now onwards. Seedlings of this year I would prefer to plant out for the first season, then secure the most promising for pot culture another spring.—H.

Lilium Harrisi.—A few years ago it would have been considered still early to have any of the longiflorum group of Lilies in bloom, but now, thanks to the impetus given to their cultivation by the advent of *L. Harrisi*, flowers of some of them may be had nearly all the year round, as the well-ripened totally dormant bulbs reach here by the middle of August or thereabouts, which, if potted at once and pushed on afterwards in a moderate heat, will bloom early in the new year, and some time afterwards secondary stems will be pushed up to flower in their turn. As even the late flowering ones (that is, those which are grown without any heat and flower as a rule about July) afterwards produce minor stems as in the others, it is often late in the autumn before some of the last blossoms are expanded, at which time the only other member of the genus in flower is the beautiful Indian Lily, *L. neilgherense*. Where large structures have to be kept gay with flowering plants perhaps the best way to treat *L. Harrisi* is to put three bulbs in a large pot, as fine effective specimens result from this mode of treatment. The value of this Lily for conservatory decoration is well shown at the present time in the temperate house at Kew. I find in growing this Lily, or in fact any other, under glass that the one thing especially necessary for success is to keep them clear of aphides, as these little insects are remarkably fond of the young partially expanded leaves, and unless checked will soon cripple them, while just as the flowers are visible a few aphides will completely ruin them by collecting together on the most sheltered side, which their depredations will prevent from growing at the same rate as the rest of the flower, and consequently a deformed bloom is the result. Fortunately, any of the various insecticides or fumigation may be employed for the destruction of these pests without injury to the plant.—H. P.

Azaleas at Warnham Court.—Azaleas are unrivalled for spring decoration, and at Warnham Court just now, although past their best, they are still very beautiful. The plants are not large, but slender pyramids, with the flowers left to hang naturally. Amongst them I noted a very fine specimen of *A. Frankini*, a pure white flower of great excellence, and *Ellen Carmichael*, another white variety of great beauty. *Flambeau* is, perhaps, the deepest coloured Azalea we have, being of a rich glowing crimson; *Baron de Rothschild*, a large double purple flower, having a deep red blotch on the upper petals, faintly tinged with violet; *Dr.*

Moore, a fine double form, rich rose, with white and violet reflexion; the old and well-known Stella, with orange-scarlet flowers, tinged with violet on the upper petals, is a form that cannot be left out. These and many others formed a gay and effective group.—G.

ARUM LILIES.

WITH regard to the difference of opinion among gardeners as to the planting out of Arum Lilies, as expressed by "S. D." at p. 415 of THE GARDEN, much depends as to when the bloom is wanted; if required early I do not like the planting-out system, although I have for years followed it out and advised it in a former note some time ago. I find that to get bloom for Christmas and early in the year the planting out is not the best, and though others may be more successful, I do not get such early bloom as when grown in pots. Therefore I follow both systems, and for a few late blooms shake out the plants as advised during May or early in June, and grow them in well manured ground thoroughly prepared, using only decayed manure and old leaf-mould, leaving a basin round each plant to hold the moisture, and in hot weather we mulch heavily round the plants and give ample supplies of water and liquid manure. These plants make fine growths and give us our supplies of bloom for Easter and even later, and are never pushed in any way, as when potted up early in October they are only just kept free from frost. They give blooms of a great size and abundance of them till late in the spring. For our early bloom we adopt the reverse treatment. I must admit the size of bloom and quantity are not so satisfactory by pot culture as by the first named plan. For the earliest, we thoroughly shake out the plants early in May, removing all side shoots, and pot up the strong roots into 7-inch pots, using a good compost of yellow loam, manure, and some bone-meal, potting firmly and placing in a cold frame, keeping close for a short time, and finally plunging on a warm border fully exposed the second or third week in June, and giving abundance of moisture all through the summer months. In dry weather we damp overhead every evening. Though the damping is a simple detail, it is an important one, as this plant, being a moisture-loving subject, gets the treatment it likes and revels in the damping overhead towards evening, and a luxuriant growth free from red spider is the result. These plants are not allowed to root through the bottoms of the pots, being placed on tiles, and are taken up in September and placed on a hard ash bottom fully exposed to the sun, the roots being protected by placing the pot in another two sizes larger. This early removal greatly assists the ripening of the plants and tends to create a short sturdy growth with a lot of early spikes. The plants when placed in their winter quarters soon commence to bloom. The mass of roots absorb a lot of feeding that the recently potted-up plants cannot do with so early in the autumn. Another advantage is that a large number of plants can be grown if both systems are adopted and a longer succession of bloom secured.

G. WYTHES.

Rhododendron Daviesi.—For the last three months this *Rhododendron* has been in flower with us, and there are still several buds yet to expand, so that its blooming season is spread over a very lengthened period. These remarks apply to all, or nearly all, of the tube-flowered group, in which *R. Daviesi* may be included, though the individual blooms are not quite so long nor so narrow in the tube as those claiming parentage from *R. jasminiflorum*. The one prominent feature possessed by *R. Daviesi* is the vivid orange-red colour of the flowers, which are so bright that it stands out conspicuous even when associated with numerous other varieties. It was raised by and named in honour of Mr. Davies, of Ormskirk, and resulted from the intercrossing of *R. javanicum* and *R. retusum*. This variety is of a free growth with very dark green leaves, and in order to ensure a good bushy specimen, it should be stopped freely during its earlier stages, or, I find, if the plant has run up somewhat tall and thin, it may, to attain the same

end, be safely cut back, for if kept a little warmer than usual and syringed occasionally it will quickly start into growth, and with attention soon recover from the mutilation.—H. P.

Fabiana imbricata.—This *Fabiana* forms a much-branched Heath-like shrub clothed with very small bright green leaves, and at this time of the year is profusely laden with pure white tubular-shaped blossoms. In some parts of England this shrub should be allowed the protection of a wall, but in most places in the south and west it is quite hardy, and forms a most handsome flowering bush. It is a comparatively old plant in gardens, having been introduced over half a century ago, but though easy of increase, it is even at the present day quite a rare plant in many districts. It can be readily propagated by cuttings of the half-ripened shoots, which if given ordinary care will not take long to root. Even where it is not hardy, this *Fabiana* is a most desirable flowering shrub for the greenhouse.—H. P.

Epacris miniata splendens.—*Epacris miniata* and the few varieties belonging to that group are very different in habit from most of the others, and this is especially noticeable if the plants are not tied or trained in any way, but simply allowed to grow naturally. In this way they form quite a spreading bush, which when heavily laden with the very bright coloured blossoms of this particular variety ranks high as an ornamental plant for the greenhouse. Good thrifty plants of the different varieties of *Epacris* are far more pleasing if grown naturally than where tied and tortured about in the way that is often done. Judging by the numbers that may be seen at some nurseries in the autumn months before they are distributed (which is usually done from September onwards), the demand for several of the best hard-wooded plants would appear to be on the increase, and is I think likely to become even more general.—H. P.

Amaryllis.—Seedlings, whether raised this spring or last autumn, should be induced to grow away as freely as possible. This object is better attained if they can be planted out in a warm pit where fire-heat during the next winter can be applied, so as to maintain a temperature of at least 45°. If this accommodation can be provided, it is a far more expeditious plan than retaining the young plants in small pots. Until of flowering size, no rest, so to speak, is needed for the *Amaryllis*. Under the planted-out plan fine bulbs can be had in two years; these when nearly up to flowering size can be lifted and potted. I would always grow them thus if I had a small pit at disposal. Nearly all loam with a little leaf mould will suit them well, keeping the soil fairly firm. Those which have flowered and not yet completed their growth will require careful attention. Do not let the plants stand where the foliage is likely to be either unduly drawn or receive injury. Thrips are at times troublesome upon the undersides of the leaves; by sponging, however, these pests can easily be kept in check.

SHORT NOTES.—STOVE AND GREENHOUSE.

Carnation Winter Cheer.—This is a beautiful deep crimson variety that has been flowering for months at Warnham Court, and Mr. Duncan, the gardener, speaks very highly of it. The flowers are neat and compact. It certainly is one I would strongly urge Carnation growers to get.—G.

The blue Marguerite (*Agathæa celestis*).—It is over thirty years ago since this plant first came to this country from the Cape of Good Hope, and it was thought much of at that time, when no such name as Marguerite was known or needed to make it popular. Since this name, however, has been given it, the plant appears to be becoming more frequently met with. I have seen it in many places blooming freely, its lovely blue Aster-like flowers being very showy.—G.

Freesias can be easily raised from seed. One packet will give a fairly good stock. The seed does not germinate very quickly; patience in this respect is therefore needed. Ours raised this spring are now growing freely, being pricked off into a box as used for Celery. For the present these are in a warm house,

but will soon be put into a cold frame. Older stock which has flowered will not require so much water from now onwards. A little later on these may be laid upon their sides out of doors.

ORCHIDS.

ODONTOGLOSSUM PHALÆNOPSIS.

THIS veritable little gem appears to me to be becoming scarcer every year. It was first introduced to cultivation by M. Linden, of Brussels, over forty years ago, having been found by his collector Schlim. In 1856 I had a plant of it, but I could not succeed with it when placed in what was then the only cool Orchid house in the country, and it had to be removed to a warmer position. Ten years later, when visiting some of the collections in the neighbourhood of Dublin, I found this species thriving in the Lord Chancellor's garden under the direction of Mr. Byers. He pointed out to me the necessity of keeping the plant moist at the root, and he had his plants standing upon a shelf near the glass in the Cattleya house, with cocoa-nut fibre beneath them to maintain a genial moisture in the air; here the plants stood and grew splendidly. The year after I called again to see them, when they were flowering magnificently, and the plants were in vigorous health; indeed I have never seen it so well grown since that day. I recently received some flowers of different species of *Odontoglossums* from a friend, and amongst them was a flower of the very brightest and richest colour I ever saw, and this alone should be enticement enough to cause Orchid growers to take the species up in earnest, especially those growers who grow *O. vexillarium* extensively, as in the company of this kind *O. Phalænopsis* would thrive well, for from whatever part of New Grenada this plant comes I am under the impression that it is not from cool regions. I say this because when with the late Messrs. Rolliison and Son at Tooting I had some plants in their long Vanda house doing splendidly, as well in fact as those of the Lord Chancellor of Ireland's. These plants stood upon a cool, moist bottom, and we were enabled to frequently divide them for sale, so that I cannot from my own experience recommend a cool house for this plant. It requires the warmth of the Cattleya house, but it also must have a cool and moist bottom, and to this must be added frequent syringings in order to keep away the black thrips and the red spider, two pests which I have noted work dreadful havoc with it, and have caused many to denounce against heat for growing them in. The plant in question is a delicate-looking and small-growing species, and should by no means be over-potted or have much soil about its roots. It requires plenty of water to its roots and therefore needs perfect drainage, but do not dry at any time, and good fibrous peat and chopped Sphagnum Moss are the best materials than can be used for potting. The plant should be slightly elevated above the rim of the pot in order to keep the water drained down from the base of the bulbs. Great care is necessary when dividing this Orchid not to injure the roots. The plants should also have a little extra shade until root action recommences. This pretty plant makes oblong pseudo-bulbs about an inch high; these are slightly compressed and very pale green, while they support from the top of the bulb a single linear acute leaf, from 9 inches to 1 foot in length and rich deep green. The other sheathing leaves which surround the bulbs when young are very fugacious and soon fall away; the scape rises from the base of the bulb, grows about

6 inches high, and usually bears two flowers; these are broad and flat (somewhat in the way of *O. vexillarium*, but more beautiful), some 2 inches or more across, sepals and petals white, lip white, usually beautifully chequered with rose, but in the flower before me rich crimson, with a pair of deep yellow blotches at the base. No more beautiful plant can be grown than *Odontoglossum Phalenopsis*.

W. HUGH GOWER.

Arpophyllum giganteum.—A grand spike of this species comes from "S. J." It is nearly a foot long and must have been cut from a vigorous specimen. This flower I am glad to see again. Some years ago the plant might have been seen in collections, but it seldom flowered, because it was usually grown in the hottest part of the Cattleya house. It thrives best with the *Odontoglossums* potted in fibrous peat and well drained. I must congratulate "S. J." upon the size of his specimen. He evidently has grown the plant in the proper temperature.—G.

Masdevallia Lindeni.—A beautiful specimen of this attractive kind is now flowering in Mr. Buchan's collection, Wilton House, Southampton, where many other fine things are now in great beauty. It first appeared in this country in Mr. Bull's nursery at Chelsea. The flowers are much in the way of those of *M. Harryana*, but somewhat smaller, rich purple-magenta, with a white throat. In the *Harryana* section the tube is yellow.—W.

Lælia purpurata.—"T. W." sends a nice consignment, but very badly packed, inasmuch that the flowers are very much bruised. They are all beautiful forms, but the majority of them have nothing special to call for comment. The flower marked 3 is like the form that used to be called *Bysiana*, the sepals and petals being flushed with rose and the lip very dark. No. 5 is a remarkable flower, large in size, with good broad sepals and petals of a pure white, the large lip rich violet-crimson with a white front, and the throat deep orange, veined with crimson.—W. H. G.

Odontoglossum hastilabium.—A good figure of an old species; the flowers are some 3 inches or 4 inches across and very fragrant; the sepals and petals are creamy yellow, transversely streaked with dark reddish purple, the hastate lip being pure white, rich purple at the base. It should be grown in good fibrous peat and chopped *Sphagnum Moss*. It will grow with the other *Odontoglossums* in the summer months, but should be removed to the Cattleya house in winter, and kept rather dry in winter.—*Orchid Album*, t. 425.

Zygopetalum Mackayi.—An old, but very useful species, and one that may be used in the dwelling house when blooming, and this without its receiving any harm, and where the delicious odour yielded by its flowers is highly appreciated. It blooms very freely and should be potted in fibrous peat and Moss, adding a little light turfy loam. It requires to be grown in the Cattleya house, and should have a liberal supply of water to its roots.—*Orchid Album*, t. 427.

Cypripedium Lowi.—This is a glorious old species, a native of Sarawak, in Borneo, where it was found by Sir Hugh Low growing high up in the forks of tall trees. The only other species which resembles this is *C. Haynaldianum*, which has similar flowers, yet very distinct from those of this plant. *C. Lowi*, although growing naturally as an epiphyte, is found to grow best under cultivation when treated as a terrestrial plant, and grown in a pot in the East Indian house.—*Orchid Album*, t. 428.

Odontoglossum citrosum.—About 100 spikes of this Orchid are now very beautiful in Mr. Measures' garden at The Woodlands, Streatham. No wonder that Roezel was surprised at seeing the Oak trees in the Sierra Madre thickly clothed with this species, with pendulous spikes some 2 feet and 3 feet in length. The flowers vary from pure white to lilac and deep rose, more or

less spotted, and yield a delicate and grateful fragrance. This Orchid requires good exposure to the sun when growing and a thorough resting, and no water during winter, unless the bulbs shrivel. When the flower-spikes are visible, then water and more warmth are necessary; the plants, too, are greatly benefited when hung, as here, over the centre of the roof with a tank of water beneath them.—W. H. G.

ORCHIDS AT WARHAM COURT.

I AM glad to see Mr. Lucas has not begun Orchid growing by discarding the distichous-leaved kinds, such as the *Aerides* and *Vandas*, and at Warham Court, near Horsham, many of these are just now coming into flower. *Saccolabium ampullaceum*, *Aerides Savageanum*, *Angraecum Leonis*, *A. Ellisi*, *Vanda teres* and the beautiful *V. Roxburghi* were in full bloom. I also noted many *Dendrobies*, which at the time of my visit were gay. Amongst them *D. Bensoniæ* stood pre-eminent, the flowers being large, pure white, with two large blotches of velvety black at the base. *D. superbum*, still best known in gardens under its erroneous name of *D. macrophyllum*, was very gay. The beautiful Burmese *D. albo-sanguineum*, as also *D. Dearei*, with its pure white long-lasting flowers, and *D. Dalhousianum*, with its very large and charming blooms, were also well represented. The pretty *D. Devonianum* has been blooming finely. *Dendrobium thyrsiflorum* and *D. aggregatum* are also doing well. The greatest gem of all is *D. Loddigesii*, better known amongst gardeners by its old name of *D. pulchellum*. One plant was quite smothered with bloom. Another thing I must mention before quitting the East Indian house is *Thunia Marshalli*, several plants being in splendid flower, and this, too, in the month of April, at which time I used to think of starting them to grow for flowering about August. In the Brazilian house are many things in the best of health; amongst them is a very good collection of *Cattleyas*. *C. Trianae* is now past, while the *C. Mendeli* and *C. Mossiæ* have yet to come. Good plants of *C. gigas*, *C. Sanderiana*, *C. Gaskelliana*, and *C. Warocqueana* are doing well. At present nice flowers of the beautiful *C. Skinneri*, *C. Lawrenceana*, and *C. citrina* may be seen. Associated with these are *Oncidium sarcodes*, carrying a fine spike, and a very fine form of *O. Papilio*. *Cypripediums* also receive attention. Turning to the cool department, I find *Odontoglossum cirrhosum* well represented; in fact it is a very dark variety, almost deserving the name *Klabochorum*. *O. crispum* was not in strong force, but will be later on. *Masdevallia Shuttleworthi* was very fine, with twenty flowers. The great Spider Orchid (*M. Chimæra*) and many others were also in bloom.

WM. HUGH GOWER.

SHORT NOTES.—ORCHIDS.

Cypripedium porphyrochlamys.—This is a very beautiful Veitchian hybrid, grown by Mr. Tautz in his celebrated collection when at Studley House, with flowers large and brilliantly coloured. Mr. Williams advises the use of loam with the soil for these plants, and a liberal supply of water during the whole season.—*Orchid Album*, t. 426.

Restrepia xanthophthalma (T. B.).—This is the name of the flower you send as *R. Lansbergii*. It seems that the plant which is figured in the *Botanical Magazine*, t. 5257, is not the true plant, and this is the name given it previously by Reichenbach; the flowers, which stand at the back of the leaf, are yellow dotted with purple. It is a very pretty flower, but by no means conspicuous. It thrives in the cool house with the *Odontoglossums*.—G.

Masdevallia bella (T. L.).—This is the name of your flower, and not *M. Chimæra*, as you name it. The mistake has arisen no doubt from the two kinds growing together naturally, but it may at once be distinguished from *Chimæra* by its large lip, by the lower sepals being more triangular, and by its shorter tail-like appendages.—W.

Cypripedium albo-purpureum.—From "G. T." I have a flower of this plant, asking if it is not that of *C. Dominicanum*, figured in THE GARDEN May 2. *C. Dominicanum* was one of its parents, *Schlimi* being the other. *C. albo-purpureum* is, I

think, one of the handsomest of the *Selenipedium* hybrids, the sepals being creamy white, flushed with rose and veined with pale green. The petals are about 5 inches long, broad at the base, tapering to a point; the lip rosy red, the infolded parts creamy white, dotted with rose. It is one of the hybrids raised by Mr. Seden.—W.

Epidendrum bicornutum.—This is another plant which usually frightens Orchid growers, and one is not often rewarded by seeing its beautiful ivory-white fleshy blooms. A plant is now thoroughly established and blooms annually in Mr. J. T. Gabriel's garden, Palace Road, Roupell Park, Streatham, and the gardener tells me that water is very seldom given to its roots. He finds that it likes strong heat and a moist atmosphere. It is kept hung up in the sunlight.—W.

BOOKS.

INJURIOUS INSECTS AND FUNGI.*

FOLLOWING closely in the wake of Miss Ormerod's report on injurious insects comes that of the Intelligence Department of the Board of Agriculture, compiled by their technical adviser, Mr. Charles Whitehead. The report this year is much shorter than that of last year, dealing with only eight kinds of insects, a mite, and three kinds of fungus. The Willow beetle (*Phratora vitellinae*), the Currant mite (*Phytoptus ribis*), and the Currant clearwing moth (*Sesia tipuliformis*) are reported on for the first time. As usual, this report is a model of conciseness and clearness, giving just what a practical person wants to know in a plain straightforward way, so that anyone can at once find the information they require. Mr. Whitehead in his preface, which, by the way, is preceded by a report from the director of the Intelligence Department to the president of the Board of Agriculture, containing nothing of special interest, says, "The injuries caused by insects to crops generally during the past year, 1890, were not of more than average extent, except in the case of fruit crops, which were most seriously affected by the caterpillars of various moths. Such periodical pests as the Turnip flea, for example, were unable to do much noticeable harm because the wet weather in June and July forced the plants along rapidly out of their way." Concerning the fruit crops, further on in the preface we read, "A great plague of caterpillars again devastated the orchards and fruit plantations in many fruit-producing districts. This is the third consecutive year in which this has happened and inflicted heavy losses on fruit producers. In some orchards in Kent, Gloucestershire, and Worcestershire, where Currant and Gooseberry bushes are set under Apple, Pear, Plum, and Damson trees, the whole of the foliage was stripped off by the caterpillars and the crop utterly ruined." Speaking of fungi, Mr. Whitehead says, "Fungi were generally active during the summer and autumn. Hop plants suffered much from their special fungoid enemy (*Podospheera castagnei*) in certain grounds; the wet sunless season seemed to be conducive to its spread, and at the same time hindered the operation of the sulphur applied to stay its progress.

In the report on caterpillars injurious to fruit crops, Mr. Whitehead writes: "The caterpillars of several moths have again destroyed the fruit crops in several of the most important fruit-growing districts. The attack was specially disastrous in parts of Kent, Worcestershire, Herefordshire, and Gloucestershire. The orchards of Devonshire and Somersetshire escaped with comparatively slight injury. Last autumn the first notification of a female winter moth having been seen was made to me on October 11, and by the 25th they were swarming in infested orchards, &c." As to the best materials for making the sticky bands to catch these moths on, the following is recommended: axle or cart grease, composed of oil of resin and carbonate of lime; this does not run like the ordinary cart grease made of animal fat; it should be spread on grease-proof paper. The best kind of guard, however, is a ring of tin, fastened to the tree by a kind

* "Annual Report of the Intelligence Department of the Board of Agriculture on Injurious Insects and Fungi." 1890.

of sleeve of canvas or sacking attached to the upper edge of the band of tin; this ring is smeared inside with the sticky composition. This arrangement, though more expensive than the bands of paper, has the great merit of preventing the composition from touching the trees and of preventing it drying up so quickly or of being washed off by rain as it otherwise would. This apparatus would last several seasons if properly taken care of. It is by no means a new invention.

The arsenical insecticides, Paris Green and London Purple, are coming very much into vogue. Prof. Lintner, an American entomologist, is quoted, who says "that fruit growers who do not use Paris Green as a remedy against caterpillars infesting fruit trees are guilty of culpable negligence," and believes "that the produce of fruit land may be doubled by the judicious use of this substance." Mr. Whitehead gives the following caution in reference to these insecticides: "Concerning the employment of these substances much care must be taken that they are not applied of undue strength, and that they are applied so as to suit the texture of leaves in different stages of growth, and of different kinds of trees; young leaves and blossoms, for instance, cannot bear such strong solutions as those of maturer age. Apple leaves in all stages are more delicate than Plum, Damson, and Pear leaves, which latter are less able to resist strong applications than Plum and Damson leaves. Blossoms, too, must be treated as being much more delicate than leaves, and should only be syringed with arsenical solutions in exceptional cases, as, for instance, in the case of certain Apple trees whose blossoms and leaves come out almost at the same time. Cattle and sheep should not be put on Grass orchards where these arsenites have been used, at least for some length of time. These arsenites should not be used where vegetables are grown that would hold the poison, as Cabbages, nor when under fruits, like Gooseberries for picking green, which are nearly ready to be picked." In the report on the Hessian fly, Mr. Whitehead says, "Although most economic entomologists in this and in other countries consider that the Hessian fly will not occasion very serious mischief in Great Britain, it must not be forgotten that there has not been a really normal hot summer since its detection here, nor must it be forgotten that it lingers in various places with great persistency; it is, therefore, most desirable that every endeavour should be made to keep it in check." The Currant mite (*Phytoptus ribis*) seems to be an increasing pest, and one that is very difficult to eradicate unless very extreme measures are resorted to. Cutting back the bushes very closely in the autumn, and then brushing them over with soft soap and water, to which is added quassia, paraffin oil, or Paris Green, is the best remedy, but I should strongly advise anyone who finds some of his bushes to be attacked by this pest to at once uproot and burn them. I believe this to be the best plan in the end. The mites are creatures which move very slowly, so that if the first attacked bushes be at once removed, there is little likelihood of the pest spreading. I think it is dangerous to allow Birch trees and nut bushes to grow near Black Currant bushes, as they are liable to be attacked in a similar way by mites in general appearance exactly like the Black Currant mite. The caterpillars of a very beautiful little moth, the Currant clearwing (*Sesia tipuliformis*), are very injurious at times to Currant bushes; it is a great pity that this charming little insect should have to be proscribed as injurious. The caterpillars bore into the branches and shoots, and the mischief they do is generally not apparent until the branch withers. Cutting them off and burning them is the best remedy, for the caterpillars cannot be reached by any insecticides when within the shoots. The Onion mildew, which rejoices in the long scientific name of *Peronospora Schleideniana*, was very prevalent last year; the only remedy is said to be sulphate of copper, which should be applied as soon as the mildew makes its appearance. The best solution is that known as Bouillie bordelaise, which is composed of 6 lbs. 9 ozs. of sulphate of copper, 3 lbs. 4 ozs. of lime, to which add 22 gallons of water. The Hop mildew was also very prevalent. The

Bouillie bordelaise is also recommended as a remedy for this, but it has not yet been tried very thoroughly.

A very interesting chapter is given on the Potato disease (*Phytophthora infestans*), beginning with a short historical account of the disease and followed by its life history. Under the head of prevention, it is mentioned that "the greatest possible care should be taken to destroy every particle of haulm and leafage from infested fields and gardens, as well as every infested tuber which may be left decaying or decayed on the ground." Destroying does not mean collecting them and throwing them on to a rubbish heap, for, according to some authorities, certain spores can retain their vitality for three years, so that when the rubbish heap is used as a dressing, as it often is, the spores will be sown broadcast over the ground. For the same reason Potatoes should not be sown again on soil which has borne an infested crop for three years. No remedy is known for this disease. Powdered sulphur has been tried with a certain amount of success, and in the United States the sulphate of copper mixture already mentioned has been experimented with. A field was divided into three plots; in two the plants were sprayed with the mixture before they showed any signs of blight when they were only a foot high, and again every fortnight until the middle of September. The plots on which the plants were sprayed yielded respectively 346 lbs. and 283 lbs. of sound Potatoes; the other yielded only 164 lbs. To those willing to test the remedy we will say it is of the utmost importance that the mixture be applied early; the fact that the treatment is entirely preventive must not be lost sight of. Mr. Whitehead hopes that these sulphate of copper washes will be tried in this country. It would be a great boon if something could be found to check this very destructive pest. The low price of these reports (2½d.) places them within the reach of everyone. G. S. S.

TREES AND SHRUBS.

ORNAMENTAL HEDGES.

FORMAL, close-clipped fences may do well enough on the farm or by the roadside, but when we have to deal with the garden or park, and where strength is not of first importance, by all means let us have those of an ornamental aspect, especially as such are equally valuable as screens and far more pleasing to the eye than the almost monotonous repetitions of trimmed-in Privet, Thorn, or Laurel.

There are numbers of highly ornamental shrubs that when properly planted and cared for add quite a feature to the garden grounds of any property, large or small, and now, fortunately, many of our most free-flowering shrubs can be purchased at a cheap rate by the hundred or thousand, so that there is little need for our employing the three or four "standard" hedge plants of our forefathers. Ornamental shrubs require no more attention than those of commoner pretensions; indeed, if any thing, they require less—less at least in the matter of trimming and pruning, for by allowing the side shoots to grow free-flowering is induced and a pleasing effect produced in consequence, and the annual or biennial switching or shearing rendered unnecessary.

This paper was suggested to me some time ago by the pretty and very uncommon appearance presented by an almost left alone garden hedge composed entirely of the Box Thorn or Tea Tree (*Lycium barbatum*), the pretty, gracefully arching shoots of which were rendered very conspicuous by the purplish flowers and half-ripe fruit, this latter of the deepest orange and as big as a large Pea. *Rosa rugosa*, too, makes a very pretty garden hedge, and is very uncommon. Either when in flower or fruit it attracts notice. A pretty garden fence can soon be formed of the now common *Berberis Darwini*, and when allowed its own way and to branch freely, the effect produced when the plants are in full flower is extremely pleasing. This Barberry grows with great freedom, and though it may be cut to the ground-level in unusually severe winters, yet it

will stand unharmed during that of ordinary severity.

Several other species of Barberry make excellent ornamental fences, and, being procurable at a low rate, should be used extensively instead of the Laurels and Privets that so often find chosen sites in the more dressy portions of our park grounds. Amongst the *Cotoneasters*, too, are several species admirably adapted for hedge formation. They bear pruning well, and from their neat habit of growth and usually well-furnished close nature make excellent ornamental fences. The Sea Buckthorn (*Hippophae rhamnoides*) would hardly be considered as a shrub that one would recommend for hedge purposes, yet I have found it succeed well as such; indeed one of our most ornamental and distinct boundary divisions is composed of this favourite seaside plant. In the light silvery leaves we have something out of the common amongst our shrubs, while the wealth of fruit is alone a great recommendation.

Fuchsia Riccartoni is another shrub pre-eminently adapted for ornamental hedge formation. It bears the pruning hook well, grows with great freedom, is readily propagated, and needs no special soil—all recommendations of more than a passing importance. True, in some places it is not very hardy, but although cut over to the ground in severe winters, the roots and stock are rarely injured permanently, and throw out stout suckers with the greatest freedom. When in full flower it must rank amongst the choicest and most beautiful of hardy shrubs. *Laurustinus* hedges are not so often used as, considering the beauty of the shrub, they might well be. Of neat, close growth, it is just the plant for hedging, while the wealth of pretty and long-lasting flowers, which come at a season when such are at their scarcest, should make it a general favourite.

There are many other pretty shrubs equally well adapted for using in ornamental hedge making, and as they may be procured at very moderate prices might well take the place of some of our commoner and less beautiful kinds. Hard trimming in should never be permitted in ornamental fences, this destroying a great part of their beauty, while judicious thinning out of the shoots at the proper time is to be recommended. A. D. W.

***Grevillea sulphurea*.**—This species of *Grevillea* is noteworthy for two reasons, firstly, because it will continue to flower for months together, and secondly, because it is about the hardiest member of the genus. It is certainly by no means so ornamental as some of the others, but still it forms a distinct and interesting shrub. Its usual habit is that of a dense, much-branched bush, clothed with narrow pointed leaves, and thickly studded with curious sulphur-coloured blossoms. This *Grevillea* will often survive the winter around London as a shrub in the open ground, while treated as a wall plant it is just at home. Another species nearly as hardy is *Grevillea rosmarinifolia*, which is far more showy than *G. sulphurea*. The flowers in this case being of a reddish purple colour and borne in great profusion, a specimen when at its best is remarkably attractive. There are several other pretty species of *Grevillea* well worth a place in our gardens, for though the members of this genus are the most generally cultivated of proteaceous plants, their merits are by no means recognised to the extent they deserve.—H. P.

***Leiophyllum buxifolium*.**—This is among the prettiest of the many little ericaceous shrubs which are natives of the well-known districts of the United States. It was introduced during the early portion of the last century. Such being the case, the merit (to many) of novelty cannot be claimed for this little Sand Myrtle, as it is popularly called, but as a dwarf free-flowering shrub it is not sufficiently known. It forms a plant of a somewhat erect, yet very twiggy style of growth, clothed with dark green leaves, smaller than those of the Box. The flowers, which are borne in a cluster on the point of every shoot, are in the bud state tinged with a distinct bright red, but when fully expanded they are pure white. This contrast in colour between

the unopened buds and the flowers after expansion forms a very noticeable feature of the *Leiorhynchum*. Like many of its allies, a fairly moist soil, principally of a vegetable nature, just meets its requirements. As this Sand Myrtle is rarely more than a foot high, it is well suited for the margins of beds in the American garden, or for the cool moist parts of rock-work. Besides the specific name of *buxifolium* it is also known by that of *thymifolium*.—T.

SHORT NOTES.—TREES AND SHRUBS.

Kalmia glauca.—One of the brightest bits of colour among the smaller-growing ericaceous plants in the early part of May is furnished by a mass of this *Kalmia*, which is so thickly studded with blossoms that little else is to be seen. It is a freely-branched shrub, that rarely exceeds a foot in height. The leaves are small, very glaucous underneath (although this character is somewhat variable), and green on the upper surface. The colour of the flowers is a very pretty shade of purplish pink.—H. P.

The shrubby *Loniceras* are somewhat neglected in favour of the better-known climbing kinds, but a few of them are well worth growing. *L. tatarica* will soon be in full bloom, and although the flowers are only borne two on a stalk, they are numerous and show well among the bright green leaves.—J. C. T.

PUBLIC GARDENS.

Preservation of the New Forest.—By invitation of the Hon. Auberon Herbert, who takes a great interest in the preservation of this national park, a meeting was held lately at his residence, Old House, in the heart of the forest, at which a resolution, proposed by Mr. Briscoe Eyre, seconded by Dr. Crespi, and supported by Col. Esdale, J.P., and other gentlemen, was carried unanimously memorialising Lord Salisbury to take steps to stop the cutting down of the old woods, which the Act of 1877 said should be preserved to the nation.

The lopping of trees.—At a recent meeting of the London County Council, Mr. Hutton called attention to the lopping of trees in various parts of London, and asked that the chairman of the Parks Committee would, in view of the opinion of an expert that the lopping was most injurious, give instructions that it should at once cease. Others also spoke of the untimely and injurious lopping of trees, especially in the case of those on the Thames Embankment. Mr. Fletcher, on behalf of the committee, said that as soon as his attention had been drawn to the subject steps were taken to inquire into the matter. After the opinion quoted of experts, he would give instructions that the lopping should stop.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Colonel Burges, vice-chairman, presiding, in the absence of the Earl of Meath, it was mentioned that the Barnsbury Square Garden, N., opened to the public by the Duchess of Westminster on the 30th ult., and the Seward Street recreation ground, Goswell Road, E.C., opened by the Duchess of Albany on the 6th inst., had both been laid out by the Association. It was reported that seats had been placed in various parts of the East-end, and that the election of eight new trustees for the Bethnal Green Poor's Land had resulted in the return of six pledged loyally to carry out the scheme of the Charity Commissioners for preserving the land as a public open space. It was agreed to lay out the churchyard of Christ Church, Spitalfields, subject to certain conditions; to negotiate for their opening to the public of the churchyards of St. Katherine Coleman, E.C., St. Olave, Silver Street, E.C., and to make further efforts to obtain the opening of Lincoln's Inn Fields, W.C., Hoxton Square, N., and St. Botolph, Bishopsgate, churchyard, E.C.

A new open space in Ratcliff.—An open space, consisting of a school playground and a disused churchyard, was opened on May 12 by Mr. C. T. Ritchie, M.P., president of the Local Government Board, at St. James's, Ratcliff, E. The play-

ground and the disused burial ground of St. James's give three-quarters of an acre of open space. The burial ground is very prettily wooded with Canadian Poplars and Pines, while bushes of Hawthorn, Laburnums, and Evergreens have been planted. The arrangement of these open spaces at St. James's cost upwards of £300. Mr. Ritchie, after expressing his regret at the absence of Lord and Lady Meath, said there never was a time when greater interest was shown in the great masses of the people, or more anxiety displayed to add to their comfort, health, and happiness. These acts with which he had been associated having these objects in view, had given him the greatest possible pleasure. The Public Gardens Association had accomplished a great deal of good, and the lives of thousands of the poor and of little children had been made the happier by the work already accomplished. He had much pleasure in declaring that pleasant space open, and he hoped that for many years it would prove a meeting place of many happy children and a grateful resting place for the working classes when their day's work was over.

SOCIETIES AND EXHIBITIONS.

ROYAL AQUARIUM FLOWER SHOW.

MAY 20 AND 21.

As a place for public exhibitions the Royal Aquarium certainly has its disadvantages; at the same time it admits of special features of a very attractive character being found at various points, and thus a succession of pleasing pictures being afforded. This was particularly so in the case of the early summer show held on the 20th and 21st inst. The majority of the exhibits were placed upon the floor and baize-covered walls were provided to group them against, and with very happy effect. Here the visitor came upon some imposing groups arranged for effect, or a bed of specimen plants of Roses, or a grand bank of hardy flowers, or Caladiums of wonderful development, while upon the tables were table decorations, hardy flowers, cut Roses, &c. This novel arrangement of the exhibits was much appreciated, and it was universally acknowledged to be one of the prettiest exhibitions held in the Aquarium.

Groups of plants arranged for effect were very fine. Messrs. J. Laing and Sons, Stanstead Park Nurseries, Forest Hill, were placed first with one of those tasteful arrangements for which this firm is so famous; Mr. Henry James, nurseryman, Lower Norwood, was second, and Mr. J. Hudd, Blackheath Park, third. Palms and other foliaged plants, Orchids, Begonias, &c., were employed with excellent effect, the background of green baize adding greatly to the effectiveness of the groups. Caladiums shown in groups of nine were very fine, and Messrs. J. Laing and Sons were again first with superb examples of *Le Titien*, *Mithridate*, *Leopold Robert*, *Mme. J. Kœchlin*, *Sanchoniathum*, *Mme. F. Kœchlin*, *Mons. D. Halloy*, &c.; Mr. J. Day, Herne Hill, was second with some finely-grown and coloured plants; Mr. C. Nunn, Greenwich Park, was third. Ferns, shown in collections of twelve, were a good feature also; Mr. James Hudd was placed first and Mr. Henry James second.

Only one collection of twelve Roses was staged; this came from Mr. W. Rumsey, Waltham Cross, finely grown and bloomed plants of *Mme. Montet*, *Souvenir de Paul Neron*, *Mme. Rambaux*, *Thomas Mills*, *Royal Standard*, &c. Gloxinias were fairly well shown; the best twelve came from Mr. Nunn, and he also had the best six plants of Gloxinias; Mr. C. Osman, South Metropolitan Schools, Sutton, being second. Herbaceous Calceolarias were well shown by Mr. H. Guyett, Streatham, who had the first prize for twelve well grown and flowered plants. In the amateurs' class Mr. Hudd had the best six stove and greenhouse plants.

A fine display of hardy cut flowers and foliage from Messrs. Paul and Son, Old Nurseries, Cheshunt, was awarded the first prize; this included bunches of foliage intermingled with choice hardy flowers of high quality. This contribution was much ad-

mired. Stands and vases of flowers were numerous and very good. The first prize for three, as also for a single piece, was awarded to Mr. E. Chadwick, Hanger Hill House, Ealing. Mr. J. Lambert, Herne Hill, was second with a single piece, and Messrs. Millefiori and Co., floral decorators, Finchley Road, third. In the class for three pieces, Mr. G. Collins, Wandsworth Common, was second, and Mr. J. Lambert third. A first prize was awarded to Messrs. Paul and Son for twelve bunches of *Violas*.

Contributions in the miscellaneous class comprised a magnificent and very extensive collection of specimen Roses in pots, and twelve boxes of fine cut blooms from Messrs. W. Paul and Son. In the collection was a plant of Messrs. Paul's new Hybrid Perpetual Rose *Crimson Queen*, with four very large, full, and brilliantly coloured blooms—certainly a superb variety. Mr. T. S. Ware, Hale Farm Nursery, Tottenham, had a striking collection of Tree *Pæonies* and varieties of *Primula Sieboldi*, with other subjects. Messrs. Barr and Son, King Street, Covent Garden, W.C., staged a large group of hardy flowers, including *Narcissi* and *Tulips*, the curious Parrot varieties being strongly represented. Mr. Ware also had a large group of the new white *Pink Her Majesty* in fine condition.

First-class certificates of merit were awarded to Messrs. J. Laing and Sons for double *Begonia* Sir W. Wallace and single *Lady Whitehead*; also for *Dracæna australis variegata*; to Mr. T. S. Ware for *Primula Sieboldi* Mrs. Ryder, and for Tree *Pæonies* *Triomphe de Van der Malen* and *Reine Elizabeth*; to Messrs. Victor Lemoine et fils, Nancy, France, for *Lilacs La Tour d'Auvergne*, *Leon Simon*, and *Mme. Lemoine*; to Messrs. Wm. Paul and Son for Tea-scented Rose *Corinna* and Hybrid Perpetual *Gustave Piganeau*; and to Messrs. Paul & Son for *Genista auxantica* and *Exochorda Alberti*.

Mulching lawns.—Thin weak lawns which scorch and turn brown with the heat of the sun may be much benefited by taking the grass box off the mowing machine and leaving the cut Grass on the lawn. The Grass cuttings will soon wither and disappear, forming a beneficial mulch to the roots of the Grass. This practice may be continued to the end of August, when the box may be used again. Grass that is constantly being cut will soon show signs of weakness unless helped in some way. If the lawn is very full of Daisies, it may be advisable to wait till the blossoming period is over unless the lawn is gone over frequently.—E. H.

BOOKS RECEIVED.

"Transactions of the Royal Scottish Arboricultural Society." Vol. XIII., Part I. Edinburgh: Douglas and Foulis, Castle Street.

"Excursion of the Royal Scottish Arboricultural Society to Ross-shire, 1890."

"Agricultural Gazette of New South Wales." Vol. ii., Part 2.

"The Pansy, and How to Grow and Show It." By Jas. Simkins. Second Edition. Birmingham: Cornish Bros., 37, New Street. London: Simpkin, Marshall and Co.

"The Species of *Epilobium* Occurring North of Mexico." By Wm. Trelease.

Names of plants.—Mrs. Blackwell.—1, *Narcissus Jonquilla*; 2, *Anemone nemorosa*; 3, *Anemone fulgens*; 4, *Phlox setacea*; 5, next week.—*Donavoure*.—Lycaste aromatica.—Amy Austin.—*Amygdalus nana* (syn., A. Besseriana).—A. Jenkins.—Flowers arrived in such a shrivelled condition that it is impossible to name them correctly.—F. Potter.—Lycaste aromatica.—M. A. B.—1, *Davallia elegans*; 2, *Blechnum brasiliense*; 3, *Humata pedata*; 4, *Cheilanthes fragrans*; 5, looks like *Balanium culcita*; 6, *Diplazium conchatum*.—E. W.—Lycaste Tautziana.—C. H.—1, *Odontoglossum Cervantesi*; 2, *O. hystrix*; 3, appears very much like a natural hybrid between *O. gloriosum* and *O. crispum*. It is not of much value.—A. Binnie.—Cannot name such scraps, send better specimens; 5, *Anemone apennina*; 6, *Ranunculus auricomus*.—H. T. M.—1, *Myriopteris hirta*; 2, *Asplenium flabellifolium*; 3, *Doryopteris sagittifolia*.—Kate.—1, *Begonia Dregei*; the other kinds are such miserable scraps it is impossible to name.—Tony Bee.—1, *Primula denticulata*; 2, *P. rosea*.

WOODS AND FORESTS.

BARK AND BARK STRIPPING.

THE period of bark stripping and harvesting, just now at its height, is one of the most anxious seasons of the year with the forester, as the quality of the bark is so largely dependent upon the weather during the time which intervenes between the stripping and the delivery, as well as upon the carrying out of the work at the proper time, to secure easy and expeditious peeling. In most cases, the time when the bud is just expanding into the leaf is that which gives the greatest weight of bark of the best quality, and with the smallest amount of labour. By deferring the work even for a few days there is often a loss in weight amounting to as much as 10 per cent., and a great deterioration in quality. Even in the most favoured situations it is but seldom that the season for stripping extends beyond from 'twenty-five to twenty-eight days. In this district (Kent) it often reaches from about the 20th of April to the 20th of May in an early spring, and from about the 1st of May to the end of the month in a late one. Much depends upon latitude and the exposure of the situation, and farther north it is often from about the middle of May to the middle of June. The healthiest trees in the most sheltered situations break out earliest, and generally strip easily and yield good bark, while those of unkindly growth or in exposed situations linger in the bud, strip with difficulty, and yield bark deficient in tannin. Wherever hammering has to be resorted to, the cured bark is generally deficient in that bright inside creamy colour which denotes abundance of tannin matter. Such bark is also more liable to deteriorate upon the drying stage during the wet season. Trees growing in sheltered hollows having a southern aspect yield the best bark. Under twenty years old the trees have not arrived at perfection for stripping, and after thirty years the yield both of tannin and other matter diminishes. The astringent property upon which the value of the bark so much depends is most abundant in trees of middle age.

A calculation of the quantity of bark to be stripped may be made from the following data: A flourishing, well-proportioned, and full-grown tree will produce from 5 cwt. to 6 cwt. of bark for every ton of measurable timber it contains. Trees of medium age, averaging 10 feet each, will produce a ton of well-cured bark for every 150 feet of timber; hedgerow trees in favourable situations about a ton of bark to 3 tons of timber. The yield from plantations or coppice Oak will be proportionate to the space afforded to the growing timber. Where this is ample we may estimate a ton of bark for every 4 tons or $4\frac{1}{2}$ tons of timber. Small Oak poles will not average more than 1 ton of bark from 5 tons. All branches of 1 inch in diameter should be peeled, as these contain in proportion more tannin matter than the trunk bark.

Before felling a tree, care should be taken to ascertain if both the body bark and that of the branches will run easily. An experienced eye will generally tell this at a glance. The necessary tools for felling and cutting up are the heavy and light axes and the handbill. For peeling, the peeling iron and the wooden mallet, made of Ash, about 4 inches square at the head and 7 inches long, with a wooden handle. This will sometimes be found necessary for loosening refractory bark, but the less it is used the better the quality of the bark.

Various methods of stacking bark are adopted in different places. One of the most common

consists in placing it upon a raised stage formed of strong forked sticks driven firmly into the ground, and upon which are placed longitudinally other peeled rods, so as to form a secure platform; upon this are placed the smaller shreds of bark, the whole being securely thatched or covered in with lengths of the body bark, averaging from 3 feet to 3 feet 6 inches. If the bark be well stacked, no turning will be necessary in an average season, when it is fit for delivery in about a fortnight; but should a long spell of wet weather follow, choose a fine day and open and re-arrange the stack. When the bark will snap between the fingers or under pressure and not bend, it may be considered fit for delivery. During the process of curing, the inner side of the bark should never be exposed to the sun or rain. The stage should be raised sufficiently high to admit a free current of air under the bark; about 2 feet will be sufficient for this purpose. Bark generally loses about one-third of its weight in drying if properly harvested. A dull inside colour indicates bad curing or the presence of but little tannin. This matter, which gives the chief value to bark, is found mainly in the white cortical layers, which are situated next the alburnum or sapwood of a tree.

In felling trees of an age to leave reproductive stools, great care should be taken not to strip off the bark down to the roots, as is often carelessly done, as this destroys the continuity of the dormant buds. While smaller poles may be advantageously cut down with the axe, all trees having a diameter above 6 inches to 8 inches are felled by the aid of the cross-cut saw; this will be found to be economy both of time and timber. In delivering bark, it is customary to tie it up in bundles with withes for the convenience of loading. Formerly it was chopped in small pieces and afterwards delivered in bags. The cost of tying up is about 1s. 6d. per ton. Chopping costs 6s. or 7s. per ton.

As soon as the stripping and stacking are finished, no time should be lost in cutting up the cord-wood and faggots, and getting the whole of the produce removed from the fall. As the speedy curing of the bark depends so much upon the airiness of the situation in which it is staged, an open sunny and airy spot should be chosen, well removed from the shade and drip of trees.

Rhododendron ponticum.—Mr. Sheppard is such a fair critic, that I fear my note on the above at page 424 hardly went far enough. I intended it to read "the *Rhododendron* will thrive on a clayey soil." I certainly did not intend to say "did best," but that "it often did well provided the roots were not in stagnant moisture." I did not go at great length into the matter, as what I wished to prove was the value of this plant in preference to the common Laurel, and the little damage it received from game and severe weather. I fully agree with the remarks as to the plant doing best in a sandy loam, but I must differ as to planting in bogs, as when I lived in the midland counties I had large masses on a sloping bog in which Willows grew, and from which I got the *Sphagnum Moss* for Orchids. I often got a fine plant to fill up a gap elsewhere from this very spot. I maintain that the *Rhododendron* will grow in bogs, provided the water does not cover the roots and the ground is sloping to carry off excessive moisture from the roots. I now come to the clay, and I find that *Rhododendrons* do better on clayey subsoil than on gravel, as I have several instances here where the plants do not thrive on gravel, but on clay do very well. I have them close to the lake and the soil is clay; on the other hand, the water drains away freely and the plants thrive well. Another instance is the way these plants grow in disused brick-yards if on

a bank. I may also add my reason for advising *R. ponticum* for planting in large clumps and masses was on account of its free growth and little cost, as the better kinds are expensive when largely used. On the other hand, if cost is no consideration, then I would certainly do as Mr. Sheppard advises, and plant the best kinds, especially in suitable soils. Another advantage *R. ponticum* possesses is that it can be cut hard back, and does not suffer so much as some of the choicer kinds. I was glad to get even the common kinds for this purpose in the place of useless Laurels, and even large masses of common Elder which had overrun the place, as the heavy cost of choicer kinds for some acres of ground would have been a serious item and probably delayed the work. As I stated, they grew in many places where other plants would not thrive. I also note Mr. Sheppard's remarks as to their rapid growth, and in his suitable soil such would be the case, but on a clayey subsoil they do not make such vigorous growth; it is a short sturdy growth and often later bloom. Much, however, can be done to make the soil suitable, as if leaves are plentiful, *Rhododendrons* delight in the decayed material with cow manure and sand added.—G. WYTHES.

The British Oak.—In *THE GARDEN*, May 16 (p. 470), "J. S. W." takes exception to my remarks regarding the difference between the two kinds of Oak growing in most plantations in this country. I have read what Brown says on this subject, and from my experience of some fifty years I quite agree with him. On this subject, Grigor in his "Arboriculture" makes the following statement: "It comprehends many varieties, two of which are so distinct, that botanists frequently rank them as species, namely, *Quercus robur pedunculata* and *Q. r. sessiliflora* . . . The former is the most approved tree, as it produces the best timber. The timber of *sessiliflora* bears a strong resemblance to that of the Spanish Chestnut, and the tree is more apt to retain its withered leaves during the winter. Its greatest recommendation is, that it grows more freely than the other sorts when young, particularly in an inferior soil and situation." Surely these experienced men who have spent a lifetime rearing and converting the timber of the Oak and other trees are pretty safe guides as regards the difference in the quality of the timber of the two kinds, and so thoroughly am I convinced of the superior quality of the wood of *Q. r. pedunculata*, that I have no hesitation whatever in recommending that the *Q. r. sessiliflora* be reduced in numbers as much as possible in the course of thinning young plantations.—J. B. WEBSTER.

Value of Larch poles (Forest).—The value of your poles will depend very much on the quality of the timber and the distance they have to be sent to market. Some time ago I supplied Larch poles by contract of a similar size for piles at 3s. 6d. each, delivered at the works. At other times I have sold them in the plantations, where the purchaser had to take delivery at his own expense, at prices ranging from 2s. to 2s. 6d. each.—J. B. W.

The Cut-leaved Walnut.—Probably this will hardly be likely to rival the type in rapidity of growth and the ultimate height attained, but in any case it is a highly ornamental tree, with a distinct foliage character. It is well worth a place in the park or pleasure ground, either as a single specimen or in the mixed clump or woodland plantation.—X.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of *THE GARDEN* from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ORCHARD AND FRUIT GARDEN.

GRAPE MADRESFIELD COURT.

BUT for one failing, viz., that of cracking of the berries when nearly or quite ripe, this variety would become the most popular black Grape in cultivation, and it most certainly is the best that has been raised within the memory of the present generation of gardeners. It was the result of a cross between Muscat of Alexandria and Black Morocco, and combines most of the good qualities and few of the bad ones connected with either parent. The late Mr. Cox, for many years gardener at Madresfield Court, raised this variety, but though it was generally well received, it did not attain popularity during the raiser's lifetime, as it is only during the last ten years that its cultivation has been better understood and its good qualities more fully appreciated. It is worthy of note that though the offspring of two comparatively shy setting varieties, very little or no difficulty is ever experienced in effecting a good set in the case of Madresfield Court. The bunches are also very plentifully produced, and on vigorous Vines frequently attain a great size, some that have come under my notice weighing close upon 8 lbs. Medium sized bunches, however, are the most to be preferred, whether for home consumption or exhibition, and it is advisable to early remove any long shoulders that form, the branching points being also reduced to one in number. Thus treated, the bunches are of handsome conical appearance, and the long oval berries being grown to their full size (and they are sometimes seen extra large), the colour also being good, no other black Grape, not even excepting Black Hamburgh, can compete with it while in season. In addition to being attractive either when hanging or dished up, it is also a good traveller, this being due to the compactness of bunch and stoutness of footstalks. Muscat flavour and solidity of berry are marked characteristics of the variety, and if only possessed of a stronger or thicker skin, it would be almost faultless. Although frequently ripened somewhat late in the season with a view to keeping the bunches to late in the autumn, Madresfield Court must yet be classed as an early and successional variety, very few succeeding well with it in late houses of mixed Grapes. It is one of the best for pot culture and hard to surpass for forcing generally, but to succeed well with it a compartment ought to be principally or solely devoted to its culture. If grown in a mixed house, the least that can be done is to locate it at one end, where it can either be kept drier at the roots or given more air than necessary for the rest of the varieties. No Grape can well be more disappointing than the Madresfield Court when wholesale cracking of berries takes place, an occurrence almost inevitable under certain conditions. During the ripening period a sudden change from bright to showery, sunless weather, or even the maintenance of a somewhat close, moist atmosphere might cause numerous berries to crack and rapidly decay, and precautionary measures must, therefore, be taken and rigidly enforced. Nicking the laterals and keeping the borders very dry were at one time the best remedies that could be thought of

to check the sudden rush or superabundance of sap, allowing sub-lateral growth to extend unchecked being another preventive measure. Neither, as it happens, could be relied upon in all cases unless carried to injurious extremes. Both Mr. Roberts at Gunnersbury Park and Mr. Hudson at Gunnersbury House were among the first to produce extra fine samples of this noble Grape, and the former prevented cracking, to a certain extent, by keeping the borders extra dry during the colouring period. To such a length was this drying-off process carried out at the former place, that on one occasion when I visited the gardens, Foster's Seedling growing alongside Madresfield Court was actually flagging for want of water. One result of this somewhat adverse treatment was a failure of the berries to colour properly, there being a marked greenness about the footstalks. Mr. Hudson's berries that I have seen were better coloured, and, unless I am much mistaken, he does not follow the drying-off process.

There are few varieties that better repay for very liberal treatment at the roots, grossness being an evil not often met with in connection with the Madresfield Court. Some there are, and successful growers, too, who are of opinion that the liberal application of manures to the surface and abundance of water at all times are sure remedies for cracking, the idea being that the latter evil is brought about by first a slackening of the food supplies, notably moisture at the roots, this causing the skins to set, the subsequent application of water to an inside border, or a heavy rainfall on an outside border, having the effect of driving up more sap than can be properly assimilated, and bursting of the berries is the result. I tried what could be done for two successive seasons in the way of applying an extra amount of water and liquid manure, the Vines never once becoming at all dry at the roots, but this did not prevent wholesale cracking of nearly ripe berries during the first spell of showery, sunless weather. In our case several other varieties, including Black Hamburgh and Foster's Seedling, were grown in the same house, yet the former never burst a berry, and Foster's only a few. A too moist atmosphere is really the principal cause of cracking. Correct this and but little of it will take place. Either the skins are much more porous, or else thinner than is the case with most other varieties, as it is evidently the moisture absorbed from the atmosphere and not that transmitted from the roots that is the primary cause of cracking, though the latter may contribute towards the occurrence. Merely setting open the top and bottom ventilators, however, will not do, as the outer atmosphere is also at times highly charged with moisture. What is wanted is a good circulation of warm dry air, and this can only be maintained in showery weather with the aid of fire-heat. It is the safest plan to keep a little warmth constantly in the pipes, especially in the case of the earliest crops, and if this is not convenient, then must the fires be started in anticipation of rainfall and a moist atmosphere, or the mischief may be done before the remedy is applied. A little air both at the front and top of the house ought to be left on all night, more being admitted before a great rise in the temperature takes place, and there ought never to be a chilly or moist feeling on entering a house of ripe or ripening Grapes. By close attention to the heating and ventilating, a genial atmosphere can be constantly maintained and cracking of a certainty prevented.

A considerable number of bunches are annually lost owing to the precaution not hav-

ing been taken to well thin out the berries. Given good room, the berries attain a great size and ripen better than when jamming against each other, and should a berry in an under-thinned bunch crack, it is very difficult to cut it out without injuring other berries near; while should it be overlooked for a few days, it will have spread decay to all coming in contact with it. Plenty of air playing about the berries is necessary not only to prevent cracking, but also to ensure perfect colouring. The best coloured bunches will usually be found near the ventilators, and I have found taking squares out of the ends of the house in which Madresfield Court is grown of great assistance in colouring the berries right up to the shanks. These openings are merely covered with fish-netting doubled, and since the plan has been adopted no difficulty has been experienced either in colouring the berries or preventing cracking.

W. IGGULDEN.

The hailstorms and the Apple bloom.—"What is likely to be the effect of the hailstorms on the Apple bloom?" I asked one of my market garden neighbours, and his reply was, "If they destroy one half of it, there will be more than enough left then." I am not sure that generally the hailstorms, frequent as they were on and about the 20th, did very much harm after all, for the blooms seem to have stood wonderfully well, and to hold on with remarkable tenacity. This fact shows after all how much we owe to the previous season the production of a fruit crop. We have often in past years seen a wonderful bloom in the spring, but quickly falling and leaving only barren spurs. If the previous season had failed to form stout healthy fruit buds no spring weather would convert the barren bloom into fertile flowers. We have often blamed the spring weather, and it must be admitted for much of the bloom that it has been bad enough during May, but still it seems probable that no appreciable effect will have been produced, as to all appearance the crop will be a wonderfully abundant one. It may be accepted, however, that the hail and rain storms have done much to help cleanse the trees from insects. It has been a rather bad time for these pests, and we may well hope that the trees will benefit in consequence. The rains, though so acceptable to surface crops, have not been so considerable as to penetrate very deeply into the soil. Probably at the most the rain has not gone in more than 6 inches, deep enough to very much moisten the roots of small shallow planted trees, but not deep enough to reach the roots of old standard trees. Nothing less than a long spell of rain, which we do not just now want, would do so much. We shall probably now have to wait until the autumn before getting the needful supply. In the meantime, it will be unwise to neglect the watering of old trees where it is possible to furnish the needful moisture.—A. D.

A disastrous frost.—What was once a glorious fruit prospect has been sadly marred by severe frosts. It was very cold on the mornings of May 17 and 18, but the most damage was done on the next morning, when our thermometer registered 8° of frost. Hail, snow, and rain having fallen during the afternoon previous, everything was very damp, and therefore all the more liable to be injured by frosts. Potatoes, Beans, and Asparagus were the greatest sufferers among vegetables, but about these I am not greatly concerned, the damage to fruit crops being a far more serious matter. As far as I can yet ascertain, Strawberries and Gooseberries have suffered the worst, all the flowers of the former expanded or on the point of opening having been blackened. A large batch of protected plants on a raised border had already set a good crop of fruit, and these apparently are quite uninjured, but all the rest other than those on a north border will now produce nothing but a light crop of small fruit, all the best flowers having been destroyed. Fully two-thirds of the Gooseberries are spoilt, and I do not like the appearance of the Black Currants. Apple blossom has to all appear-

ance come well out of the ordeal, and I am yet in hopes there will be a full crop where the hail was not heavy enough to damage the flowers opened and opening. Pears in the open, and also Plums and Damsons, had set very freely, but a great percentage of the former will drop off. Many of the trees against walls were, luckily, still lightly protected with fish nets, and only the most exposed fruit appears to be injured. Even those unprotected seem to be but little injured, there being far more fruit on some of the trees than ought to be allowed to swell. Apricots and Peaches are uninjured, but they were protected with either copings, blinds, or nets. I hope the Cherries, including Morrellos, have escaped destruction, though the latter were only just set. Much the same reports come in from all parts of this district, the frosts being most disheartening to all interested in fruit culture.—W. IGGULDEN, *Somerset*.

Paris Green on orchard trees.—I was much surprised to see your correspondent "W. I." (p. 465) recommending the above to be freely sprayed on orchard trees, should the caterpillars be troublesome, at the rate of 1 lb. to 50 gallons of water. I would strongly advise those who have not used it and intend doing so to use it much weaker than the above; as far as my experience goes with Paris Green, I think that strong enough to kill the trees. We used it here last season on Apple and Plum trees at the rate of 1 lb. to 170 gallons of water. The Paris Green was mixed in a little water first about the thickness of cream. We used the garden engine to spray it on the trees, and only just moistened the foliage. Even at this strength it badly burnt the foliage, and some of the trees have not yet thoroughly recovered from the effects of it. It was kept well stirred up while being applied. It will kill the caterpillars if it reaches them, but there is a danger of injuring the trees. I believe last season was about the first it was used in this country, at least to any extent. It would be interesting and instructive to have the experience of others who have used it.—A. B.

STRAWBERRY FORCING.

THIS has been one of the most trying seasons for forcing I have known, and the early part of the year was disastrous on account of the fogs and want of light. I have also noticed that the plants do not throw up so strongly as usual; indeed they have not had nearly the quantity of bloom of previous years. The later sorts, such as British Queen, Sir J. Paxton, and Sir C. Napier, are better, but not nearly so strong as one would expect considering the size and strength of the plants. "J. C. B." (p. 454) also observes want of vigour in the plants, and I have heard from large growers of forced fruit of the same difficulty. I am led to think that the mischief was caused to a great extent by the severe weather and want of light during the winter months, as Strawberries in frames in many cases did not get free exposure for weeks, and those in the open that were stacked suffered severely, as no matter how protected they were frozen through, and in many instances lost a large portion of their roots. When we get a long period of frost, the plants to a certain extent lose a large portion of their leaves, and though loss of foliage is considered by some of no consequence, I think otherwise, and prefer plants with the full complement of roots and ample foliage. Many growers cut all the leaves off the plants in the open as soon as the fruit is gathered, and then it may be said, Why do so if loss of foliage is so bad for the plants? The plants have ample time to make a new growth before the winter and get well matured. I have previously observed that in many cases stacking the plants in the open is adopted, and necessarily so, because where a large number of plants is required it is not always possible to find room for them in frames and cool houses. Dryness at the roots is very

injurious, and causes the crowns to shrivel and often send up weak spikes, so that when housed indoors with conveniences for keeping out severe frost, dryness should be specially guarded against. I am obliged to stack my plants because of their number, and because the frames are required for other purposes. In ordinary winters the plants do not suffer, but in such as we have passed through stacking has its disadvantages, as it is impossible to prevent frost from injuring them, and when required to place indoors or prepare for forcing there is much delay, owing to it being impossible to remove them without damage to crowns and breakage to pots. On the other hand, stacking if well done, that is, not piling up the plants too much, say, four or five deep with plenty of ashes or fibre, if it can be obtained, between the plants, has its advantages. Cold frames when they can be spared are by far the safest places for keeping the stock in a healthy condition.

I believe a great deal of mischief attending pot Strawberries is often caused by using too rich manure in the compost at potting time, as it creates too much leaf growth and numerous crowns that are too weak to bear strong spikes. I have had this happen, as often the young beginner is anxious for his plants to do well and is too good to them, giving them too rich a compost. What is wanted is a good heavy loam with a little bone meal and some soot well mixed instead of too much animal manure. This latter can be supplied in the way of liquid manure when the pots are full of roots. On the other hand, excessive drainage is not required, as with careful watering when newly potted the plants soon take to the new soil and fill the space allotted them. When forced, too much drainage is a great drawback and makes much work. If the plants are layered direct into the pots, smaller pots may be used if carefully drained, say 5-inch instead of 6-inch for many of the earliest plants. I have seen many plants ruined by careless watering when newly potted, especially in showery weather. Another point often overlooked is standing the plants after potting in unsuitable positions, so that worms and other enemies can injure the new roots. The best place is a hard coal ash bottom impervious to worms and freely exposed to sun and air. Very often these plants are placed by the side of gravel walks, but in that case the pots should be stood on slates or boards to prevent damage, as the worms soon sodden the new compost and stop up the drainage. I always make it a daily practice in fine weather to dew the plants over nightly with a garden engine; this prevents red spider attacking the plants in hot weather, and they make a short sturdy growth. Only a slight dewing is necessary, not sufficient to flood the plants so as to run half through the ball of earth and prevent the plants getting properly watered. Some varieties are also much better by being restricted to single crowns, and this is a point deserving attention. Now is also a good time to be on the look-out for next season's stock of plants, and in most places where a quantity is required these are specially grown in quarters for the production of early runners. These should have all the flower-spikes taken off as soon as they appear, and in the case of dry weather a good watering should be given the plants to encourage them to make early runners, and also to give liquid manure as they commence to grow freely if the weather is dry. On light ground I have used cow manure to advantage as a dressing before the runners begin to grow at the time the bloom is taken from the plants. I do not intend to give a list of varieties in this note, as I have no

cause to omit any of the kinds I recommended last spring. I still have a great liking for Auguste Nicaise as a second early if given a cooler house to finish the fruit and another recommendation it possesses is, it is an excellent traveller; the seeds being very prominent protect the fruits when packed. Harris's A 1 is also worth a trial and more extended cultivation; indeed I think it will prove a valuable addition to our list of forcing Strawberries. I tried it last year and found it very useful; it bears a large, handsome fruit, and is a very compact-habited plant much like Vicomtesse Héricart de Thury. It is not much grown yet, at least I have not seen it, but it has done well with me. I must also say a word for James Veitch as a late forcing variety. I have not given it a trial in pots, as I had a poor opinion as to its flavour. No doubt if grown cool it is a good one for the last lot for pot work, and of splendid colour and size when well grown. G. WYTHES.

Syon.

MULCHING FRUIT TREES.

IF the present prospects of a fruitful season be realised, the conserving of moisture about the roots of fruit trees will have to be attended to by mulching. That this is the best form of conserving moisture cannot be denied, whether artificial waterings have to be performed or not. If a dry season should ensue, trees carrying a heavy crop of fruit will require material support. On light soils the want of moisture about the roots is soon felt, and as artificial watering is, as a rule, out of the question, early mulchings will assist the trees considerably. In the case of bush fruits, either Currants, Gooseberries, or Raspberries, I mulch with short manure at the close of the winter season after the pruning has been performed, and the trees derive great benefit from such applications. This mulching, in addition to conserving the moisture, attracts the roots to the surface. It is generally the trees growing against walls which feel the ill effects of the want of moisture the quickest, and such as these should receive the earliest attention. Peaches and Nectarines on south walls should undoubtedly be mulched, as these very quickly feel the ill effects of the want of moisture. Where a fair width of border is given up undisturbed to the roots, this should have a layer of littersy manure spread about the surface to quite a width of 5 feet. Apricots, Plums, Pears, especially those worked on the shallow-rooting Quince stock, also quickly feel the effects of drought, and the earlier such an aid as mulching can be applied, it will be all the better for the future prospects of the fruit. Bush Apples growing on either of the dwarfing stocks should also be mulched, this being very essential on light soils. There is not a fruit-bearing subject in either the orchard or garden which would not derive marked benefit from mulching. It is of no use to wait until the soil loses its principal moisture before applying a mulch, as when this escapes the value of mulching is considerably lessened. Where there is lack of mulching material the wall trees should have first attention, as the free use of the hoe about the surface of those growing in the open quarters, especially in the case of small bush fruits, will assist in conserving the moisture considerably. Y. A.

Melons under cool treatment.—I was very much interested in this article, particularly with that portion relating to the Cantaloups at Claremont in bygone times. In the summer of 1889 I fertilised Hero of Lockinge with a blossom from an unnamed variety which seemed to have a lot of the Cantaloup blood in it. From seeds thus raised plants were put out in May, 1890, in a pit which has a flow and return pipe in it. No heat, however, in any way was given during the tenancy of the Melons. All that was done was to get out some large spaces in the soil just cleared of a crop of French Beans and fill in with our usual Melon compost, *i.e.*, from a heap of road-sidings. The pit was subjected to a thorough cleansing, walls white-

washed, and all remaining soil, together with wood-work and glass, scalded with boiling water. Sun-heat was utilised as much as possible, and the pit was covered at night with one of the tarred canvas coverings. Anxious to give the novelty a fair trial, I only allowed three to each plant, and the result was a crop of very large fruit, several going over 7 lbs. each, and one turning the scale at 7½ lbs. The fruits were of very fair flavour. I am decidedly averse to advocating the claim of any Melon with only one year's trial, and intend to plant it again this year under exactly similar conditions.—E. B., *Claremont*.

SEWAGE FOR STRAWBERRIES AND OTHER FRUITS.

THE note in THE GARDEN (p. 426) on the above is of importance at this time, as it advises the use of sewage on light soils. I was pleased to see the writer warn those who use it to apply it in a diluted form, as much mischief is often caused by giving sewage to healthy plants just pushing up new growth and flower trusses. Last year I saw some two-year-old plants without a single fruit. These had been watered the last week in April with sewage not diluted in any way, and the result was a great wealth of leaves and no fruit, all the flowers having failed. I prefer to use the hose and thoroughly wash the strong liquid down to the roots, and then no danger exists as to it hurting the bloom or fruit. As "A" states, sewage is often allowed to run to waste and may be put to many uses, but it requires care in its application, as some use it much too strong for tender plants and fruits. I have used it for Asparagus beds at this season of the year on light soils with excellent results, and if the beds are showing much Grass, taken the precaution to give a watering of clear water as soon after as possible, always choosing a dull day for the work. The growth after applying the sewage is remarkable. For Tomatoes after the fruit is set it is one of the best fertilisers if given in moderation and the root run is restricted. I have just finished watering Vine borders that are much exposed and dry up quickly with the sewage, the liquid being given just before the fruit is colouring, and the way the Grapes finish testify to the value of the sewage for this purpose. It is also invaluable for indoor application for fruit in a forward state if properly applied. For gross-feeding plants in the houses this manure can often be given in preference to others and with better results. I have tried most of the patent manures now sent out for Bananas, and for plants far advanced I prefer sewage. For small plants this manure is not so suitable, as it is too strong and sometimes causes too much leaf growth. For Strawberries in pots after the fruit is set I consider sewage one of the very best of manures when properly diluted; again, for Cucumbers in bearing it is also equally valuable. It should always be used at the proper temperature, not as taken from the tank when applied to indoor crops. We use it largely on our light soil for fruit trees on walls as soon as the fruits are set and thinned. After it has been applied the walls are gone over with a hose, thus washing it down to the roots and in a great measure taking away any unpleasant smell that is left. As the surface soil is mulched before using it, it does not run away, as is sometimes the case on dry borders, and its nutritive value is retained. S. B.

Syringing Melons.—That Melons are benefited by the heavy syringings generally accorded I very much doubt, and am of the opinion that the early collapse of the plants in the majority of instances may be attributed to this cause. The foliage of Melons growing in a hot steaming atmosphere is devoid of that stamina capable of withstanding the brightest sunshine. Melons, to be of good flavour, should carry healthy foliage until the fruits are cut, and this the plants will do without a particle of water touching the foliage after the plants have become established. This is the practice I carry out, and the foliage is quite clean and healthy. The structures the Melons are growing in are damped down in the early morning

and again in the afternoon when closed; in fact, they are treated in the same way as the generality of vineries, *i.e.*, all available surfaces are damped, excepting the foliage. Red spider is very rarely, if ever present, and this cannot be said generally of those Melons which are regularly syringed night and morning. I am certain Melon houses could not be more exposed than they are in these gardens, as they are on a high elevation and fully exposed to the sun. The roots are kept in a healthy condition by the application of water when needed, and by encouraging surface feeders, the plants carry healthy foliage to the last. When Melons are grown in a hot stuffy atmosphere, with regular syringings morning and afternoon, whenever a fair amount of ventilation is put on the plants droop, and shading has to be resorted to to prevent a total collapse. Not so those plants which are treated as I have advised, as these may be freely ventilated, but, of course, judiciously. The main foliage of Melons must be preserved to the last, as when the principal leaves collapse, secondary laterals, however these may be encouraged, are not capable of carrying out the functions of the primary foliage.—A.

SCALDING OF GRAPES.

THE season will soon be at hand when the dreaded evil of what is termed scalding appears. As is well known, all varieties of Grapes are not liable to be so affected, and except with Lady Downe's, which is more addicted to this evil than any other, it is rarely scalding takes place. Madresfield Court in rare instances is sometimes affected, and also the Muscat of Alexandria. Lady Downe's is much subject to the evil, and extreme care is needed with the inside management of the vinery at the period when scalding is likely to take place. Scalding may be successfully combatted. Five minutes' neglect is sufficient to spoil a whole houseful of Grapes. Grapes are also subject to scalding upon sudden outbursts of sun during a stormy day if the man in charge is not sufficiently on the alert to put on extra ventilation upon the first glimpse of sun, and also upon too early closing in the afternoon, and running up the temperature by sun-heat. The period of scalding extends to about three weeks, and takes place during the latter stage of stoning. The swelling of the berries during the stoning process is suspended for the time being, the whole resources of the Vines being expended upon this exhausting process. If all goes well during this period, then satisfactory results generally take place afterwards.

As regards the causes of scalding, there are different opinions, but so far I think the principal point is not to allow the temperature of the berries to become so cold in comparison to the surrounding atmosphere as to prevent moisture from condensing on them. The berries being cold, the moisture naturally settles upon the surface. To illustrate my meaning it may have been observed how quickly the moisture settles on ripe black Grapes when sufficient air has not been applied in time. The berries being black, the moisture is easily discernible, but while in a green stage the moisture is not so noticeable. Vines with the roots working in a cold medium are also more addicted to scalding than those with the roots working in a warm border.

The results of this are seen in the case of growing Vines in the early evening, as it is very noticeable how quickly the moisture hangs to or condenses on the edges of the leaves. I have frequently proved that when this takes place to an undue extent, the roots are working in too cold a medium for the well-doing of the Vines, and also that the Vines are more addicted to the evil of scalding. Having stated

my views of the causes which lead up to scalding, it remains now to explain the means which will prevent this taking place. Amongst the various means put forward as preventives, a light shading is sometimes recommended, such as whitening being syringed over the glass, this obstructing the rays of the sun, but as a shading tends to weaken the texture of the foliage when applied for the length of time necessary, I much prefer a judicious inside treatment. A little top ventilation is also sometimes recommended, and, with sufficient heat in the pipes, I must say that this answers well enough. I have also seen it stated that the lowering of a single light an inch or two at the end of the structure, where the sun's rays catch the roof early in the morning, will also obviate scalding, but this I very much doubt, and should be very sorry to resort to such means solely as a preventive of scalding. With some people it is also the practice upon a bright spell of warm weather occurring to abandon artificial heat for the time being, and although the air may seem genial over-night and also early in the morning, yet during the early hours the temperature where such a practice is adopted falls very low indeed, or at least too low for the benefit of the Vines, and this alone conduces considerably to lowering the temperature of the berries. The practice which I adopt successfully is to have sufficient heat in the pipes to prevent the temperature falling below 65° by 6 a.m. the following morning, a little ventilation also being given both at the apex of the structure and on the front ventilators. The ventilation is increased as the sun gains power. During the afternoon the ventilation would be reduced in proportion, provided the inside temperature did not rise higher or very little above the temperature before the air was reduced. Some people leave the ventilation on until late in the evening before attempting to reduce it, but this practice tends to starve the Vines. Damping down the structure and closing early with sun-heat certainly favours scalding. As soon as colouring commences, all danger is past. A. YOUNG.

Abberley Hall.

Mulching Vine borders.—Of late years the mulching of outside Vine borders during the growing season has become very common, but I very much doubt if this is beneficial to the well-doing of the Vines, unless during a dry time or in exceptional cases, such as high, dry, and shallow borders. For example, in a season like the present so far, in all cases where the borders are mulched they will be considerably colder than an exposed surface. Under such circumstances that baneful evil, shanking, is considerably increased. There are many borders which undergo a systematic course of mulching annually, even in instances where the roots are far down. In such cases as these a slight forking over of the surface would benefit the Vines far more. Many people apply a mulching with the intention of drawing the roots to the surface when these are already a distance down. Nothing short of re-lifting and laying the roots near the surface in fresh soil will meet these cases. Where the borders are deep and composed of soil of a heavy texture particular care is needed in mulching. Some of the Vine borders under my charge are of this character, and under the changed system of mulching, the Vines are greatly benefited. Well burned garden refuse, sweet leaf-soil, with a portion of worked horse droppings is all the mulching the borders receive, and this only on the approach of a warm and dry period. The sun's rays are attracted by such material, and in addition to giving warmth to the border the surface is kept comparatively moist. Mulching such borders as these with a thick layer of heavy manure would be a grievous error, this alone lowering the temperature of the borders con-

siderable. What we want and should try to attain is warmth in the border, without unduly drying it up. In a tropical summer, similar to that of 1887, when the rainfall was abnormally short, a light covering of litter over the material I have mentioned would be an advantage, as preventing the moisture from being rapidly evaporated.—A. YOUNG, *Abberley Hall*.

NOTES OF THE WEEK.

Grape Hyacinths.—I quite agree with "K." that these are lovely harbingers of spring, and share his opinion that there is much confusion in the names. It appears that the true *Muscari Heldreichii* is scarcely known in England, although in shape of the spike and the large size and colour of the flowers it is the most distinct of all blue-flowered *Muscari*. Though I have been collecting Grape Hyacinths for thirty years, I have never seen a variety of *M. Heldreichii*, which is no wonder, the plant scarcely ever bearing seed. *M. atlanticum* is the brightest in colour, and the rich big spikes of *Szovitzianum* are surpassed by those of *M. polyanthum*, a splendid new kind now introduced. *M. Argæi*, *armeniaceum*, and *atlanticum* are very closely allied, and may be but local variations, *atlanticum* being the best of the three for horticultural purposes. Among the smaller-flowered species, *M. azureum* and *M. pulchellum* are little beauties, the former very early turquoise-blue, the latter nearly black, the top of the spike pure white. I can speak confidently about the above, my bulbs being offshoots of Kotschy's original introductions.—MAX LEICHTLIN, *Baden-Baden*.

—That the nomenclature of *Muscari* is sadly confused in many gardens is unfortunately only too true, yet I cannot quite agree with "K." (p. 477) that the similarity of the different varieties is really so great. I have at least fourteen or sixteen forms in my collection which are so clearly defined, that there cannot be any possibility of mistaking the one for the other. Of the common *M. botryoides* we have the pure white form. From its pale blue variety known as *M. pallidum* a fine, very long-spiked form has recently been raised in a Dutch garden. Another charming variety is the bluish *M. botryoides leucophæum*, a very dwarf-growing, extremely free-blooming plant. Those who are fortunate enough to possess the true *M. Heldreichii* of Boissier would never think of comparing it to any other species; neither can the rather large-flowered, bright blue-coloured *M. Szovitzianum*, which, if true, is certainly one of the most exquisite of all, be in the least compared to that minutely flowered *Muscari* known as *M. micranthum*. Again, the difference between the clear yellow-flowered *M. macrocarpum* or *M. flavum*, under which name it is figured in Sweet's "British Flower Garden," and the huge, almost black, flower-spikes of the splendid *M. paradoxum* is very great. It is a pity that the extremely gracefully-flowered *M. monstrosum* seems to have fallen into such oblivion, that in late years almost none of the many correspondents of THE GARDEN have spoken a single word in its praise. Another distinct kind is *M. conicum*, which was first made known in England by the late Rev. Harpur Crewe. This produces rather large spikes of deep violet-blue coloured flowers with a small white rim and increases very rapidly. *M. latifolium*, though not a very beautiful species, should still be included in any collection on account of its very distinct broad leaves and long flower-spike. Last, but not least, there is that very early-flowered, extremely charming *M. linguatum* or *Hyacinthus azureus*, as it is now being called, but which partakes so much of the character of a *Muscari*, that it may be well included under this heading. All these forms are perfectly distinct, and there is certainly not the least difficulty in keeping them separate. That there are a few so-called species of *Muscari* which only differ in name is perfectly true, and I shall be the last to deny it, but why should we trouble ourselves about these when there are so many other beautiful and really distinct sorts?—C. G. VAN TUBERGEN, JUN., *Harlem*.

The fruit crop in Kent.—Reports received from fruit growers in East and Mid-Kent speak most discouragingly of the prospects of the crop. The severe frosts of the early part of last week have completely destroyed Black and Red Currants, and Plums and Cherries have also suffered terribly. Hard fruits have escaped with less damage, but the prospect is nothing like what it was.

Saxifraga Mertensiana.—This is a most charming Saxifrage, a native of North America, and perfectly hardy on the open rockery. It grows from a foot to 18 inches high, with gracefully branching stems, and produces many white flowers which are much enhanced by the bright pink stamens. On the flower-stems and almost at every joint appear crowds of young plants in the form of bulbils, making it very interesting. The leaves are dark green, almost circular, deeply and regularly crenated. It likes full sun, but seems to do best when the roots are kept constantly moist. It increases rapidly by offsets, by which means it may be readily propagated. It is a Saxifrage well worth having, especially as it could be planted with advantage on a bog or other moist situation.

Saxifraga calyciflora or **media** is now finely in bloom on the rockery at Kew, and although by no means a striking plant, it is well worth growing on account of its deep purple flowers. It is somewhat rare in gardens, although as easily managed as any in the section. It is a lime-loving species, and in such a soil grows vigorously, and, as a rule, flowers freely. It ripens seed freely, by which means it is readily increased. Between this species and *S. aretioides* we get the fine hybrid known as *luteo-purpurea*, known in some gardens as *Frederici-Augusti*; this is the hybrid nearest to *S. aretioides*, but we have still another one called *ambigua*, which we have not seen, but which is said to be very fine. It is more nearly related to *S. media*, has large purplish flowers, with the free habit and quick growth of *S. aretioides*.

Forms of Dianthus.—The forms of *Dianthus*, which in place of a better name we call *alpinus*, are by far the most useful for the rockery. They grow more quickly than the type, and although the flowers may not be so large, they are borne in such profusion as to entirely hide the leaves. We have reason to believe that the plants referred to are hybrids between *D. alpinus* and possibly *D. neglectus*, or some other dwarf acute-leaved species. These plants resemble *alpinus* in habit and in the colour of their flowers, but the leaves are narrower and somewhat pointed, and so far as we have been able to find out, they never ripen good seeds; the only way to propagate is by division, and this has to be done with great care in early autumn.

Eomecon chionantha, from China, which was so admired when a coloured plate appeared in THE GARDEN a year or two ago, has withstood the past severe winter without the slightest injury; indeed, it seems to be stronger than ever. There is one thing, however, we have found out about the *Eomecon*, and that is its running underground roots. These, if means are not taken to stop them, will be all over the place, and may prove somewhat troublesome to get rid of. The roots are extremely brittle, and the smallest piece with a joint left in the ground will grow. Although a very desirable plant, one does not want it running all over the flower border. In a confined space we find that it blooms more freely, producing a great many beautiful white Poppy-like flowers, which are greatly admired. As may be gleaned from the above, there is no trouble in increasing this plant.

Cornus canadensis, called Pudding-berry in the New England States—the fruit being employed as an ingredient in plum-puddings—has become a perfect weed on the shady parts of the rockery. It grows so freely and seems to have such a constitution, that all the weaker plants are simply being strangled and have to be taken out of its way. We allow it to encroach because of its tinted foliage and lovely red berries in autumn and its quaint white Jack-in-the-green flowers at the present time. It seems to be a native of Pine woods, but with us it grows in any shady spot where it can get sufficient

moisture and the soil loose enough to allow its creeping stems to root. It barely exceeds 6 inches in height and makes a charming carpet.

Rhododendron calophyllum.—With the exception of a few lingering blooms on some of the late-flowering forms of *R. arboreum*, *R. calophyllum* may be said to bring the flowering season of the greenhouse section of Himalayan *Rhododendrons* to a close. In the temperate house at Kew several plants are now commencing to flower, and will continue well into June. Whilst the species is inferior in size of bloom to several of those that have been previously noted, like *R. Aucklandi*, it is, nevertheless, both distinct and beautiful, and its flowering at a season when others are past gives it a special value. It is one of the best habited of the Himalayan kinds, forming large rounded bushes with abundant foliage. The flowers are arranged four or five together in terminal clusters, the corolla being pure white with a tinge of yellow on one side of the tube, and measuring 4 inches to 5 inches across. The probable identity of this species with *R. Maddeni* and *R. Jenkinsi* has been previously pointed out in these columns. In the *Botanical Magazine*, where *R. Maddeni* is figured at t. 4805, it is stated that the flowers are invariably in clusters of three. It is doubtful, however, if this be the case, or if so, many plants are grown as *R. Maddeni* which have not this character. All these plants are natives of Bhotan, where they occur at an elevation of 6000 feet or more.

Cypripedium grande.—There is now a fine specimen of this magnificent hybrid in flower at Kew. It was raised by Mr. Seden from *C. caudatum* and *C. Roezli*, and flowered for the first time in Messrs. Veitch's nursery in 1883. Its splendid foliage is alone sufficient to make it worthy of cultivation, the bright glossy green leaves being each from 2 feet to 2½ feet long and over 2 inches wide. It is undoubtedly the most robust of *Cypripediums*, whether hybrid or species. The same striking proportions are equally characteristic of the flower. The scape is even longer than the leaves, sometimes measuring a yard in height and bearing several blooms, which are 7 inches or more across the yellowish white, green-veined sepals. The petals are a foot or 15 inches in length, thus showing the influence of *C. caudatum*; at the base they are creamy white, the other portion being rosy pink. The lip is very large, the contracted mouth of the pouch being ivory-white and the front yellow, shaded with brown, gradually changing to creamy white underneath. Although the outlines of the flower strongly suggest *C. Roezli*, it is, not only in size, but in other respects, an immense improvement on that rather dull-coloured species. It is one of the triumphs of Orchid hybridising, and is in every way worthy of the name it bears.

Odontoglossum maculatum.—Having been imported into British gardens as long ago as 1838, this species may rank as one of the oldest of our garden *Odontoglossums*, its first introduction being due to Mr. Barker, of Birmingham, whose collector found it in Mexico. Like most of the alpine Orchids brought to England at that period, it soon succumbed to the treatment which was then thought proper for these plants, and it was not until 1853 that it was reintroduced by Linden. Since then frequent importations have made it well known. Notwithstanding the rivalry of the multitude of beautiful species subsequently introduced, its handsome form and especially its distinct colouring still secure it a place in most collections. Its compressed pseudo-bulbs are oblong and bear a single leaf, the semi-erect raceme coming from the base. The sepals are lanceolate and pointed, and of a bright reddish-brown colour, the petals being yellow with the lower half spotted with reddish-brown; the large heart-shaped lip is also yellow with the same red-brown blotches at the base. The whole flower is 3 inches in vertical diameter, scarcely so wide, and three to five flowers are borne on the spike. A strong recommendation of this *Odontoglossum* is the length of time it remains in bloom; plants which opened their flowers at the beginning of April are still in good condition. It is also a very easily grown species.

FERNs.

BIRD'S-NEST FERNS.

THESE plants are easily grown into large, handsome specimens; their roots require good and careful drainage, because if this becomes clogged, the chances are that the plants will throw up deformed fronds, which spoil their beauty and render them eyesores instead of ornaments. The soil must be made sandy, and should consist of light turfy loam and peat, with some leaf mould and good sharp sand.

A. NIDUS (*Thamnopteris Nidus*, *Neottopteris Nidus*).—This East Indian interesting species, which is popularly known as the Bird's-nest Fern, from the remarkably peculiar manner of its growth, produces entire fronds about 30 inches in length and 4 inches in breadth, which rise up from the

at the plants is by placing the latter over a pan of water on three inverted pots so as to prevent the bottom of the pot touching the water, but at the same time leaving a liquid barrier of 2 inches all round to keep off all intruders.

THE FERN HOUSE IN THE MANCHESTER BOTANIC GARDENS.

THIS is now in great beauty, and contains fair-sized specimens of all or nearly all of the New Zealand Tree Ferns. It will, however, not be many years before some of these will have to be removed and replaced with smaller specimens. Notable amongst these is the large *Alsophila medullaris*. It is now beginning to put forth its stout massive fronds, and if the roof is not raised in a year or two there will be no room for their further development. Nice plants of *Cyathea dealbata*, *C. Smithi*, *Dicksonia squarrosa*, in nice specimens,

and it would be better for the plant-loving public were it not so at the present time.

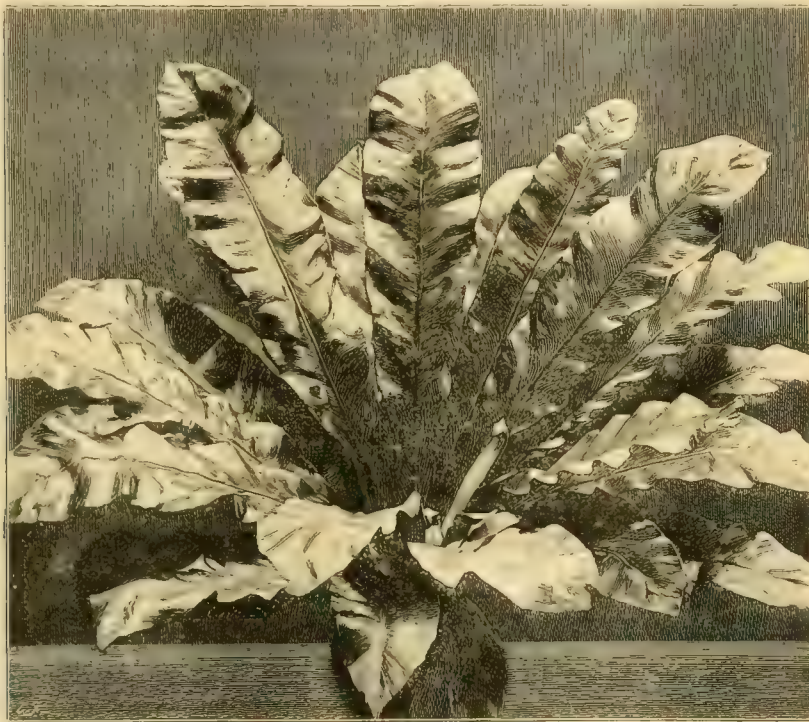
W. H. GOWER.

Ferns for baskets.—I am asked by "A. T. M." to name a few Ferns which are suitable for baskets in a warm fernery. Amongst these no prettier basket kind than *Goniophlebium subauriculatum* can be had. It has pinnate fronds, which are pendent and grow from 6 feet to 10 feet or more long, the pinnae being of a lively green. *Asplenium longissimum* is another beautiful plant, with very long pinnate fronds; *Cheilanthes spectabilis*, with fronds about 18 inches or 2 feet long, finely divided and bright green; and *Nothochlæna trichomanoides* are also useful. This is somewhat smaller; the fronds are about a foot long or more, pinnate, dark green on the upper side, beneath they are clothed with white stellate scales. *Woodwardia radicans* is a beautiful plant for a large basket or a tall vase. It makes fronds some 6 feet in length. *Adiantum dolabriforme* is another fine plant. It is in the way of *A. lunulatum*, but it has the advantage of that plant in being evergreen. The soil for these should consist of peat, loam, leaf mould, and sand well mixed, and the baskets should be lined with *Sphagnum* before the soil is placed in them and be well drained.—W. H. GOWER.

KITCHEN GARDEN.

HOEING.

HOEING is one of the most important operations connected with the kitchen garden, or, in fact, any other part of the garden. If anyone doubts the efficacy of hoeing for the benefit of growing plants, whether weeds are present or not, let one portion be hoed and the other part left undone. It will be found that that portion of the crop which has been hoed will come to maturity at least a week earlier than the part not hoed. For the crop to derive benefit, mere surface-skimming is not sufficient, this doing little benefit other than the destruction of weeds. The Dutch hoe is a good implement in efficient hands, as a good workman will work it into the soil, and not, as is often seen, merely skim the surface and leave the under-soil a level and hard mass. For various crops the draw hoe is the best. In the market gardens around London any other than a draw hoe is seldom if ever used, and amongst the various small seedlings it is astonishing how quickly the workmen get through the work. The best of the market growers are fully alive to the beneficial influence of hoeing, as they well know the advantages of such work amongst their advancing crops. A week or even three days' advantage in getting their produce into the market compensates them for any expense they may incur in such work. The advantage of early hoeing is very marked amongst young seedlings just emerging from the ground for the destruction of weeds, as any neglect in the earlier stages will often cause serious trouble or extra labour later on with hand-weeding. The piece of ground which could be hoed over in two hours when taken in time will, when this is neglected, take probably three days to go over. During a wet period hoeing is certainly at a disadvantage, but if the first opportunity is taken, it is rarely that weeds become troublesome. Whenever a hot drying day occurs I invariably get together what men I can and have all ground hoed over, whether weeds are present or not. For the destruction of weeds the Dutch hoe is the best, and the surface should be well loosened and worked over, so that the roots of all weeds are exposed. A careless workman will only loosen the soil under the weeds, and this, instead of causing their destruction, only adds to their vitality. Very often



The Australian Bird's-nest Fern (*Asplenium Nidus australasicum*).

crown, leaving quite a hollow centre at their base, formed by the fronds of equal breadth throughout growing horizontally at first before taking up their upright course, thus leaving a large, open centre.

A. NIDUS AUSTRALASICUM.—This fine evergreen plant (here illustrated), a native of New South Wales, may possibly be only a variety of the preceding species, from which it differs greatly in its fronds being of larger dimensions and of an elliptic lanceolate shape, instead of being of a uniform breadth. Besides the above characters there is one point essentially distinct; the fronds, instead of growing horizontally at first, are produced all round the rhizome and take an upright direction at the first start, so as to leave the crown elevated and exposed, thus making the hollow centre more funnel-shaped. Both this plant and the above species are wonderfully well adapted for vases, for which they make splendid objects. Although requiring stove heat to grow and develop properly in during the best part of the year, *A. Nidus australasicum* will stand very well outdoors in the summer-time if not exposed to the full sun. Great care should be taken to keep away slugs and woodlice, which are exceedingly fond of the young fronds; the best way to prevent these pests getting

were also to be met with, and there is also the largest plant I have ever seen of *Dicksonia fibrosa*, called oftentimes *D. antarctica*. There are also some nice specimens of *Alsophila excelsa*, a species from Norfolk Island. I did not see in this very interesting collection of New Zealand Tree Ferns two or three species which would make it complete. These are *Cyathea Milnei*, somewhat similar to *C. medullaris*, but rather smaller and of weaker growth. *C. Cunninghami* is also another plant having much the appearance of *C. medullaris*, but much more slender; its stem is thinner and it is clothed for years with the bases of the old fronds. *Dicksonia lanata* is another pretty and distinct plant, seldom exceeding 6 feet in height of stem, which is usually stout, the fronds when fully developed oftentimes having a spread of 12 feet or 14 feet. The last one, *Alsophila Colensoi*, the only member of the genus in these islands, is said to occur frequently in several places. In the neighbourhood of Manchester Ferns still maintain their hold, and this fact will account for the existence of several nurseries entirely devoted to their culture. I am sorry to say that in many instances we have to go from the south to the north to find a species we require. This was not so some thirty years ago,

when a draw hoe is used for the destruction of weeds, a careless workman, instead of hoeing every portion regularly over, will draw one part over another and merely cover the weeds, which should be cut up with the soil. The weeds are hidden just for a short period, when they quickly appear again in great numbers, thus necessitating the work being gone over again. When using draw hoes the soil must be well stirred, and for small seedlings particular care be taken to use only narrow hoes. Except for hoeing amongst Potatoes or the Brassicas or for earthing up, large hoes should not be used, as, besides leaving a very irregular surface, too much soil follows the hoe. The best kind of large hoe is what is seen in the western counties, and used largely amongst agricultural crops. It is similar to a Dutch hoe, but fixed to a crane, or what is termed in some districts a swan-necked handle.

Not only for stimulating growth, hoeing is also of untold benefit for conserving moisture in the soil, and during a dry time hoeing for this reason is very beneficial, the crops often doing far better with this than when watering is performed. Water with us being very scarce, we resort to hoeing for conserving moisture about the roots with marked advantage to the crops during a dry time.

A. Y. A.

NOTES ON ASPARAGUS CULTURE.

FOR several years past I have taken every opportunity of asserting that it is a great mistake to mulch Asparagus in the autumn with animal manure, especially where the soil is of a clayey or retentive nature. In the first place, it is not such a great amount of manure that is needed for Asparagus, and the autumn is not the best time to apply what little is required. As a matter of fact, these heavy dressings do far more harm than good. Doubtless a certain amount of virtue is washed down into the soil, but this would do far more good if placed within reach of the roots at the commencement of or at any time during the growing season. Probably many mulch their beds under the impression the roots must be protected from severe frosts, but it is not frosts that kill Asparagus, but rather excessive moisture. Some of the roots almost on the surface were not in the least injured during the late severe winter, but had the beds being heavily mulched the chances are many of them would have been lost. In the course of my gardening career I have assisted to break up several large beds that had been completely ruined by a course of heavy manurial dressings in the autumn, followed by an application of salt in the spring, and of late years I have done all I could by example and precept to discourage this kind of treatment. Beds dressed with manure during the winter are liable to become very cold and saturated with moisture, and although this may not actually destroy the Asparagus, it certainly has both a weakening and retarding effect upon the crops. If the manure was left on the beds till dissolved, there would be more sense in applying it; but instead of this, it is frequently raked off in the spring and a dressing of salt at once applied, the latter causing the clay to run and otherwise acting injuriously. The beds being bared, a moderately severe frost destroys all the shoots on the move, and in all probability the late severe frosts have done more harm to the Asparagus beds than at first sight may appear. If, therefore, the beds received a spring surfacing of rich compost, with guano or some other special manure freely added, no risks would be run, while the advantages would be soon apparent. Beds so treated are the first to produce young shoots; the effects of spring frosts are slight, and injurious summer drought is to a certain extent prevented. It is not yet too late to surface over the beds with compost, or a mulching of short manure might be substituted. Showery weather in May and June is also a good time to apply surfacings of special mixtures of soluble manure, soot and lime lightly

stirred in doing good on heavy soils, salt being of the greatest service on light ground.

This is a somewhat late date to advise upon planting Asparagus, but I hold it to be the better plan to make good the blanks or even to form fresh beds now than to wait till next spring before doing so. It will now be seen where failures occur, and it is a simple matter to carefully lift a few roots from last year's or older seed-beds and to replant where required. In all probability plants with growths 3 feet long would scarcely feel the check, flagging seldom occurring, and I find that some of the Asparagus transplanted very late in last May are pushing up extra strong shoots this season. Moving the requisite number of plants now is better than leaving them where they are another season, and there will be no objectionable blanks in the permanent beds to lament this summer. In all cases strong young growths ought to be lightly supported by stakes, this being especially necessary on new plantations, and also where the plants are grown widely apart. It should be remembered that the growths made and preserved this season lay the foundation of the next crop, and the more strong shoots that can consistently be saved the better the prospect of the next season. Self-denial must be practised in the case of young, or comparatively young beds. Any planted twelve months ago ought not to be cut from, no matter how strongly they may now be growing, the aim being to strengthen rather than weaken the plants. They will well repay for this favour. Even those that have had two clear seasons' growth ought not to be cut from unless very vigorous, and in any case cutting should cease after the first week in June. It is scarcely possible to prevent Asparagus from seeding, but it pays well to set a boy picking off the berries directly they are large enough to handle, perfecting a crop of fruit having a most weakening effect upon the plants. Cutting away flowering growths is too drastic a remedy, this being very like stripping a tree of its leaves before buds have formed at their base.

I. M. H.

Tomatoes; in pots.—The root-run of plants growing in pots or boxes is very limited, and in these cases it is absolutely necessary to keep the plants well fed, failure will be the result. Liquid manure may be freely applied after the first fruits are set. In the case of plants growing in pots or boxes it is not advisable to fill up with soil to the usual level, as the roots taking quick possession of the whole bulk, there is not room for future top-dressings. An inch in depth of rich material is sufficient to apply at one time, and as the roots take possession this must be repeated until the whole space is filled up. The surface-dressing should consist of equal parts of loam and well pulverised horse manure, with the addition of some bone-meal. Where large fruits are required for exhibition, the blooms must be thinned out whilst in the bud state, the centre bloom, which is generally a monstrosity, being removed as well as the smaller buds. Where fruit is ripening care must be taken not to have an over-moist atmosphere, as this is liable to cause cracking of the fruits. The small white fly so destructive to Tomatoes is a terrible pest to some growers, and it is generally the worst to combat against when the plants are scattered about through the various fruit houses, as remedies are not so easily applied. If slight fumigations are applied occasionally and upon the first appearance of a fly, there is not the least difficulty in keeping the plants clean. Painting the pipes with liquid sulphur will also keep this pest in check and assist in preventing the spread of disease.—A.

Progress of Peas.—American Wonder transplanted from boxes to warm borders failed badly this spring, the long spell of winter weather quite taking all life out of the plants. The variety is constitutionally weak. Not so Chelsea Gem. This serviceable dwarf variety stood the trying weather remarkably well, and at the present time (May 22) there are on the plants plenty of pods 2 inches long. Neither these nor the flowers appear to be injured by the 8° of frost we had on the morning of May 19, and this is somewhat surprising, as there

was no protection afforded even in the form of stakes. Peas in the open are also growing well, and none of them appear to be much the worse for the frosts.—I. M.

SPINACH IN SPRING.

SPINACH has this season proved itself one of our most reliable and hardiest vegetables. I am at this date cutting abundance of Spinach from plants sown early in August, and these plants have yielded a constant supply since March—indeed since the last severe frost. Even with hard cutting there will be no break for some two or three weeks. A few rows sown a month later are now giving us grand leaves, and will furnish the supply till the spring-sown comes in. This last sowing is in perfect condition, not a plant injured by frost. Spinach suffers worst, I find, after severe weather when we get a lot of east winds, so that if possible the plants should get the earth drawn up close, and a little litter or Bracken will often save a crop of early Spinach. The plan of sowing a later lot in September is one not generally adopted, though strongly recommended by the writers of calendar notes in THE GARDEN. It is an excellent method, as if that sown at the end of July or early in August be injured this last sowing is safe, and will give a large return through May and early June when other vegetables, such as Kales and Sprouts, are running to seed. Some few weeks ago "W. I." in THE GARDEN observed that it would be interesting to know how this vegetable had stood the frost. Several correspondents gave satisfactory reports, and recommended the Improved Round Victoria. This with me is a long way before the prickly kinds both for summer and winter use. This variety is much like the Monstrous Viroflay, but I have not grown the latter in quantity, as the Victoria is good, and I feel sure in time will push the so-called winter varieties on one side. Another great advantage is that it does not run quickly to seed. In these pages some time ago I recommended this variety, but at that time we had not had such severe weather as we experienced last winter, and I am pleased to see this improved form stand the test well. The late sowing does not require so much room as the August sown and less thinning, as the growth is not strong during the winter months, and when new growth commences it is an easy matter to remove every other plant at the first cutting or to keep the new growth cut hard. Another advantage this late sowing gives is that ground can be utilised at that time that is occupied earlier with other crops if properly prepared by deep digging and cleaning, using plenty of soot and lime, and though ground that has been specially prepared and cropped very early in the season is undoubtedly best, a good breadth of late Spinach may be had for the May supply if sown early in September. On heavy, wet land I would not advise late sowing. When the ground has only been recently cleared I advise the use of gas-lime, by spreading it over the surface for a few days and digging it in well, adding soot when the ground is dry, and well raking or lightly forking it in before sowing the seeds. In dry seasons after sowing, it is necessary to give a good watering to get the seed to germinate quickly.

G. WYTHES.

Runner Beans.—In very many places precocious Runner Beans have paid the penalty of their earliness by being cut down by the very sharp frost on the morning of the 17th of May. I hear of one grower who had 20 acres up, and has lost the whole. It need hardly be said if such be true that it is a tremendous loss, though happily one which with good seed could be replaced, but at considerable additional expense and fully three weeks later. Runners have been long in coming up this season. Happily, generally it was so, for some were still in the ground when the frost came. It has long been obvious that just about the 20th of May is ever a doubtful or dangerous time for tender things. Not indeed until we have fairly reached the end of May does it seem safe to have tender plants like the Runner and Dwarf Beans, or Vegetable Marrows, or Tomatoes, exposed to the air unprotected at

night. Of course, it is possible to give Marrows and Tomatoes some protection, even on a large scale, but large breadths of Runner Beans must of necessity take their chance, and it is exceedingly unwise, as the recent frost has shown, to provoke Nature unduly early. Did growers sow in round clusters, it would not be difficult to cover these at night for some time with old bushel baskets, but even such a breadth must be limited. The exigencies of market gardening, however, hardly favour that method of cultivation. Training up to sticks is out of the question, whilst the almost inevitable second or winter crop would be interfered with. To sow at about $4\frac{1}{2}$ feet apart, filling up between the lines with one line of Brussels Sprouts, is the almost invariable practice, and it is found a very profitable one. It is reported of an old keen-witted grower that some years ago, when one of these May frosts played havoc with the Runner breadths, that, finding early in the morning what had happened, he ran up to London, gave an order for so many bushels of seed as he needed to replace his destroyed stocks, and then told the seedsman, who was his relative, to put up the price of seed, as the Runner Beans were all destroyed. It is to be hoped that in the present instance no seedsman took undue advantage of his customers' misfortune to burden them with additional cost for fresh seed.—A. D.

TOMATOES.

AMATEURS who have no heat and can raise Tomato plants only in a cool greenhouse or in a frame or window, perhaps, have found the present season so little encouraging that growth has been unusually slow, and the prospect of getting fairly strong plants to put out against south walls or fences early in June very remote. The date named is quite early enough for the exposure of Tomato plants to the tender mercies of our untoward climate, but the plants at least should be then some 10 inches to 12 inches high, well rooted in 5-inch pots, and even showing the earliest bloom. It would seem, so slow has growth been in any unheated place, that the beginning of July would arrive before such conditions can be accomplished. It is very doubtful whether the small cultivator would not act more wisely in purchasing a few strong plants from the market grower, and thus strive to give himself a chance by putting out well established plants early. So short are our summers, especially for plants which, like Tomatoes, are absolutely dependent upon solar heat to perfect the crop, that only by starting well and early is there the least chance of getting a crop outdoors. Too often the amateur makes the mistake of giving his plants too much manure, and then wonders why they make such astounding growth. If in making some goodly holes beneath his south wall or fence for the plants, instead of adding manure he would bring a barrow-load of soil from some vacant spot in the vegetable garden, filling the holes with it, and putting his Tomato plants into that, he would do more wisely. The soil thrown out of the holes could be carted back to take the place of the fresh soil. It is always better to have Tomato plants in the open ground in moderately poor soil rather in highly-manured ground, because whilst the great grossness incidental to the latter growth cannot be avoided, and only checked, if at all, by excessive pinchings, in the other case occasional applications of liquid manure will with mulchings give the plants all needful assistance just when the fruits are swelling. The cultivation of Tomatoes in the open ground has for several years, owing to cold summers and the prevalence of the Tomato fungus, become far too uncertain and dubious to be largely adopted. We may yet have a series of summers which will render such form of cultivation profitable, but so far the method has proved to be exceedingly hazardous. Even the culture of plants against south walls and fences, almost the only course open to the amateur, is attended with many difficulties, because even in such positions fungus is apt to run riot. Without doubt the best way to minimise this evil is to grow the Tomatoes in blocks on the walls fairly close together, and have some light movable

glass screens to stand in front of the plants. These might be some 6 feet long, 4 feet wide and have a couple of movable sloping ends of thin wood, so that when stood at the base of the wall some 15 inches from it the top part of the screen should come close to the wall, the boarded ends closing up and preventing draught. With ends that could easily be removed, several of these glass screen fronts could be stored away in small space when not required. Still, if properly made there is no reason why they may not be utilised as frame lights for the winter. Where an amateur or cottager has capacity and could make these screens himself the cost would be trifling, whilst he would be in regard to Tomato production in practically as good a position as the one who has a greenhouse in which to grow his plants. Amateurs too seldom fail to pinch or prune hard their Tomato plants. It is very difficult for them to understand that bloom and fruit come as freely from main stems as from side shoots or branches. Once they get to know so much, then the difficulty is lessened. They should fully understand that hard pruning is indispensable to good Tomato production. A. D.

Tomato The Conference.—I agree with all "M. H." (p. 447) says about this Tomato. It is a good grower, first-rate setter, very free bearer, and has vigour enough to offer a stout resistance to disease, and I am surprised that so little has been heard about it; but I think it is destined to become a favourite with growers generally. The market growers still cling to the wrinkled varieties, as exemplified in selections from the old red, and I confess, though it is coarse and does not weigh up well, that I hesitate about discarding it, on the principle, I suppose, of not liking to turn out an old friend, but the old red is, I have no doubt, destined to go at no distant date.—E. H.

FLOWER GARDEN.

NOTES FROM ROSS.

MR. SOUTHALL's very charming garden at The Graig, Ashfield, Ross, is at the present time looking extremely well. Overflowing as it is with beautiful things, this interesting garden at all times contains something good, but at this period it is more than usually interesting. The large masses of Aubrietia, Gentian, Saxifrage, Alyssum, and shrubby Candytuft, with the tender greenery breaking, in many a varying shade from well-placed tree and bush, form a setting both natural and bright to this home of beautiful hardy subjects, where Indian Primroses, high alpine and Canadian bog plants seem equally happy with the Cone-flowers of California and Mexico, Paeonies from China, Siberia and Japan, Torch Lilies from the Cape, the stately Royal Fern, with many another of our own beautiful native plants too seldom seen.

The Narcissi were nearly over; the bright warm sun, which came like a bit of real summer, at the time of my visit (only to be succeeded by an arctic spell of snow, wind, hail and frost) had almost brought their blooming to a close. The Ajax Johnstoni variety Mrs. George Cammell was, however, in fine form; the Pheasant's-eye with a few of the more uncommon late-flowering hybrids were still in great perfection; while the broad foliage and large, stout stems of other kinds bore witness of the feast that might have been seen in the earlier days of spring.

On the rockwork the vernal Gentian had established itself and formed a dainty patch of blue, while near at hand its twin brother, Gentiana pyrenaica, gave an idea of what it might be like in its native mountains. Dianthus alpinus, D. glacialis, Saxifraga Burseriana major, sancta, Rudolphiana and longifolia were doing well, and close to these was a plant of Shortia galacifolia that had evidently mastered the situation and made up its mind to remain. On a warm, dry and sheltered ledge, Atragene alpina, with

its blue Clematis-like flowers, made a pretty contrast with a fine clump of the major form of Primula rosea growing in the bog below. Theropsis fabacea, with flowers like a large golden yellow Vetch, Uvularia grandiflora pallida, Corydalis nobilis, Anemone sulphurea, Orobis vernus, Rhododendron Chamæcistus, Trillium grandiflorum, Tiarella cordifolia were all in sturdy growth and luxuriant blossom, each plant giving ample evidence of the taste with which its site was chosen and the kindly care bestowed on the requirements of each. Androsace, alpine Phlox, the wiry, but graceful Epimedium, Polygala, Ramondia, Majorca Sandwort, and delicate Iberis jucunda were quite at home on the larger rockwork, contrasting delightfully with the spring dressing of Cotoneaster congesta and the bronze clinging foliage of that most beautiful of hardy climbers, the small Virginian Creeper (Ampelopsis Veitchi). The subjects named from memory are but a few of those actually seen in flower. Scores of more homely, but none the less beautiful, plants had found a place, and gave added charms to the garden, while the robust young growths of such things as Gentiana lutea, Eryngiums, Echinops and Liliums, the best of the Michaelmas Daisies, Sunflowers, Cape Hyacinths, and Torch Lilies (Kniphofia) gave promise of a liberal response to the care bestowed upon them.

In a warm sheltered corner near the fernery two of the scarcer but very beautiful single Paeonies, Wittmanniana and albiflora, the former a very fine clump, were showing for flower, and would with genial weather soon unfold their lovely yellow and white blossoms. The Californian Poppywort (Romneya Coulteri) had apparently passed unharmed through the late severe winter, and the big plant under a sheltering wall was throwing up numerous vigorous breaks from the crown. This plant reminded me of the grand specimen at Glasnevin, where Mr. Moore was one of the first to meet with success in bringing out the charms of this fair American flower. Cypripedium spectabile treated as a sub-aquatic was thriving in company with another species (C. Calceolus, I think) at the foot of rockwork where the roots of each would find their way down to the moisture of a small pool below. A large number of ancient Cyclamens, representatives and descendants of the famous Painswick collection, clothed the earth here and there with dense and healthy foliage—some under deciduous flowering shrubs, others enjoying the shade afforded by a huge plant of the giant Knotweed, which, although entirely unrestricted, appeared to keep within its own allotted space, for once in a way forgetting to assert its usual aggressive character of outgrowing and crowding out every other plant within its reach. Amongst flowering shrubs, one of the deciduous Magnolias, purpurea var. Lenne, was particularly striking with its large highly-coloured flowers. Malus floribunda was also an extremely pretty plant, one mass of buds and blossom.

This garden seems to have come through the winter with comparatively few losses—New Zealand and Cape plants, especially the latter, as might be expected, having suffered the most. The situation being at a good elevation, the soil a rich sandy loam resting on the old red sandstone formation, naturally warm and dry, combined with shelter acquired in a manner at once both effective and picturesque, provides a home containing most of the elements essential for the cultivation of plants from a wide geographical area, especially so when the science of the botanist, with the experience gained by the observation of the collector who has had the advantage of having seen many of his plants

growing in their native haunts, is bestowed upon their separate and diverse wants.

Placed as this garden is on the outskirts of the quaint and delightfully situated old town of Ross, famous for its fine old market house, the church, in which till quite recently an Elm tree lived and grew in the odour of sanctity, and where the house and garden of John Kyrle, the Man of Ross, are still shown to the tourist with much native pride, standing on the river Wye, celebrated for its beauty and its sport, and amidst some of the most beautiful pastoral scenery in the west, one felt reluctant to leave a spot so full of interest and beauty, where the lover of country life and things, be they plants or trees, animals, birds, fish, or rocks, will find on each recurring day some fresh charm to admire or new lesson to learn from the open book of Nature.

A journey to the Saxon city through the evening sunshine, past rich pastures and blossoming orchards, with many a peep at the silvery Wye and the finely wooded hills beyond, brings a gardener's half-holiday to a pleasant close.

W. J. G.

ROCKERIES AND ROOTERIES.

A WELL-CONSTRUCTED rock garden is a fine feature, and if suitably planted it is interesting throughout the year. There are, however, many rock gardens on large and small scales that are little better than failures, through bad construction and a lack of knowledge of the wants of alpine plants generally. Many alpine plants would flourish better upon the level ground than upon some of the so-called rockeries. Others love elevation and the friendly shelter of some huge stone to assist them through our winters whose moisture and mildness start them into untimely growth. If the rockery is to be constructed for the growth of plants, the needs of the plants must have the first consideration. In their mountain homes the diminutive plants which appear in the chinks of vertical faces of rock have roots many feet long, running down or back into perpetual moisture, whilst they find abundant food in the crumbling rock. And so in every position wherever they grow in their native homes these mountain plants have a good medium wherein to root, and the stone assists in checking evaporation, so that they are not scorched up by summer suns, and yet they have no shade nor need it. It is these natural conditions that we want to bear in mind, and imitate them as best we can, although upon a much smaller scale. If we heap up stones to attain the desired elevation and pay no regard to whether there is soil among them or not, no alpine plants will thrive; or if rockery building takes the form of weak imitations of cliffs and overhanging ledges, plants will not thrive in the interstices of the stones where there is no natural moisture and none can reach them.

It is easier to point out the defects of improperly constructed rockeries than to enter fully into their formation, as surrounding conditions and circumstances have to be taken into consideration. Important facts, however, must still be borne in mind, whatever the surrounding and wherever the formation of a rock garden is going on. Elevation must be secured by the aid of soil, whether banks or mounds, and the rocks being partly embedded may be made to appear as if cropping out of the soil. If a commencement is made in this way at the base of a mound or bank, and the larger stones are used and well embedded, they form, as it were, a good foundation. The stones should not be built up so as to overlap one another, nor so as to form a stony slope, upon which the water falls and drains from rock to rock without the plants being moistened. The plants will not thrive in the dusty pockets that such a rock formation affords. When the desire is to cultivate plants, we ought to see more vegetation than rocks. We can do nothing to imitate those arid, towering, imposing masses of rock with which these mountain plants are as-

sociated in their native homes that will be worth looking at, so if we confine the stones to the useful part that they may play as aids to cultivation, we shall not err in an excess of them, but beautiful plants and flowers will at all times predominate. A true idea of what the garden rockery ought to be is to be obtained by seeing good examples, such as the one in the Broxbourne Nursery of Mr. George Paul, or that at Kew, which is one of the most interesting features of the gardens. When the Kew rockery was made, however, the authorities erred, it may have been from economic considerations, in the use of a lot of tree stumps, &c. These at best last only a few years. They ought never to be found in a rockery, for as fungi-generating masses they are most injurious. And so it is with what are called rooteries in many gardens. These motley collections of old tree roots and stumps, such as are to be found in many places, if not a positive eyesore, are not the harmless things that those who tolerate them believe them to be. Almost from the day that life ceases decay commences; they soon grow mossy, mouldy, and then fungi appear. Old tree roots have sometimes been found useful in forming banks and screens, but that is when trailing and climbing shrubs have been planted and have covered them before they became objectionally decayed. Gathering together roots and stumps and arranging them some upon their sides, some upside down, or as they would not be if they had fallen there, are unnatural and grotesque apart from any attendant evils. If trees fall and it is inconvenient to remove their huge roots, they may be suffered to remain, as it is easy to clothe them in a pretty way with some suitable trailing shrub or hardy plant, but beyond this they have no use or value in the garden and should not be brought there, as even the plants that can be grown with them grow equally as well, and some perhaps better, away from them. The stones of the rockery are permanent, and the thing if well done becomes a great feature.

A. H.

Myosotis dissitiflora.—There are few spring flowers more valued than the Forget-me-not, and a severe winter that cuts off the plants causes a blank in the flower garden which cannot be well filled up at this early season of the year. It is well to put some portion of the stock in positions where there is a reasonable chance of their coming through a period of hard weather unharmed. Not only is this the case, but the blooming season is thereby hastened. A year or two ago some old plants happened to be cast among old Currant bushes. Young plants that came up were allowed to remain, and it was very noticeable how green and healthy they looked when the cold east winds were exercising their usual effect on things generally. They came, too, into bloom quite a fortnight before those in the open border, being very welcome for cutting when outdoor flowers were so backward. One of the best ways of treating this Forget-me-not is to devote a sheltered corner to it, and just when the plants begin to grow to freely top-dress the ground among them with an inch of leaf mould or thoroughly rotten manure. A stock of plants for the following season is then provided for without the trouble of sowing, as the seeds that drop will be sure to germinate in the course of the summer. When these come up, and they will germinate much more readily by being screened from sun and air by the old plants, the latter can be pulled up and the young ones given room to develop. Although old plants will generally bloom very well, young ones are earlier, and the flowers they produce are much finer, both as regards colour and size. Treated as above, one may be sure of having enough of this charming and indispensable flower when the blooming time comes round.—J. C. B.

Alpine Auriculas.—A batch of seedlings raised three years ago has developed into grand tufts, each now bearing many trusses of flowers of very varied and almost indescribable colours. Such hardy and easily grown plants as these should find a nook in every garden, however small. Though they are of no use for brilliant effects in masses, they may well be grown in shady places where few

other flowering plants will succeed, and to my mind nowhere do they look better than at the foot of a low north wall with a walk close by. Such walls are usually covered with Currants, Gooseberries, &c., which look fresh and bright just now, and the Auriculas look charming nestling under the foliage of these. The full beauty of the flowers cannot be seen by a mere passing glance; they are things to dwell over and to return to again and again, for the colours are ever changing, some for better, some for worse, so that the mediocre of to-day is the beauty of to-morrow, and yesterday's exquisite flower may to-day have become a very common looking individual indeed.—J. C. TALLACK.

BIENNIALS.

AFTER such wholesale slaughter amongst all sorts of the tenderer biennials there seemed to be no course open but to sow seed as early as possible under glass and try and supply the deficiencies. Such assuredly hardy things as Foxgloves and Canterbury Bells are not a whit the worse for the winter. These will endure any severity other than excessive rainfalls. Pentstemons, Snapdragons, Wallflowers, Sweet Williams, Brompton and Queen Stocks, and similar really but half hardy things were so destroyed, that hardly a vestige of hundreds but some dead stems remain. It took several weeks even after the hard weather had gone to enable us to see what mischief really had been accomplished, and when the full tale was told the general verdict was, all dead. But already there are myriads of young plants at hand to take the places so far as possible of the defunct. It is very difficult, except through the aid of well-rooted cuttings, to replace old Pentstemons early, but the seedling plants will give a grand show of bloom in the autumn, and it will be indeed unusual for these yearling plants to be destroyed in that way two winters in succession. What glorious spikes of flowers seedling plants of an early spring sowing give in the autumn. It does seem as if because the weather was cooler and the soil perhaps moister that the spikes were more prolonged and the colours richer. Certainly a big breadth of seedling Pentstemons of a fine modern strain is one of the most beautiful features an autumn garden can show. The Snapdragons so often deceive us in the winter, that their recent wholesale destruction is no great novelty. There are hundreds of strong young plants already to go out to make up for the winter's defects, but some rain is much needed to pulverise and soften the soil. Usually the Snapdragon is more precocious to bloom than is the Pentstemon, so that we get from it an earlier, if not a more prolonged season. I rather prefer to have Snapdragons bloom in the cool autumn, the flowers hang so long and seem so to revel in the cooler temperature. I have found it a very good plan to make a sowing of Snapdragon seed in July outdoors, top the plants early in September, and plant them out where required to bloom. These generally withstand the winter better than will old plants, and, of course, will flower early. For the production of fine spikes of bloom, however, none will compare with old stools, which, having stood the winter, will in strong soil send up strong shoots that will carry grand spikes of bloom. We cannot do anything to make good the comparative deficiency of Wallflowers this year. The dwarf true Belvoir Yellow has stood wonderfully well, and is now blooming profusely; but all plants which stood above the snow line were so much injured, that even those which bloomed did so very indifferently. Our fine dark red Wallflowers, where left alive, have this spring been altogether wanting in colour and in perfume. However, plenty of seed has been sown, and myriads of plants will be got out presently to make up the needful demand of next season. Sweet Williams seem to have suffered most generally from fungus. What are alive have a thin attenuated look, as they have lost so much leafage; still, that may be but a tentative trouble, and sowings for next year's crops have already been made. Brompton and Queen Stocks we can so far replace, as early sowings under glass have furnished plenty of plants

of intermediate and summer-blooming Stocks, the Giant Ten-week and beautiful pyramidal varieties well replacing what has been so ruthlessly destroyed. It is well always to be prepared for these eventualities, and, with seeds at hand, do the best possible to fill up gaps which the winter created in the garden.

A. D.

THE LARGE WHITE BINDWEED.

THE accompanying illustration conveys a more truthful idea of the beauty of the large white *Convolvulus grandiflorus* than any description. The common Bearbind, that rambles over hedges and proves a nuisance in more ways than one, is in itself a lovely flower, but it cannot be admitted into a garden. *C. grandiflorus*, however, may have a place, and gives little trouble except from its excessive vigour. Its growth is very rapid, the flowers larger, of greater substance, and quite as pure as those of the wilding. *C. pubescens* fl.-pl. is also valuable for covering stumps, rustic arbours, and trellises. It is of free growth, and bears from June onwards double rose-coloured flowers. It must have a light soil and a warm position. It is astonishing what little use is made of climbers in gardens. The reason is not because of their scarcity, but because they are unknown.

NOTES FROM STRAFFAN, CO. KILDARE.

ONE of the very best of all the country house gardens I know in Ireland is that at Straffan, and I, having been privileged to visit it at all times and seasons during the past twelve years, may be supposed to know it and its contents pretty well. It is a garden peculiarly rich in vegetation of all kinds. It is not remarkable for any one or two special products, but may be regarded as a very broad and happy union of the useful and the beautiful. It has ever seemed to me to be an ideal garden, for the simple reason that no one department is allowed to usurp the care and keeping due to others. Everything for use or for beauty is kept and cherished in its due sequence—the fruit trees on the walls or garden quarters, as well as the Grapes and Peaches indoors, vegetables of all the best kinds, bush fruits, Orchids, Ferns (hardy and tropical), greenhouse and hot-house plants generally, bulbs, hardy herbaceous and alpine plants, as well as the more rare and beautiful of our native vegetation here all find a home beside the banks of the silvery Liffey as it flows through the woods and pastures of one of the richest and best cultivated counties of Ireland. Although I speak of the garden at Straffan, I should like to say that it is only a most interesting portion—the home portion, so to speak, of a well-kept estate, the farm being in its own way very remarkable with its herd of shorthorns of European and American renown. Under the Lime trees on the lawn here are Snowdrops by the thousand, bygone now, of course, but in bloom now amongst their tufts of soft glaucous leaves are clumps of the blue Apennine Anemone, or the double white stars of *A. nemorosa* fl.-pl.

Of the special features of Straffan are the great beds of purple-leaved French Pæonies, and one bed in particular has been very remarkable, all the intervening space between the Pæonies being filled in by groups of *Narcissus princeps*, a variety abundantly naturalised near the site of an older mansion in the park, but long since razed to the ground.

Just now the spring bedding is lovely. Hyacinths, Tulips, Wallflowers, tufted and other Pansies, Daisies from snow white to dark blood crimson, and Forget-me-nots of heaven's own blue make a very paradise on earth, and one

which many pilgrims are invited to see. The other day the horticultural class of the Alexandra College were invited there, and their visit happened to take place on one of the finest of May days, when the young Larch shook out its tender leafage like tassels of emeralds in the sun, and the silver-barked Birch glistened in the woods of more sombre-tinted trees. After seeing the spring flower gardens, the rockery plants, including many rare British species collected in Ireland, Scotland, France, and else-

cluding a noble plant of *Drynaria* (*Polypodium*) *diversifolia*, a by no means common species. Orchids were represented by *Cattleyas*, *Odonoglossums*, *Vandas*, *Oncids*, *Disas*, *Masdevallias*, and *Cypripedes* in the best of health and vigour. *Cypripedium caudatum* was just unloosing its shoe-lace-like petals; *C. bellatulum* bore many of its large and massive heavily blotched flowers; *Odontoglossum Alexandræ*, *O. nebulosum*, *O. cirrhosum*, and *O. Pescatorei* were all bearing their spikes and panicles of flowers, and one

plant of *Vanda teres* carried seven or eight spikes of buds, promising a good display of its rosy flowers. Gardenias and Roses were in profusion, these being very favourite flowers, grown to succeed the immense crops of Violets and Mignonette, Cyclamen, &c., of winter and early spring. In other glasshouses were *Phalenopsis amabilis*, with a wreath of its great white moth-like flowers, backed with velvety *Anthurium* leafage, and a plant of *Cattleya Trianae* with three or four spikes was much admired. Its sepals and petals were broad and shapely, and were brilliantly contrasted with a deep crimson-blotched lip.

But Straffan is by no means merely a garden of beautiful flowers; the best of vegetables, herbs, and fruits are also grown here, and the wall fruits, as well as the Vines and the Peach trees under glass, are all well cared for and fertile. Bush fruits and Strawberries are vigorous and promise enormous crops, as also do the bush and standard Apple, Pear, and Plum trees.

There is here a very fine and healthy lot of the Cape *Disa grandiflora*. The hardy *Cypripediums* of North America (*C. spectabile*) and the Wood



The large white Bindweed (*Calystegia* (*Convolvulus*) *grandiflora*).

where by the Hon. Mrs. Barton's own hands, the party were led off to the woods by the gardener-in-chief, Mr. F. Bedford, who has watched faithfully over the garden fortunes of Straffan for many years. Here, in an open wood near the home farmstead, the vernal Primrose is quite at home by the million. I had seen Primroses in Yorkshire dales and glens and in the woods of Leicestershire, Kent, and in Sussex, but never saw them finer or more free-flowering than here, as seen fresh and fair in all their luxuriant beauty. In the glasshouses many treasures were on view. *Anthurium Veitchii*, with its crumpled dark green leaves, 5 feet or 6 feet long; Ferns of many kinds, in-

Lily, or *Trillium grandiflorum*, also grow luxuriantly here in peat beds in the open air. Amongst the rare natives here grown we may mention the plant dedicated to Linnaeus (*Linnaea borealis*), Pipe-wort (*Eriocaulon septangulare*), and *Adoxa moschatellina*, a lowly Honeysuckle scented like Musk. Then here on the rockery are the Crowberry, Bearberry, Cowberry, great clumps of the German Ostrich Fern (*Struthiopteris*), of the *Osmunda*, Sensitive *Onoclea*, Canadian Maiden-hair, and others not less worthy of mention. The Kilmarnock Orchis is here also, and so is *Narcissus Bernardi*, both originally found and introduced by the Hon. Mrs. Barton years ago.

Nothing native or foreign is here out of place; there is a nook for everything rare or beautiful as well as for homely and useful things. One of the strong points of Straffan, however, is its wealth of sweet-scented things, leafage as well as of flowers. Of the old scented *Pelargonias*, about thirty kinds are here grown, and there are Sweet Verbena, Lemon Grass, Musk shrub, and *Diosma*, Orange and Lemon leafage, and indeed a hundred and one plants here prized highly, not so much for their flowers as for their fragrant leafage, and from Straffan many bunches of sweet leaves and blossoms find their way to the sick bed and the hospital wards of the town.

In garden and park alike there are fine trees, Limes with coppery buds and pale shimmering green leaves, fine Beeches with trunks smooth and elegantly modelled, like statues in marble, silvery Birches and pendulous Larches, fine red-boled Scotch Firs with tall Spruces, Oaks, Ashes, and Chestnuts on all sides. The river Liffey is here really silvery, and is rich in trout and salmon, besides otherwise lending its charms to the lawn and its shady trees. Here close by the water's edge the herons have their nests in the tall Pine and Spruce trees, and their young are fed morning and evening with fish from the river below. One may say a good deal about gardens as rich, as broad, and as varied in their produce as is Straffan, and yet leave much unsaid. This much is especially true of this paper, in which only a few of the plants which adorn this garden are noted. F. W. B.

HARDINESS OF THE SPOTTED MIMULUS.

I WAS much surprised to find recently when I came to clear the ground (on east border) occupied by a large batch of seedling spotted *Mimulus* last year, that apparently every plant alive in the autumn was alive still, having survived the exceedingly severe winter. But for having a large batch of stout seedlings at disposal, I should have rejoiced to have found these live stools, as each one would have made many new plants had they been divided and replanted for the purpose. Only the snow stood between these *Mimulus* and the intense frost, so that we may well believe there is no natural plant protector so thoroughly effective as is a layer of snow. But *Mimulus* seed so freely, and there always seem to be in a batch of plants some new colours or markings which it is desirable to secure even more largely into a strain, that the temptation to save a few pods of seed from these or others of the most beautiful forms and raise a new batch of plants every year is irresistible. Granted if some specially early and strong-blooming plants for pots are desired, it is well to lift some of the best (if they have been duly marked) in the autumn, and dibble up some of the best shoots into shallow boxes or pans, and stand them in a cool frame for the winter. Damp may kill, but frost will not. The plants push out roots and side shoots, and soon make fine clumps to fill 8-inch pots. It is hardly worth while having *Mimulus* in small pots with but one flowering-stem to each. The result is poor, and not creditable to the plant. If clumps having several shoots to each be potted up as advised in April, they will carry a very fine head of bloom for some time. The common fault in the culture of *Mimulus* is giving them warmth. Probably there are no similar plants which dislike heat so much; even seed needs no warmth to germinate it. The present batch of strong plants put out on an east border the first week in May were from a sowing of seed made last December in a cool house. The seed germinated thickly, almost too much so; hence the necessity of having the seedling plants thinned by lifting and dibbling out into a bed, or into shallow pans or boxes as many of the strongest as may be required. For massing, these *Mimulus* are exceptionally beautiful. They like a sunny place if the soil be moist and fairly good. I prefer an east border

because of the shelter from cold easterly winds the back wall affords. In some places where the soil naturally dries quickly it is best to plant on a north border. I put out the plants in rows about a foot apart, as it is needful for seed sowing to have free access to them, but in a bed planted expressly for effect I should put them somewhat closer; then they would spread and all run into a mass. To perpetuate bloom it is well after the first stems have performed their part to cut them clean away, clean and lightly top-dress the plants, and give a good soaking of water; that will conduce to a luxuriant autumn blooming. One reason why we should encourage spotted *Mimulus* of a really beautiful strain is, that of hardy plants or of plants so relatively hardy we have none others which give to us such glorious and gorgeous colours. What the herbaceous *Calceolaria* is to greenhouse plants the spotted *Mimulus* is to hardier plants. The varied spottings and markings are very quaint as well as very beautiful. The grounds are white, cream, yellow, and orange; the markings bronze, red, crimson, maroon, &c., the variety being illimitable. For window boxes these spotted *Mimulus* will be found invaluable. A. D.

AQUILEGIA GLANDULOSA.

THIS beautiful species is now flowering in the open border in my garden. It is so charming, and the combination of blue and pure white so pleasing, that I cannot but regret it is so shy of bloom. Out of six plants not one bloomed last year, and only one this year. I thought that perhaps the dry character of my garden in summer might affect the flowering of the plants; but when I was visiting Mr. Samuel Barlow, at Stakehill, Manchester, a year ago, I found a number of plants in his garden and only a very few were blooming, though at Stakehill the plant appeared to be cultivated in a manner eminently favourable to its well-being. But the habit of blooming sparingly appears to have been characteristic of the species since its first introduction to this country. *A. glandulosa* is generally regarded as a native of Siberia, and is said to have been introduced to this country about 1822. But we are credibly informed that about the beginning of the present century the plant was known in the north of Scotland, and first in a collection of plants grown by a Mr. Brodie, of Brodie, near Forres, N.B., and it is believed this gentleman obtained it of his friend Mr. Milne, a celebrated botanist, and a partner in the then well-known firm of Whitley, Brame, and Milne, of the Fulham Nurseries. The plant was understood to be a native of some of the mountains of Chinese Tartary, seldom exceeding a foot in height and blooming very sparingly. I have a very reliable catalogue of hardy herbaceous plants published in 1817, but *A. glandulosa* does not find a place among them.

About forty years ago, Messrs. Grigor and Co., nurserymen, Forres, made a reputation as cultivators of this plant, and obtained a strain of it, which is said to be a considerable improvement upon the old form of the species. The plant in my possession which is flowering came from the Messrs. Grigor, and they sent it to me as representing their improved form. They made experiments by crossing *A. glandulosa* with others, but it would appear they failed to secure anything with colours superior to those of the normal plants, and so they devoted themselves to increasing the vigour of the type by raising seedlings from it, and it is found to come true from seed, the improved properties continuing through repeated crops of seedling plants, and they say of it that "in ordinary favourable seasons plants from three to seven years old generally rise from 1½ feet to 2 feet high, and produce from forty to a hundred blossoms each, many of the blooms being upwards of 4 inches in diameter, and of a form and substance far superior to those of the original plant. The improved form is not apt to spoil or change its colour, and seldom runs in any direction, except to a degenerate or diminutive size."

It is a plant requiring good cultivation. To starve it is ruinous to its beauty. I am afraid that

the reason of its being so little known in the south is because it is planted in the border, and little notice taken of it. The soil becomes impoverished or unsuitable, and it deteriorates. Probably it is better suited to the cool, moist district of Scotland, where it grows so well, rather than to the hotter and drier south. But that it is a plant well worthy of high cultivation is shown by Messrs. Grigor and Co., who state that during the months of May and June when well grown it is by far the gayest and most attractive flower of the season, and they recommend its employment in flower-beds in the open ground, where it requires no protection during winter.

As its seeds, seedlings can be obtained, and they sometimes flower during the second, but more commonly the third summer of their growth. On first flowering, the plants generally yield from six to ten blooms, but for several years after the number increases greatly, and when favourably treated some plants have been known to yield in summer eighty blossoms. In the course of eight years the plants get exhausted, when the flowering becomes very uncertain; the ground should, therefore, be cleared of such and filled up with healthy young plants.

The seeds of *A. glandulosa* are slower to germinate than those of any other species, and some will not vegetate for many months even when placed in heat. R. D.

A note from Wales.—In this remarkable season (snow lying this morning, May 18, at as low an elevation as 200 feet above sea level, the higher hills being perpetually snow-capped, and a frost to-day of sufficient severity to blacken Potatoes, &c.) it is not to be wondered that we have not as yet much brightness in the flower borders. The two showiest plants at present are *Doronicum plantaginifolium* excelsum and *Dielytra spectabilis*, bold clumps of which are very attractive. With the exception of these, had it not been for the earlier spring flowers that linger with us—Wall-flowers, Forget-me-nots, a few Narcissi, Anemones, Pansies, &c.—we should have quite a dreary May. Shrubs are also very late in blooming; hardly a Hawthorn yet open; *Rhododendrons*, excepting the earliest kinds, quite dormant; an odd *Azalea* here and there showing colour being about all there is to cheer one up. Cherries, double and single, common Laurels, *Berberis*, &c., were no sooner in bloom than they were burnt up and withered by the harsh east winds combined with the drought and bright sunshine, their great beauty having been far more fleeting than usual, depriving us far too quickly of magnificent objects and pleasing colours in the landscape. In shady woods we have still the *Primroses* and *Anemones* in full bloom and beauty, but the wild *Hyacinths* are as yet mostly in an unexpanded stage, all tending to show the extreme lateness of the season. A singular reminder of the past winter, and indeed the previous sunless summer, remains with us in the shape of the Holly trees laden with their berries, glistening in the May sunshine, but I suppose being unseasonable, and recalling perhaps unpleasant recollections of adverse seasons, &c., their beauty is not appreciated to the same extent as in the proper season. Warm rain and southerly breezes are much wanted in this part of the country.—J. R., *Tan-y-bwch*.

Blue Primroses.—After reading "A. D.'s" note on blue *Primroses* (p. 457), I looked in my book of extracts from gardening papers, and find there that my first blue *Primrose*, Scott Wilson, was exhibited at the floral committee on February 19, 1878, and again more fully in bloom on March 5, 1878, when it received a first-class certificate, with a note in THE GARDEN of March 9, 1878: "Primrose Scott Wilson, a new and distinct kind, bearing bluish-purple flowers, and one likely as regards colour to be the forerunner of an entirely new race of *Primroses*." The numerous descendants of Scott Wilson, many of which have been exhibited with different shades from pale to very dark blue, fully justify this prophecy. My book says that Mr. R. Dean exhibited *Primrose True Blue* on February 16, 1889, that the name was changed to *Blue Gem*, and that it was again exhibited on March 12,

1889, when it received a first-class certificate, twelve voting for it and eleven against.—GEORGE F. WILSON.

THE SAXIFRAGES.

(Continued from p. 480.)

SECTION ISOMERIA (Torrey and Grey).

This section comprises five N. American species, which are rather interesting and of which the foliage is the most ornamental part, although some of them have also very pretty flowers.

S. JAMESIANA (Torrey).—A native of the Rocky Mountains and Hudson's Bay Territory. It forms a handsome tuft of deep green, glistening foliage, the leaves of which are thick, reniform, and crenulated at the margin. The flowers are white with bright rose-coloured stems, and are disposed in a graceful panicle which droops at one side. This very handsome species is not yet in cultivation.

S. RICHARDSONI (Hook.).—A native of the arctic regions of N. America. A magnificent species with ornamental foliage and pretty, slender, bright rose-coloured flower-stems. The flowers are white and very abundant, forming a superb, erect, slightly arched panicle. Leaves round, crenulated at the margin, and of a lively glistening green colour. Not in cultivation.

S. RANUNCULIFOLIA (Hook.).—A Rocky Mountain species with very handsome foliage, the leaves being deeply incised, reniform-tripartite, and of a lively green colour. Flowers white, disposed in a terminal umbel like those of *S. peltata*. The plant requires a well-drained, porous, and very friable soil and a half-sunny position. It is multiplied by sowing the seed and dividing the tufts.

S. ACONITIFOLIA, Field and Gard. (syn., *Boykinia aconitifolia*, Nutt.).—A native of the mountains of N. Carolina. A species with ornamental foliage. Leaves hairy and brown on the under side. Flowers white, small, in long panicles. We grow it without any difficulty in our alpine garden, treating in the same way as the preceding species.

S. ELATA (Nutt.).—A species from the mouths of the Oregon River. Leaves round, long-stalked. Flowers white, disposed in long, erect, simple clusters, forming a handsome panicle. Not in cultivation.

SECTION MISCOPETALUM (Haw.).

This section contains only one single typical species, which, however, has given birth to quite a series of forms and varieties.

S. ROTUNDIFOLIA (L.).—A native of the mountains of Central and Southern Europe and of Asia Minor. A well-known species. Leaves round, crenulated at the margin, often brown or reddish beneath. Flowers white, dotted with pink or purple, and disposed in an erect cluster or panicle. The plant likes a cool, shady position, and soil that is rather rich in humus and loamy. Multiplied by sowing the seed or dividing the tufts. The following varieties are admitted by Engler:—

S. GLANDULOSA (Gris.), *S. lasiophylla* (Schott.).—A native of the mountains of South-eastern Europe, at an altitude of 1500 mètres to 2000 mètres. This plant is distinguished from the type by the abundance of glandular hairs with which it is covered in all its parts. It is cultivated in the same manner as *S. rotundifolia*.

S. REPANDA (Willd.), *S. rotundifolia* (Sternb.).—A native of the mountains of South-eastern Europe and the Caucasus. This variety is still more abundantly covered with glandular hairs than the preceding one. The dense white hairs which cover the leaves are turned the contrary way, and the crenatures of the margins of the leaves are obtuse. It is cultivated in the same manner as *S. rotundifolia*.

S. CHRYSPLENIFOLIA (Boiss.).—A native of the mountains of Greece. Flowers larger than in the type, and the petals are not dotted with pink or purple. Leaves very hairy. Not in cultivation.

S. HEUCHEREFOLIA (Gris.).—A native of the Eastern Alps and the mountains of Turkey. Leaves very slightly furnished with hairs—almost glabrous

—reniform, toothed. Flowers purplish. The true form of this variety is not in cultivation.

S. FONTICOLA (Kerner).—A native of the mountains of Hungary at an altitude of 1600 mètres to 1700 mètres. The plant is almost entirely glabrous. Panicle few-flowered. Flowers white, the petals being thickly covered with bright purple dots. Not in cultivation.

S. OLYMPICA (Boiss.).—A native of Greece. This variety is very distinct from the type. The leaves are round, crenulated, long-stalked, and are furnished with very few hairs. The panicle of flowers is badly developed, being weak and small. Flowers purplish. Not in cultivation.

S. TAYGETEA (Boiss. and Heldr.).—A native of the mountains of Greece. I formerly received from M. Ed. Boissier some seeds of this variety which is very distinctly marked, differing from the others in having smaller and thicker leaves, which are brownish-red underneath, reniform in shape, and borne on erect leafstalks. The flowers also are smaller, forming a short panicle with very few leaves. This variety comes mid-way between *S. rotundifolia* and *S. Geum*. Culture, the same as for *S. rotundifolia*.

SECTION HIRCULUS (Tausch.).

This section comprises a certain number of types which are generally of Asiatic and Himalayan origin, with reddish-yellow flowers and entire leaves. They are handsome plants, yet very few of the species are in cultivation.

S. PALPEBRATA (Hook. and Thoms.).—A native of the alpine regions of the Himalayas at an altitude of 4000 mètres to 4500 mètres. A very small species, growing hardly 2 inches high, with golden-yellow flowers and entire, spatulate leaves of a deep green colour. Not in cultivation.

S. CORDIGERA (Hook. and Thoms.).—A native of the alpine regions of the Eastern Himalayas at an altitude of 3600 mètres to 4000 mètres. This species forms handsome tufts of deep green foliage, from which arise slender stems, each bearing a single large flower of an orange-yellow colour. Not in cultivation.

S. LYCHNITIS (Hook. and Thoms.).—A native of the alpine regions of the Himalayas (Kumaon and Sikkim). A very interesting species, forming handsome tufts of closely-set deep green leaves. The flowers are bright yellow and are borne on erect, stiff, hirsute, one-flowered stems. Not in cultivation.

S. VISCIDULA (Hook. and Thoms.).—A native of the viscoid regions of the Eastern Himalayas, at an altitude of 4000 mètres to 4500 mètres. This species very much resembles the preceding one, but is much smaller in all its parts except the flowers, and its foliage inclines to a pink, and frequently to a deep purple tinge. Its flowers, however, are larger. Not in cultivation.

S. SAGINOIDES (Hook. and Thoms.).—A native of the alpine regions of the Himalayas (Kumaon and Sikkim) at an altitude of 4000 mètres to 5600 mètres. A very caespitose species with closely-set and highly imbricated hirsute leaves. Flowers large and of a fine yellow colour. Not in cultivation.

S. LATIFLORA (Hook. and Thoms.).—A native of the alpine regions of the Eastern Himalayas, at an altitude of 3700 mètres to 4400 mètres. An exceedingly handsome species of ornamental appearance, with large and brilliant flowers, borne singly on tall, prettily foliated stems. Leaves large, handsome, nerved, and of a fine green colour. A superb species. Not in cultivation.

S. HIRCULUS (L.).—A native of Central and Northern Europe, of the mountains of Asia, and of the arctic regions of Asia and America. A fine and typical species which has been grown in botanic gardens for some considerable time past, but which is seldom seen cultivated in collections of alpine plants. Leaves entire, lanceolate, evenly flat, and of a deep green colour; leaf-stalks short and ciliated. Flowers orange-yellow or bright brick-red, borne in clusters of two or three on erect, leafy flower-stems. This species grows naturally in boggy places where the soil is peaty and sandy. It dislikes

lime, which should be avoided when growing it, and does best in a compost of one-third loam, one-third turf, and one-third leaf-mould or fibrous peat. It delights in sunshine and moisture, and is multiplied by sowing the seed or by dividing the tufts. *S. H. grandiflora* (Rgl.) is a variety of larger dimensions than the type. *S. H. linearifolia* (Engl.) and *S. H. var. alpina* (Engl.) are two Himalayan varieties. Not in cultivation.

S. NUTANS (Hook. and Thoms.).—A native of the Sikkim Himalayas, at an altitude of 3000 mètres to 3700 mètres. Flowers light yellow, in an elegant cluster of six to nine blooms. Leaves glabrous and of a deep green colour. Not in cultivation.

S. DIVERSIFOLIA (Wall.).—A native of the sub-alpine regions of the Himalayas, at an altitude of 2500 mètres to 3500 mètres. A very handsome species of remarkably singular habit, with polymorphous leaves and reddish-yellow flowers, borne in graceful corymbs. This species is cultivated in England, where it appears to be hardy, but it is not able to withstand our Genevan winters, and, notwithstanding all my care and attention, I have found it impossible to keep it alive. The following varieties are to be met with in herbariums: *S. parnassifolia* (Don.), a native of Nepal, and *S. Moorcroftiana* (Wall.), a native of the Eastern Himalayas.

S. CORYMBOSA (Hook. and Thoms.).—A native of the sub-alpine regions of the Eastern Himalayas. This species resembles the preceding one, from which it differs in the shape of its leaves and in having smaller flowers. Not in cultivation.

(To be continued.)

THE PANSY—SHANKING.

I PRESUME every cultivator of the Pansy has had experience of that occurrence known as shanking. It is unfortunately most noticeable in collections of fine named varieties, and it is very disappointing to an intending exhibitor of cut blooms when, on visiting his bed of plants, he perceives some new and fine variety withering. Even in the earlier days of the culture of the Pansy—fully half a century ago—before it had become elaborated into the fine improved forms we have in the present day, shanking was common. In those days, and for some time after, Pansy exhibitions were frequent in the home counties, and many a bed of Pansies was grown round London to supply exhibition blooms. I can well remember the Hammersmith Pansy Society—one of considerable renown for some years—that attracted growers of the flower from all parts of the country. A dry summer was a very trying time for Pansy growers. The beds were prepared and planted in autumn in the same manner as Pinks. High cultivation was resorted to to ensure flowers of the best quality. But a hot, dry summer always tried the plants severely, and the late Mr. Charles Turner has placed on record one of the experiences of the Pansy cultivator when he stated that "entire beds have been known to shank off during a very hot summer, and all we can say on this part of the subject is, that the further the Pansy is removed from its original state by high cultivation, the more the plants shank off in this manner. Plants that appear full of health and vigour in the morning will be down before mid-day, as if they had been severed with a knife." It unfortunately happened that it was one of the most valuable and expensive varieties which failed in this manner.

I always held the opinion that the main cause of shanking was the result of high cultivation. Not only were the beds made of a rich character, but when the flowers were expanding liquid manure was applied to produce massiveness, perfect belting, and bright colours, and the plants became, as it were, gorged with food they could not assimilate, the result being they became diseased and died. If anyone examined the main stem of the plant near the roots he would find it had turned black inwardly, as if a kind of vegetable mortification had set in. Nothing could save a plant when affected in this way, and the best thing to do—and it was invariably done—was to take off the side shoots, if any, if the variety was a scarce or good one, make

them into cuttings and then immerse them in water for two or three hours, which would have the effect of stiffening them, and they would generally strike root if carefully attended to. But if shanking is not so frequent in these days as it was forty years ago, it sometimes yet happens, though high cultivation is not so much followed as it was at the time mentioned.

R. D.

SHORT NOTES.—FLOWER.

Geranium balkanum.—I send you flowers and leaves of this new species. The description I originally received with the plants was, "flowers crimson." This is not quite accurate; still the colour is good, the habit is dense and free-flowering, and the leaves delightfully sweet-smelling. Altogether it may be regarded as an acquisition to the collections of quite hardy plants.—T. SMITH.

The double Wood Anemone is a very sweet little thing not often mentioned. It grows robustly and has a charming little cushion of short petals in the centre not in any way interfering with the size or shape of the guard petals. It is found in good masses in some old gardens in Surrey. It would be worth while to know how widely it is distributed. When cut and placed in a vase the flowers are exquisite, and also for making wreaths; best of all perhaps for the dinner table.—A., Dorking.

A rockery walk is made very prettily by simply paving with rough stones and pebbles, putting nothing between or only enough to half fill the spaces. Now sow it over with scraps of *Sedum dasyphyllum*, which runs between the pebbles in a most bewitching manner. Then when you walk over it you never touch it with the boots because it is down in the chinks. The tiniest fragments suffice. I think a sandy or other hard mineral soil will suit it best; not old mortar, as moss grows so freely then and would probably smother the *Sedum*.—A., Dorking.

ORCHIDS.

ORCHIDS AT TIMPERLEY, CHESHIRE.

THE collection of Cattleyas at Pickering Lodge, the residence of Mr. Hardy, is very grand. The span-roofed house which contains them has a central stage and a stage extending all round, and the plants get plenty of light and air and exposure to the sun. Here are large specimen plants, some of them being 2 feet and 3 feet across, and others double that size. Mr. Hardy had six Cattleyas arranged in the exhibition at Manchester in the single specimen class. These were covered with bloom and larger than I have frequently seen made-up specimens. In the exhibition house his collections were arranged and the show would have sadly missed these. These grand plants, Mr. Hardy told me, were all single specimens with one or two exceptions. In spite of the quantity exhibited at Manchester there were hundreds of blooms of *Lælia*s and Cattleyas open or opening, consisting of *L. purpurata* and *L. p. Russelliana*, *C. Warneri*, *C. Trianae*, and *C. intermedia*. There was also a fine lot of plants of *C. Skinneri* alba, and I was surprised to find two distinct forms of this plant, and which I think should have varietal names to separate them and to distinguish the flowers. *C. Schroederae* was abundant. *L. purpurata* in many varieties is also largely grown. Some large specimens of *Odontoglossum vexillarium* were carrying nineteen flowers on one bulb, the plants being all clean and vigorous. *Dendrobium*s, too, are well and largely grown. At the time of my visit a large number of *D. Devonianum* were in flower. *D. Wardianum*, *D. crassinode*, and the white variety were also largely represented. *D. thyrsiflorum* with its pendulous spikes of pure white and golden yellow flowers; *Dendrobium nobile* in excellent variety, *D. fimbriatum*, the finest form of *D. fimbriatum* I have ever seen by my lot to see, and *D. robustum* *Bensoniæ* were all flowering most profusely. *Cypripedium*s are not largely grown.

Masdevallias are well attended to; *Coelogynes* also; and it is really astonishing to see how well the plants have flowered, and how late the blooms have kept this season. *Odontoglossum*s of the crispum type look very happy. Many other things might be named, but I will only mention the *Phalenopsis*s, which occupy a small house by themselves; the plants are all set upon teak-wood cylinders, these being well drained with a little soil upon the top. Amongst them I noted *P. amabilis*, some very nice varieties being now in bloom with 28 flowers upon a spike; many *P. grandiflora*, and a goodly number of *P. Schilleriana* which have bloomed profusely and are now particularly fresh with newly formed leaves. I was particularly struck with the large specimen *Cattleyas*, which all stand upon an iron turn-table; this enables the gardener to turn the plant round to the sun and light, and at the same time allows the plant to be sponged all round without the fear of breaking the foliage, which is sure to follow if such large specimens have to be lifted down to turn them round. There is no superabundance of heat; everything is grown with as much sunlight as it will bear, and even *Odontoglossum* *vexillarium* is grown cooler than most people treat it, the *Dendrobium*s having the most heat of anything in the establishment.

W. H. GOWER.

Cypripedium Stonei.—Ever since its introduction in 1860 this species has held a high place in the estimation of Orchid lovers, a position which the numerous species since imported have done nothing to lower; it is doubtful indeed if any other surpasses it in beauty. It is a native of Sarawak, in Borneo, being found on limestone hills at an elevation of 1000 feet to 1500 feet. It is said to grow in partial shade and usually on rocks covered by a thin accumulation of decayed vegetable matter. It has dark shining green leaves, a foot in length and very leathery, the scape rising to a height of 2 feet from the centre of the growth. The flowers, which are usually borne in threes on the scape, have sepals of a china-white hue, tinged with yellow and striped with reddish-purple lines. The petals are similar in colour and measure 5 inches or more in length, curving downwards, whilst the large, slipper-shaped lip has a ground colour of dull red veined with purple except on the under side, where it is nearly white. This species is as easily cultivated as the majority of *Cypripedium*s, the only time when a little extra care is needed being just after the plants are imported. I find they usually require some time to get established, and owing to this slowness in emitting roots, it is best at first to use only as much compost as is necessary to secure the plant firmly, filling the main portion of the pot with drainage. A compost of peat-fibre, Sphagnum, and finely-broken potsherds may be used. The variety *platytanum* is one of the most famous of Orchids, and perhaps the most valuable. Only one plant has ever been introduced, and this made its appearance in the late Mr. Day's garden at Tottenham in a batch of *Stonei* imported in 1863. Some half-dozen plants perhaps are now existing, all pieces of the original plant. Collectively they may be said to represent a small fortune, for at Mr. Lee's sale at Leatherhead in 1887 a sum of 310 guineas was paid for one plant; this variety, therefore, is likely for many years to come to be of more interest than importance to Orchid growers in general. Its chief distinction lies in the very much broader and altogether larger petals, the white ground of which is blotched with purple, giving the flower a most striking appearance.—B.

Orchid growing on blocks.—In all the collections I have seen, the material for the block is either wood or cork. The material above all others would seem to me to be close, hard turf such as is used for fuel, and unless there is some special reason which is not very apparent, it is difficult to understand why a material so perfect for the purpose should have been overlooked. It holds water

like a sponge, and is too dense to afford a ready harbour for vermin. I have recently purchased one *Oncid* grown on a block of this material; it is in perfect health and has pushed its roots through the body in all directions, making the use of Sphagnum on the surface quite unnecessary.—THOS. FLETCHER.

Acineta Humboldtii (*H. Percival*).—The flower you send as that of a new *Oncid* is that of a very old species which was introduced about fifty years ago. As you say it is bearing eleven such flowers on one spike, with two other spikes just on the point of opening, you must have a grand specimen and a very fine variety. I think the flower sent has only just opened. The tawny yellow sepals appear pale, and these, I believe, will become deeper in colour. The genus comes very near to *Peristeria*, but it has a pendulous raceme, and is, therefore, best grown in a basket. I have grown this plant near the roof in the Cattleya house, but with more success, I believe, in the East India house, as I find the greater moisture which usually exists therein is more beneficial to it. It may, however, be wintered in the Cattleya house, and at this time may be kept tolerably dry. The flowers soon lose their beauty; indeed this is a failing in the genus, and causes it to be somewhat looked down upon.—W. H. G.

Lælia purpurata Russelliana (*J. H. W.*).—This is the name of the flower sent. It was figured in the 6th volume of the "Orchid Album," t. 269. The variety there depicted, however, is superior to the one sent. It varies very much, but it affords a pleasing contrast to the typical plant. It has the same habit of growth and requires identically the same treatment as *Lælia purpurata*.—W. H. G.

GARDEN FLORA.

PLATE 807.

WINTER-FLOWERING TUBEROUS-ROOTED BEGONIAS.

(WITH A COLOURED PLATE OF BEGONIA WINTER GEM.*)

WITH the introduction of *Begonia socotrana* into cultivation, now some eleven years ago, another field was opened up to the hybridist, and we have now at least three hybrids which have resulted from various crosses. For these forerunners of a race, which will yet receive many valuable additions to it, we are indebted to Messrs. Veitch and Sons, whose great success with the summer-flowering tuberous varieties is so well known. The extreme usefulness of these new hybrids for winter blooming cannot be called into question. Their brilliant colours and the great length of time in which they continue in good condition would be quite sufficient to recommend them had they no other good quality. They have only to become better known in gardens, and we shall find them grown in considerable numbers for winter decoration. Their culture is not at all difficult; they do not require anything different from tuberous *Begonias* in general. Making their growth chiefly and flowering when others of the summer section are going to rest indicate a warm house (from 55° to 60°), although not in any sense a hot one. Taken altogether, this type of *Begonia* partakes rather more of the evergreen character, notably so in the variety *John Heal*. After flowering they should be given a season of rest, but not be kept ex-

* Drawn for THE GARDEN by H. G. Moon in Messrs. Veitch's nursery at Chelsea, January 24, 1891. Lithographed and printed by Guillaume Severeys.



BEGONIA "WINTER GEM"

cessively dry. *Begonia socotrana* has imparted to these hybrids their winter-flowering character, and other traces also are to be found. The variety John Heal was the result of crossing *B. socotrana* and *B. Viscountess Doneraile*, a summer-flowering tuberous variety. The singularity of this hybrid is the almost entire absence of female flowers. It strikes freely from cuttings and may also be increased by bulbils, somewhat in the same way as *B. weltoniensis*. Its flowers, produced in loose racemes of six to nine each on nodding scapes which stand well above the foliage, are of a bright rosy-carmine colour, and last in good condition from fifteen to eighteen days. This variety was certificated in October, 1885. *Adonis* resulted from crossing John Heal with an orange-scarlet, tuberous, summer-flowering kind. The growth of this hybrid is robust with an erect habit, and furnished with bold foliage. The many-flowered panicles stand well above the foliage and are most profusely produced. The individual flowers are often fully 3 inches in diameter, in colour bright rosy-carmine toned with scarlet. It comes into flower in November, and lasts a long time in good condition. Like the former, this also can be propagated from cuttings. It was certificated in November, 1887.

The variety forming the subject of the coloured plate has resulted from crossing *B. socotrana* with a crimson-scarlet summer-flowering tuberous variety, the former being the female parent. This new hybrid is best propagated by division, cuttings not being found to succeed so well. It is of much dwarfer habit than the seed parent, with smaller and neater foliage. The flower spikes are erect, rising well above the foliage, terminating in large corymbs of rich scarlet-crimson flowers. This hybrid will undoubtedly prove a valuable acquisition; its flowers are the richest coloured yet obtained among the winter-flowering section, whilst they even surpass those of John Heal in their persistency, lasting a longer time in good condition. This variety was certificated in January last, and was flowering for some time previous. These three fine winter-flowering hybrids are the result of the patient and observant labours of Mr. Heal. J. H.

THE WEEK'S WORK.

FRUIT HOUSES.

EARLIEST GRAPES.—If ripened in a high temperature and moist atmosphere, both the colour and quality of the fruit may be faulty, and during the rest of the time the bunches may hang on pot Vines or temporarily planted canes these ought to be studied, and not the other contents of the house. Therefore give air freely both night and day, but avoid low temperatures, fire heat being still indispensable. In some instances it might be possible to bodily transfer the Vines bearing ripening Grapes to a cooler or more airy house, this admitting of their present site being turned to good account in the production of Melons or Tomatoes. As a rule, hard forced Vines when once they have perfected a heavy crop are of little further value, and may well therefore be destroyed, more in pots, or, better still, planted out in an adjoining compartment or other small forcing houses, being prepared for forcing

next season. It is not yet too late to plant strong young Vines in a narrow border or small pit formed along the front of a forcing house, any good loamy compost with the addition of ground bones and perhaps a little of specially prepared Vine manure answering well for them. Plant them 3 feet apart and firmly, taking good care that the old ball of soil and roots does not get dry before fresh roots spread well out into the new soil. Stop all lateral growth at the first joint, and take out the points when the Vines are near the top of the house or say about 9 feet long. Kept growing in a brisk heat and moist atmosphere, overhead syringing being resorted to in the morning and again when the house is closed early in the afternoon of sunny days, strong canes will form, ripen, and be rested in time to start early next winter, and these will produce far better crops than can be grown on the majority of pot Vines.

SUCCESSIONAL VINES.—The successional Grapes in some cases and the earliest forced in others will now be swelling off and colouring fast, and will require rather different treatment than hitherto. More air must be admitted and a drier atmosphere maintained, though damping down should not be wholly discontinued and the borders ought to be kept in a moist state. The aim should be to swell the berries to their fullest size without detriment to either colour or quality, and this can be accomplished by admitting a good circulation of air without greatly lowering the temperatures, Muscats especially requiring a considerable amount of heat during the ripening period. A day temperature of about 75°, rising to 80° and 85° with sun-heat and air, is none too much for swelling Muscats, the house being closed early enough to run up the temperature to 90°. For all other generally grown Grapes the day temperatures may range from 70° to 75°, another 5° increase doing no harm on hot days, and the houses should be closed and damped down in the afternoons of bright days soon enough to raise the heat to 85° or thereabouts. A night temperature of 75° suits Muscats, but the rest will do better with 5° less, and a little front air put on in the evening will assist in the colouring more than is generally known. It is of the greatest importance that air be admitted in small quantities early on the mornings of clear days, or very soon after the sun strikes on the houses. When air is admitted thus early a very genial atmosphere is created, and there is no need to let in a great rush of cold air in order to obviate a sudden and dangerous rise in the temperature of the house. In any case the greatest care must be taken to prevent condensation of moisture on the berries, "sweating," as this is frequently termed, being liable to destroy the bloom and impair the keeping qualities of the berries. This is especially likely to take place in warm showery weather, and if running top lights are closed during rainfall, they must be opened directly the sun breaks through again, or mischief will follow. Opening the houses early is also a good preventive of scalding of the berries, though when scalding takes place at the extreme ends of a vinery, nothing but lightly shading the glass will prevent it.

INSECT PESTS AND MILDEW.—Only where the water is perfectly clear is it safe to continue syringing the Vines after the flowering period, and it ought especially to be avoided where either chalk or limestone abounds, or otherwise the Grapes will be disfigured by the sediment. Unfortunately, directly overhead syringing is discontinued, red spider and other insect pests are liable to spread and do much harm to both the foliage and bunches. Measures ought, therefore, to be taken wherever necessary. A close look out should be kept for red spider. The very bright sunshine, coupled with cold winds, experienced during the early part of May just suited that minute enemy. The leaves should be carefully sponged on the first signs of its appearance. Sulphur on the pipes or flues, besides being somewhat risky, is also inefficacious; but if the sponges are frequently dipped in sulphur as the leaves are sponged this will do much towards keeping down red spider. Well coat both the upper and lower surface of the leaves with it. Sponging with much diluted tobacco water with a little soft soap added is also the best preventive of thrips,

fumigating with tobacco paper being a very risky proceeding, owing to the susceptibility of the foliage, this burning very quickly. Mealy bug is another very troublesome pest, and unless kept down in the early periods of the growing season will spoil very many of the bunches. There is only one safe remedy that can be applied at this time of year and that is a close look out kept for every bug, this being crushed when found. Occasionally the foliage is badly eaten by weevils, and as these work in the night-time it is then when they ought to be searched for. A light causes them to drop to the ground, and in anticipation of this, place sheets of paper or white cloths under the Vines before it is dark, the beetles dropping into them when the light is shown. Mildew is perhaps more difficult to contend with and more injurious than any of the insect pests alluded to. On the first signs of this dreaded pest, sponge all affected leaves with either mildew specific duly diluted with warm soft water, or else with soapy water, the sponge being frequently dipped in flowers of sulphur. Painting the hot-water pipes with sulphur mixed with milk or linseed-oil, coupled with the maintenance of a drier atmosphere and careful ventilation, low temperatures and cold currents of air being guarded against, will do much towards preventing the spread of mildew through the bunches, but is not always efficacious. Dusting the bunches with flowers of sulphur will usually check mildew, and this can eventually be washed off again either with the syringe and clear water, or by placing the bunches when cut under a tap of clear water, a strong pressure not disturbing the bloom. Where the cuticle of the berries is somewhat susceptible of injury, notably in the case of Mrs. Pearson, Buckland Sweetwater, and white Muscats, many of them will probably be disfigured by the mildew remedies, but it is advisable to run the risk rather than let the mildew increase. PRACTICAL.

PLANT HOUSES.

STOVES.—GENERAL TREATMENT.—With occasional glimpses of the coming summer, the plants will, where they have well filled their pots with roots, take more water than during dull cold weather. With close attention to watering, the requirements of the plants are quickly understood and as easily met. Running roughshod over the watering does not pay in any sense, although it is far easier for a novice to attend to this work where the house is chiefly filled with one kind of plant, as in market establishments, than it is to successfully manage a promiscuous collection of plants of totally distinct character and requirements. Time spent in careful supervision of watering will in the not very long run amply repay itself. Contrast this with the hurry-scurry system, rushing the water into the pots and the soil out of them, totally irrespective of their special needs, or whether they really require watering or not, and the advantage will very soon be apparent upon the side of extra time being given to the work. Rather than urge the plea that the time cannot be spared for this and such as cleansing, it is infinitely better to reduce the number of plants, so that what are grown are creditable to all concerned. In the case of plants now showing for flower, some manure water will in nearly every instance be an assistance, also to many pot-bound fine-foliaged plants. Do not, however, water such as *Allamandas* with any stimulant until they are set for flower, otherwise the blooming season will almost invariably be delayed. Basket plants, particularly *Ferns* and *Nepenthes*, will require looking after more frequently; these always dry up quickly, by reason of their exposed position. By using the syringe, however, pretty freely around the sides this may, in a measure, be counteracted. In fact, upon all hot days with the maximum amount of sunshine, syringing should be depended upon to a greater extent than it usually is. A syringing early in the morning and at closing time is pretty general; add to these, however, one or two during the heat of the day, not necessarily heavy, another at about six p.m., and a final at nightfall, and the effect upon the plants will be apparent before long. Of course the evaporating troughs must be kept filled up as constantly as ever;

although there will not be so much heat in the pipes, yet this is quite necessary. The night temperatures should average about 70°, but rather than let the heat in the pipes down to a very low ebb during the evening, I would prefer to see it range 75°. It is better to have the pipes a little warm than have them extra warm in the morning when the sun heat is increasing rapidly. With a fair amount of top air, and by ventilators under the side stages there should not be any difficulty in keeping the day temperature within due bounds, of say from 85° to 90°; the higher temperature is better than endeavouring to keep down at a lower figure by opening side lights where these are so constructed as to open. It should be an extremely hot day for these lights to be opened at all, and then only a little way, otherwise the atmospheric moisture in the house will be considerably lowered, and the plants suffer all the more in consequence. Closing should be done in good time, so that the maximum amount of heat is for a while maintained afterwards with abundance of moisture by the usual methods. During dull weather more cautious treatment as to moisture is necessary; with an excess at such times the plants feel the change all the more on bright hot days.

POTTING YOUNG PLANTS.—Those which in previous articles have been recommended to be struck for keeping up the stock will in many cases be quite ready for another shift; this should only be into a size larger pot for this season in the case of what are termed decorative plants, but larger shifts may be given if specimens are the main object in view. When plants are fairly struck, it is best to gradually inure them to the temperature of the house in which they are to be grown. Plunging for a little time, say until fairly established into the shift just advised, will in most cases be an assistance. This shift should not be delayed so that the plants become pot-bound, otherwise it will militate against their future well-doing by a general weakening. In the foregoing remarks I have referred to what are the more permanent plants; those grown in quantity will be found treated upon separately. Keep all young stock in as light a position as possible consistent with their special needs. Too much shading is bad, having a tendency to produce a sappy growth of less endurance.

Cuttings can still be struck of anything whereof the stock is in any way short. Promising shoots for such purposes at times are to be had which it would be a pity to miss securing. Of such are the Crotons in particular; the Acalyphas are also very ornamental in a small state when well coloured. Small shoots of Dipladenias which have not, like the majority, run off into slender growths make very good cuttings when taken with a heel. These should be struck in nearly all sand, adding only a little peat, then keep in a moist place or cover with a bell-glass. Where Allamandas are being grown planted out there will be in all probability a superabundance of shoots; these where set for bloom can be struck and flowered in small pots, thus forming somewhat of a novelty. I flowered several cuttings on one occasion myself just as they were struck in a pan. In order to succeed well the cuttings should be struck in a brisk heat. Cuttings of Ixoras, Clerodendrons, and other flowering plants of a woody growth should be taken when there is a favourable opportunity, and whilst the propagating pit is not too much occupied with numerous other kinds.

J. HUDSON.

ORCHIDS.

It is much easier to give general advice than to go into particulars of culture, which might depend upon the weather or other influences over which we may have no control. We had quite summer weather the week preceding Whit-Sunday, but Saturday, the 16th, there was a sudden change, with the change of the wind to east-north-east. The barometer fell, and, what was worse, the temperature fell so low, that 4° of frost were registered in our garden, with hail, snow, and rain alternating all day on Sunday. Monday it rained all the day. Tuesday was a day of bright sunshine, and herein lies the danger of injury to the plants.

One can see the effects of the sudden change in the vineries; the leaves droop, especially if there is a wind with the sunshine. Orchids do not show the effects of these sudden changes of temperature and other atmospheric influences, but the effects may be felt by them, and they do not soon recover after they have received a shock. There are some species in all the departments which are very easily injured indeed by exposure to the sun. In all good collections the distinct and handsome *Cypripedium superbiens* (Veitchi) is grown, but its leaves are very sensitive to the effects of sunshine, and suffer sadly by exposure to it. A seedling from this, crossed with *C. villosum*, named *C. Charles Canham*, is even more sensitive, and to make them secure neither variety should be placed where the clear sunlight may fall upon it. It is easy to select a part of the house where the danger may not be nearly so great as it is in other parts; moreover, they are about the first to be attacked by yellow thrips, and most Orchid cultivators know that any check to the growth of the plants makes them an easier prey to the attacks of this pest; therefore, anything likely to do this should be carefully guarded against. We repotted a number of these warm-house *Cypripediums* in the spring, and will do more of them as they pass out of bloom. I am sure this is a better time to repot them, as they start into more vigorous growth soon after. A few that will be repotted in a week or ten days are *C. Lowi*, *C. Elliotianum*, *C. barbatulum*, *C. Dominianum*, *C. Dayanum*, *C. Stonei*, *C. lævigatum*, and *C. grande*. This last named variety soon grows too large for a moderate-sized house, but it may easily be divided when this is the case. We have a plant now in our collection which was a small offset six years ago; it is now so large that a man can raise it with difficulty from the ground. This specimen may be divided, as it will be in a few days, into half a dozen nice plants. In dividing such large plants that cannot be easily pulled to pieces with the fingers a useful appliance for the purpose is an implement termed the "Wilson digger." It has a handle like a garden trowel, but the tool itself has some resemblance to a soldier's bayonet except that it is more rounded at the point. It is about 10 inches in length. If this is thrust into the centre of the plant it may readily be divided into two; afterwards it is easy enough to part the two into as many divisions as may be thought necessary. Avoid the use of a knife to cut amongst the roots. If hot, drying weather sets in after these plants are repotted, it may be best to gently spray them overhead at least once a day with rain water of about the same temperature as the atmosphere of the house. At this season that difficult-to-manage section of Orchids which includes such species as *Batemannias*, *Bolleas*, *Pescatoreas*, &c., will require careful attention if the weather becomes warm. They do not like an exposed position in the Orchid house, even if they are constantly shaded from sunshine. The house best adapted to their requirements is one where the sun does not shine upon it at all during the hottest part of the day. The atmosphere of the house should also be in a moist state. Perhaps one of the old-fashioned houses where but little care was taken to make the laps of glass close and of the lean-to description is best for them. They like to be planted in teak baskets, and to be placed near the roof glass.

Allusion was made recently to the disastrous effects of over-flowering some plants. It is very easy to do this with those that remain a long time in bloom and take a long time to fully develop their flower-spikes. Another source of some anxiety to cultivators is the debilitating effects of very hot weather for the cool house Orchids. In the hot, dry districts of the south of England where my lot is cast the difficulties are greater than cultivators have to contend with in the north. I well remember when I was beginning the cultivation of these alpine Orchids that I was so frightened of losing them by sun-heat in June, July, and August, that I moved the *Odontoglossums*, such as *O. crispum* and allied species, with the *Masdevallias* into frames placed under a high north wall. It was a very hot summer, and it was a pleasure to see how well the plants grew in ordinary frames. I have

since found out that they will succeed in ordinary span-roofed houses well enough when the system of ventilating the house, shading it, and maintaining a moist atmosphere is understood; and I would further caution the cultivator against allowing the flower-spike to remain on a choice *Odontoglossum* until it has caused the pseudo-bulbs to shrivel visibly; better to cut it and keep it in a cool room in the house as long as it will last. In very hot, drying days it is better not to open the ventilators too much, as this allows the dry air to rush in amongst the plants. Shade rather closely, damp the house three or four times in the day, syringing the plants sometimes, but not oftener than once in a day. If the nights are warm and close, leave the ventilators open all night both at the top and bottom of the house. If the *Sphagnum Moss* grows freely on the surface through it all the plants seldom fail to do well. The nights are not warm yet; in fact, they are still so cold, that a little heat is necessary even in the cool house. The *Cattleya* house is kept up to 60°, and the warmest house about 70°.

J. DOUGLAS.

THE KITCHEN GARDEN.

TOMATOES UNDER GLASS.—Plants grown in pots expressly for early work are now ripening off the fruit, and care must be taken that the fruits are not smothered up with useless spray. Allowing the shoots to grow unchecked prevents early ripening of the fruits. These earliest plants are generally grown in the various heated structures or positions there may be at disposal, such as plant stoves. As these are shaded more or less at this season of the year, it is against the advancement of the fruit. Better results will be obtained by removing the plants to a lighter and more airy structure. Main-crop plants where planted out are also advancing rapidly, and care must be taken to keep the side laterals pinched out, so as to throw the strength into the blooms. Where there is head room it is advisable to allow the leader to grow unchecked. If the ventilation is managed so that no draught is caused, little heat kept constantly in the pipes during the night and also on cold and dull days, the growth made will be of that substance capable of warding off the disease. There is also not the least difficulty in getting the plants to set their fruits well, shaking the plants at midday whilst the pollen is dry being all that is needed to ensure a good set. Tomatoes planted out must not be over-fed with either liquid or any of the artificial manures. The time to feed is when the plants are carrying a heavy crop. Where the plants have limited head room the single stem or cordon system is not the best, unless there are later plants coming on, as the crop would be quickly over. In these cases a system of fan training should be adopted, side shoots being thinly laid in to take the place of others which have borne fruit. Practically it does not matter how many shoots are laid in so long as these are not overcrowded. The main shoots or branches must be thinly disposed, and all side growths from these rubbed out as soon as perceived.

YOUNG ASPARAGUS BEDS.—The growths from young Asparagus beds will now be growing away freely, and it will depend upon the treatment the plants receive through the growing season whether the roots increase in size as they should do. Before the growths become top-heavy, the shoots from each crown should be loosely tied to a strong stick to prevent injury from wind-waving, as when this precaution is neglected, the tops, if they do not actually break off, are damaged to such an extent as to prevent future progress. Care must be taken not to thrust the stick close to the crown, for fear of damaging the roots. The growths may also be secured to strong tarred twine strained tightly to stout stakes at the ends, or at a convenient distance apart. The heads are now appearing very freely on established beds, and although this is a late season for the coming to early maturity of summer vegetables, the cutting should not be kept up too long, especially from young plants not thoroughly established, or even from old weakly plantations. Whenever cutting ceases or it is being thought about, allow two or three shoots to start away at

once, and not gradually leave off cutting by cutting to single stems, as these take the lead and very few afterwards appear, the crowns being in this way weakened. Nor ought the weakest shoots to be left. On dry soils liquid manure may be advantageously applied, this being conducive to an after vigorous growth. Frequent dressings of a mixture of artificial manures also tend to cause a vigorous growth, and further experience gained this season leads me to recommend the dressing I have previously advised of salt, soot, and either guano or fish-potash guano, as being an excellent medium. A dressing applied when cutting ceases and another three weeks afterwards will enable the plants to make a vigorous after-growth. Where a judicious course of salting is adopted, weeds are rarely troublesome.

AUTUMN CAULIFLOWERS.—The earliest plants may now be put out into their permanent quarters. These early plants generally grow to a good size, so a distance of 30 inches must be allowed both between the rows and the plants. The best plan is to plant in deeply drawn drills, so that water may be given if necessary. As soon as the plants commence to grow freely the soil may be drawn in about the plants, this helping to keep them steady. It is very rarely that autumn Cauliflowers require watering after they have become established, as on deeply-worked and well-manured soil it is seldom, if ever, the plants suffer from drought. Neither is liquid manure ever necessary, especially in the case of the stronger-growing varieties, as the heads grow quite large enough, and in many cases too large without any such assistance. It is advisable not to give up too much space to the early plantings, as the later or successional plants may prove much more useful later on in the season. Y.

FLOWER GARDEN NOTES.

THE summer planting of the flower garden is now well under way, and unless the weather prove very unfavourable will be pushed to a conclusion as rapidly as possible. I generally start with some long straight borders, as these can be covered with tiffany or canvas if there is any danger of frost. It is this description of border that lends itself readily to the bedding plant pure and simple, for as it is a mistake to make these a predominating feature in all parts of the flower garden, so it appears to me it is out of character to plant a lot of loose and straggling herbaceous plants in intricate geometrical designs or in narrow straight borders that have been so constructed in bygone times to harmonise with straight walls or straight lines of shrubbery. I have two borders each 70 yards by 3 yards. I generally plant the one with mixed Verbenas, breaking the flat outline of these with little irregular pyramids of flower raised above the mass of colour and with occasional plants of *Grevillea robusta*, and the other with blocks of *Geraniums* in the various pink shades, *Amaranth*, *Constance*, *Mrs. Lancaster*, and *Mrs. Turner*, together with the variegated *Lady Plymouth* and *Flower of Spring*, and divide these respectively with breadths of white *Viola* and such trailing *Geraniums* as *Manglesi* and the variegated *Ivy-leaf*, *Countess of Kintore Viola*, and the dwarfest of the *Ageratums*. The flat appearance of this border is also relieved by *Eucalyptus*, *Acacia lophantha*, and the Sweet Tobacco. I should like to call particular attention to these three plants, as from their light, graceful habit they are far more serviceable for the above named purpose than big-foliaged plants, as *Cannas*, *Solanums*, and *Wigandias*. The idea of breaking up and relieving the flat appearance of beds and borders by the occasional introduction of large plants originated some years ago with a few of the best and most observant of our true flower gardeners, and has in its way tended to enhance the beauty of the summer display quite as much as the more extensive cultivation of the best of the herbaceous plants in all situations where they can be effectively employed. Thus in addition to the plants already enumerated as useful for long narrow borders, other plants of more bushy and strong growth that can be used sparingly and judiciously in large bold beds are specimen *Fuchsias*, the large-leaved variegated *Abutilon*, and the small-foliaged, small-

flowered *Marguerite*. These, with an undergrowth of *Petunias*, *Violas*, *Ageratums*, *Heliotropes*, or such dwarf *Geraniums* as *Brighton Gem* or *Harry Hieover* as the colour may be required, make a much more effective and pleasing combination than the simple mixture of two plants of equal height. In common with many old-fashioned gardens, we have fortunately very little of elaborate and complicated design in the flower garden, and beds on turf are amenable to many styles of planting, and so is the ordinary border with its background of flowering shrubs. One or two large beds on turf are filled with blocks of the Pheasant's-eyed Pink, some small spaces being reserved in which are annually plunged specimen *Fuchsias*, which show to advantage with the light undergrowth. Other beds rather thinly planted with dwarf standard *Roses* have been bright with *Narcissus incomparabilis Figaro*, and will soon be equally bright with the common Musk. Two large beds of the old *Clove Carna* ion, usually a special feature, will this year be conspicuous by their absence, a very large percentage having been destroyed. I am glad to say, however, the old favourite is not entirely lost, a batch under a south wall having weathered the storm fairly well. The borders in front of flowering shrubs I am filling with the best of herbaceous plants as time and circumstances will permit, but where gaps exist they are filled during the summer months with such things as harmonise best with the perennials. A good batch of *Violas*, for instance, in various shades is always handy for such work, and *Phlox Drummondii* seems quite at home. The best of the annuals that were sown under slight protection late in March were planted out about a week ago, as this early planting and consequent filling of bare spaces enable one to form an accurate estimate as to the amount of other plants required to finish the operation. Annuals of short-lived beauty or of straggling habit are out of place in the flower garden, but as many of them are useful in a cut state, we always make a sowing on an out-of-the-way border that has been broken up and prepared for the purpose early in the year.

Claremont.

E. BURRELL.

STOVE AND GREENHOUSE.

MANURE FOR HARD-WOODED GREENHOUSE PLANTS.

AN idea often exists that hard-wooded greenhouse plants require little or no manurial assistance, excepting in the case of the common free-growing kinds, such as *Camellias*, *Acacias*, *Genistas*, and others of a like character that are comparatively strong, free rooters; hence the condition that many of the hard-wooded New Holland and Cape species and the varieties raised from them are often seen in after the first few years subsequent to their passing from the hands of the nurserymen who propagate them. To some extent the idea often prevalent in the matter may be accounted for. The prejudices that spring from first impressions are difficult to remove, and for a long time after the introduction of many of the best fine-rooted kinds a notion existed amongst even the most experienced growers that manure in any form was not necessary, and, still further, that its application would endanger the life of the plants in question. The result of the absence of sufficient sustenance is less apparent in the earlier stages of the plants' existence, as during a few of the first years after they leave the nursery they are subjected to annual repotting, each time they are shifted an additional amount of new soil being necessarily given. This suffices to keep them in a fairly thriving condition. Later on as the plants attain something approaching full size, or the size they are required to grow to, they are frequently allowed to remain in the same pots, with consequently nothing to depend on but the old material, now in a great measure exhausted. How the impression originated that hard-wooded plants of the less vigorous kinds would not bear root stimulants is hard to say, for in a state of nature the roots are annually being assisted by the decayed vegetable matter that is added to the soil

in the shape of the old leaves thrown off from the plants which occupy it. Beyond this, plants that have their roots in open ground have the chance of extending further afield in search of food; whereas, when confined to the limited space afforded by a pot, the roots are wholly dependent for sustenance on that which the pot contains.

When I first began to grow hard-wooded plants, the first hint I received from those supposed to be fully competent to give advice in the matter was that on no account should such things as Cape Heaths and the more delicate growing kinds of New Holland plants have anything of a stimulating or more invigorating nature than the peat in which they were potted. For some years I followed this course, and through being careful to give ample root-room whilst the plants were young, I could keep them in a healthy thriving state; but the time came when neither for appearance nor convenience could larger pots be given, and the plants had nothing to depend on but the soil, which, as a matter of course, became poorer from year to year. It is well to bear in mind that a reduction of the balls, and consequent reduction of the roots, that can be and is practised with quick, free-growing things, should never be resorted to in the case of the more delicate kinds of hard-wooded subjects, except as an alternative to their existing in a state of semi-starvation. I did not feel satisfied with the results, and resolved to try what the effects of manure water and concentrated manures would be, being careful to give the former in a weak, highly diluted state and the latter in small quantities. With this object, a few Heaths and other Cape as well as New Holland plants were set aside at the beginning of the growing season, and had manure water given them about once a fortnight through the summer. It had a marked effect in the amount of growth made. The liquid I used was made from horse droppings, and was given much weaker than it is usually applied to free-growing soft-wooded plants. Such things as the Cavendish Heath, *E. propendens* and *E. hyemalis* made double the growth they would have done if no stimulant had been used. *Epacris*, *Pimeleas*, *Eriostemons*, *Boronias*, and others that naturally make more growth than some of the weaker kinds had the liquid given stronger than the weak growers, but in all cases I kept on the safe side by applying it weak enough at first. Amongst the various kinds of highly concentrated manures which I afterwards used for the majority of hard-wooded greenhouse subjects, Standen's manure is the best, and I look upon it as the safest, inasmuch as it is not soluble to the extent that many others are. For this reason if a little more is applied than ordinary it does no harm, the strength not coming out all at once in a way that takes place with guano, sulphate of ammonia, or others of a like character, all of which I should by no means advise to be used to plants of a nature such as these under consideration, except with the greatest care, and after enough experience to guide the operator who is already well acquainted with the nature of the different kinds of hard-wooded plants, which, needless to say, vary much in what they will bear in the way of stimulants.

For Azaleas especially there is nothing that I have ever tried that comes up to Standen's manure. By its use, large old specimens that are already in pots from 18 inches to 20 inches in diameter may be kept in full vigour for almost an unlimited time. I have had them for a dozen years in the same soil without any additional room, and at the end of the time they made as much growth as when they were young. Large plants such as I speak of will bear half a handful three or four times during the growing season; smaller examples, less in proportion. For the slower-growing kinds of New Holland plants and for Heaths, half the quantity named for Azaleas is enough, giving it at intervals from the time the roots begin to move in the spring until towards the end of August, at which time the object should be rather to harden up and mature the wood than to encourage its further extension. To very delicate-rooted plants, such as the *Gompholobiums*, *Roella ciliata*, *Dracophyllum gracile*, and others of similar character, less must be given than would be safe to use for *Boronias*, *Phenocoma* pro-

liferia, the Tetrandras, Acrophyllum venosum, or Hedaromas. The thing to bear in mind, as I have already said, is not to overdo the plants with whatever is used, be it solid or liquid.

I have so far only spoken of the use of stimulants to large old plants that it is not advisable or convenient to give more root-room to, but their use is equally as effective on young plants from the ordinary trade size onwards. With assistance in this way, double the amount of annual growth with a proportionate increase in the quantity of bloom can be had than is obtainable when nothing beyond the ordinary peat or loam is used. Respecting the time at which manure water or surface dressings can be used with advantage, that which is applicable to plants generally holds good with the hard-wooded subjects in their various kinds. I never found that any good, but rather the reverse, resulted from giving manure to pot plants of any kind before their roots begin to move. As soon as young feeding fibres commence to form, then is the time to begin giving assistance, and as a matter of course in the height of the growing season, when both root and shoot extension is in full swing, the plants are in a condition to bear more than at the commencement of the season. As to mixing anything in the shape of manure with the soil at the time of potting, I do not approve of it for the class of plants under consideration. The roots enter the new material, either peat or loam, freely without manure, and when given either in the form of liquid or a surface dressing with the fertilising elements contained to be washed down by the water applied, it reaches the whole of the roots at the strength it is intended to; whereas when anything of a solid character is mixed with the soil the roots come in contact with particles of it that are stronger than they like.

Nothing can be instanced which shows the beneficial effects of manure to hard-wooded plants more conclusively than the Cavendishi and ventricosa Heaths that some of the leading market growers now bring to Covent Garden. The size these plants attain and the profusion of bloom they produce from the tops to the rims of the pots is marvellous, considering the small pots they occupy, and it is only in comparatively recent times that the growers found what could be done in this way. They have worked the matter out to a nicety, beginning with small or weak applications at first, until they found out the exact quantity which the plants would bear. But in the case of these Covent Garden plants and the various hard-wooded kinds in the hands of private growers there is this difference, that the former are worked up to the highest point attainable whilst they are young, not being expected to go on further than to make a display at the time they are sold. It is possible in careful hands that the young plants in question may go on and thrive, but I would rather take the chance of stock that had not been worked up to such a high-pressure point.

T. B.

Climbing Fuchsias.—I quite agree with the writer in THE GARDEN of May 16 that nowhere are Fuchsias seen to better advantage than when used to clothe the rafters or pillars of a greenhouse or conservatory. If grown in a suitable border and attended to in the matter of pinching to induce a profusion of flowering sprays, the Fuchsia makes one of the most effective of greenhouse climbers. Some kinds, however, are better suited for the purpose than others, and a note of some sorts I have found make good climbers may be of use to some of your readers. One of the best is an old Fuchsia named Lord Clyde, of graceful habit, short-jointed, and free flowering. Venus de Medici and Rose of Castile are good old sorts for climbers. Delight, a variety with single white corolla and scarlet tube and sepals, is effective and flowers freely. Mr. King, Mr. Flass, Harry Brooks, Creuza, and striata splendida are free blooming and satisfactory. The white Fuchsias with scarlet or pink corollas are, as a rule, not so satisfactory as the darker sorts for use as climbers, not being so vigorous or free flowering as the latter. The best of the whites I have tried is an old kind named Fairy Queen, a

fairly robust grower and abundant bloomer. Covent Garden White I have tried, but found it did not grow satisfactorily. Fuchsias of the Lord Beaconsfield and Mr. Rundell type are best adapted for pot work; although strong growers, they do not possess the free branching habit necessary to make graceful climbers. F. dependens does best in a lofty house. In a house of moderate height where planted out it has rather a strong rambling growth. By restricting its roots to a box I hope to get more moderate growth and more flower.—D. M., *Dun-robin*.

STOVE CLIMBERS.

Most of these will now be growing apace; in fact, it is just possible that some will be occupying more room than can be spared them without detriment to others. This will at times occur where those which are predisposed to a strong growth have been turned out into a too rich soil. This is a mistake if many kinds are grown, and should be guarded against. Aristolochias grow away very freely; some of the shoots of these where thick should be thinned out; this will be found better than allowing them to entwine themselves one around another. Guard against red spider upon these plants as far as possible. For all practical purposes *A. elegans* is the far better kind to grow. *Stephanotis floribunda*, whether growing or flowering, or both combined, should be kept well syringed. This can be done with impunity; the flowers seem rather to enjoy a good bath. Plenty of water at the roots also will be needed, otherwise the flowers will open small and not last so long. As soon as the earliest flowering plants have ceased to give a good return, they should be kept dry at the roots and then receive the annual pruning preparatory to restarting into growth again for the securing of well-ripened shoots by the autumn, this being about the best method of obtaining the earliest flowers. *Passifloras* when flowering should have the shoots pulled below the trellis if their own weight is not sufficient to render them pendent; their flowers are thus seen to better advantage. *Jasminums* for winter blooming, on the other hand, ought to have their growths kept up to the light and not be allowed to overcrowd each other. *Thunbergias* require about the same attention as the *Aristolochias*. *Cissus discolor* should have the main shoots only tied up, all others being permitted to droop down. *Dipladenias* require careful looking after; each point of the running shoots should be carefully looked to and preserved from injury. Do not allow these to become entangled, but keep each one separate. The same remarks apply to *Gloriosa superba*, which, when it is in good health, grows very rapidly. *Bougainvillea glabra* will oftentimes get very thick; when it flowers freely, a good remedy for this is to cut freely and with a good length of wood. When there is any vacant roof space additional climbers may advantageously be added, such, for instance, as *Combretum purpureum* (a semi-climber), *Oxera pulchella* (a novel plant), and *Ipomæa Horsfalliae* (for the winter). *Bignonia venusta* requires a warm house, but not the temperature of an ordinary stove house. The same remarks apply to *Myrsiphyllum asparagoides* and the green-leaved varieties of the *Smilax*, all of which can be very well cultivated even in a warm greenhouse. These will thrive well with the varieties of the African *Asparagus*. The *Hoyas*, save in the case of *H. imperialis*, had better be kept out of the stove proper if other things are plentiful. The variety named is, however, a grand climber where it thrives, but it is not much seen by reason of its disposition at times to die off. I have succeeded well with it, however, when kept in a comparatively small pot.

PLANTSMAN.

Agapetes buxifolia.—Like many of its allies, this beautiful Himalayan shrub remains in flower a considerable time, for not only do the individual blooms keep bright for a lengthened period, but a scattered succession is often maintained from early in the year till spring is well advanced. The bright red, wax-like, tubular-shaped blossoms, which droop thickly from the undersides of the ripened

shoots, are not the only attractive feature, for they are succeeded by berries, which when ripe are of a milky white hue, and are consequently very conspicuous against the dark glossy green leaves. This *Agapetes* is a near ally of the *Vacciniums*, some of which it much resembles, and it succeeds perfectly with the treatment given to the *Rhododendrons* from the same region. Singularly enough, a shrub possessing all these desirable features, and needing only the protection of a cool greenhouse for its successful culture, is even now a rare plant, though it has formed a very attractive spring feature in the temperate house at Kew for several years.—H. P.

Useful plants in the greenhouse.—*Rhodanthe* seed sown now will provide a useful lot of plants during the latter part of the summer, when there is not at all times too great a variety. The soil for this annual should be made firm, nothing beyond 6-inch pots being used. When sown, a cold frame will suit it well, covering over the surface until the seed germinates. Another good annual for autumn flowering is *Alonsoa Warscewiczii*. This will do well under similar treatment. A few plants of *Acacia lophantha* and of *Grevillea robusta* should be grown for use later on. Both are useful plants of good constitution in pots. Another batch of *Ten-week Stocks* will also be useful; any now fit for potting should be put three together into a small pot. If room is scarce, these will do very well out of doors.

Nepenthes.—These singular and handsome plants are not nearly enough grown in our warm stoves. Given an average amount of attention, it cannot be said that they are difficult to grow, but rather the reverse. Nothing can be more attractive than a few well-furnished plants grown in baskets and suspended over the pathway. They would thus be easily accessible for watering. If those who are already growing them have not yet attended to the state of their roots, no time should be lost. It is not desirable to disturb the plants frequently whether grown in pots or baskets; the latter are far preferable to the former wherever available. When dealing with basket plants it is always possible to renew a good amount of the soil without in the least disturbing the plants. This, if done in a careful manner every spring time, will provide sufficient sustenance to carry the plants over the season. In doing this work a good amount of fresh *Sphagnum Moss* should be used, some very fibrous pieces of peat with the fine beaten out, and some nut charcoal with a good dash of silver sand. Where the soil is too much occupied with roots to allow of much being removed, the interstices between the material of which the baskets are made can be carefully packed full of nearly all Moss. In any case it would be a good plan to do this, as it will greatly assist the plants during hot weather. Plants which are growing too tall should have the tops taken off and struck in a brisk heat and close atmosphere. A good way of doing this is to take a 2½-inch pot with a fairly large drainage hole; with the pot inverted push the base of the cutting through the drainage hole into the pot for about 2 inches or 3 inches, then block around that portion of the stem in the pot with *Sphagnum Moss* in a firm manner. This will hold the cutting in position and provide a rooting medium also. It seems a singular manner to adopt, but I have found it to succeed, so also has a well-known grower with capital success. When well rooted this inverted pot can either remain as it is or be broken off and the cutting be inserted into a larger size before being transferred to a basket. Constant attention must be given to supply the cuttings with plenty of water by frequent dipping into tepid water. Red spider and thrips are troublesome to the Pitcher Plant family more than any other insects; to remove these careful sponging is about the best remedy. Should perchance a plant get dry so as to suffer, it should be well syringed and kept in as moist a place with shade as can be selected. In forming a fresh collection, that fine hybrid *N. Mastersiana*, with its enormous blood-red pitchers which are so freely produced, should on no account be overlooked. Of newer kinds *N. Burkei* excels bids fair to be

a worthy companion to that variety; it is quite distinct, with grand pitchers that are very distinctly marked and spotted.—H. G.

GENETYLIS TULIPIFERA.

It is now something like thirty years ago since I first saw this splendid Australian plant in good flowering condition, and I well remember the impression it then made upon me. The plant itself was not a large one, but the flowers were unusually fine. In making these remarks, I am led to think that if we were to see a few more medium-sized examples of this and other New Holland plants in good flowering form, a deal more would be done towards popularising

It is not always possible to flower the same plant well two years in succession; a moderate amount of bloom one year will be compensated for in the next. When growth commences the plants should be syringed a few times daily to encourage its speedy completion. Then the proper ripening must be attended to by fully exposing to all the sunshine possible in a warm spot out of doors. Watering should be carefully attended to with no opposite extremes. Insects are not as a rule very troublesome, red spider being the most to be dreaded. Another capital variety is *Genetyllis Hookeriana*, also known under the name of *G. fuchsoides*. This is quite distinct from the subject of the illustra-

knowledge of the florists' varieties alone. Three (as regards the size of the flowers) quite miniature species are *F. microphylla*, *F. thymifolia*, and *F. bacillaris*. Of these, *F. thymifolia* will, if trained to a pillar or some such support, reach a height of several feet, and when thickly studded with its tiny drooping blossoms it is really very pretty. *F. microphylla*, on the other hand, is a dwarf-growing species, which grown as little bushes about a foot high will flower profusely throughout the summer. In this the sepals do not reflex to anything like the same extent as in *F. thymifolia*. *F. bacillaris* is not nearly so well known as the two preceding, from both of which it is readily distinguished by the very broad petals, which render it a more lumpy flower. It is dwarf, and blooms with great freedom. *F. fulgens*, with its distinct vermilion-coloured blossoms is one of the best known, of the typical species, and one that planted out during the summer will flower profusely. Though many of these species have been hardly ever employed by the hybridist, yet *F. fulgens* has, in conjunction with one of the florists' varieties, aided in the production of one that has within the last few years been largely grown as a market plant, viz., *Earl of Beaconsfield*.

A very singular *Fuchsia* is the Mexican *F. splendens*, which is so different from any of the others, that it might readily be regarded as belonging to a different genus. This, which will grow into a bush 6 feet or 8 feet high, has cordate leaves and drooping tubular-shaped blossoms a good deal like those of some of the *Correas*. Their colouring is very singular, the major portion of the bloom being bright scarlet, while it is tipped with green. Though this is a large growing *Fuchsia*, it will flower well in the shape of bushy little plants about 2 feet high, and in a warm greenhouse it may be had in bloom during the autumn and winter as well as in the spring months. That old species, *F. triphylla*, which was lost to cultivation for many years until re-introduced a few years since, has been several times noted in *THE GARDEN*, owing to its distinct and ornamental features. It forms a neat, much-branched little specimen, clothed with dark-coloured foliage, while the flowers, which are of an orange-scarlet tint, are borne very freely during the summer. The New Zealand *F. procumbens* is widely different from any of the others, for it assumes the character of a low creeping shrub, with slender wiry stems and small roundish leaves. The flowers are very curious, but not particularly showy. They are, however, succeeded by large oval-shaped fruits, which when ripe are of a magenta-crimson colour, and in this stage they remain a considerable time. This plant is at home when grown in a suspended pot or basket, in which position its peculiar habit of growth and other distinctive features are seen to the best advantage. In any collection of *Fuchsias* the variegated form of *F. gracilis* must have a place, as it is so beautiful in all respects, and so distinct from any of the others.

H. P.

Marguerite Carnations raised from seed sown in March are now of good size, having been pricked off some time. By the end of the month these seedlings will be fit for planting out of doors in good garden soil. This most useful break in the Carnations bids fair to be of great service during the autumn. With me it is not quite hardy, at least not during the past severe winter. Those of the winter-flowering Carnations which have not struck well may now be layered out of doors. Spring-struck stock can now with safety be kept quite cool and freely ventilated. Those advancing into flower in each section should have a slight encouragement in the way of liquid manure. In all instances a sharp watch must be kept against the depredations of green and black fly, both of which are troublesome.

Streptosolen (Browallia) Jamesoni.—Here-with I send you a branch of *Streptosolen (Browallia) Jamesoni*. This began flowering on Christmas Day last, and has been in bloom ever since. It makes a very fine rafter plant, and when suspended from the roof the large umbels of flowers have a striking appearance, the colour being bright and by no means



Genetyllis tulipifera.

them than at present. One now rarely sees small specimens of this handsome greenhouse shrub, whilst the large specimens are none too numerous. There is nothing in the growth but what may be overcome by any intelligent cultivator. Careful management, it is true, is required; the reward is, however, ample when a well-flowered plant is to be seen. The endeavour at the outset with a young plant should be to keep it as dwarf as possible by stopping some of the strongest shoots when necessary. Overcrowding may be prevented by drawing the shoots outwards, but much support is not required. Fresh potting should be seen to after the removal of the flowers; these last fresh a long time, but it is not advisable to let them remain after the end of June. The potting should be after the manner of hard-wooded Heaths, choosing good lasting peat with plenty of wiry fibre in it, adding silver sand freely.

tion, but both are well worthy of being included in even limited collections of greenhouse plants in preference to so many soft-wooded subjects.

PLANTSMAN.

FUCHSIAS.

FUCHSIA DEPENDENS, so beautifully illustrated in the number for May 16, is the second species of which a coloured plate has appeared in *THE GARDEN*, the first being *F. boliviana*, a large-flowering kind, much in the way of *F. corymbiflora*, if not actually but a slight form of it. All lovers of the *Fuchsia* must be pleased to see the merits of *F. dependens* recognised in this way, for it is certainly one of the most beautiful plants for the roof of a greenhouse that we possess, while many other of the original species or hybrids but once removed therefrom, as in *F. Dominiana*, are both interesting and ornamental. Some of them differ widely not only from each other, but also from the generally accepted idea of a *Fuchsia* as formed from a

common. Some advocate a warm temperature for it, and although it will no doubt succeed in a moderately warm house, I think that of an ordinary greenhouse suits it best. It will continue to flower far into the summer, and is one of the best plants for keeping up a succession of bloom we have.—T. ARNOLD.

Grevillea Manglesi.—This is one of the most graceful and effective plants we know, as grown in Messrs. Williams' nursery at Holloway. The plant is grafted on a long stem, and the shoots hang down like those of a Weeping Willow. The numerous racemes of white flowers have a very pleasing effect.

ROSE GARDEN.

ROSE PROSPECTS.

THE reports upon the state of the Roses after the winter were very varied, and doubtless notes upon future prospects will be equally so. June is the proverbial month of Roses, but where they have been cut down to the ground flowers in that month will be very scarce. Following upon my previous reports as to the satisfactory state of our Roses, the present prospects are most gratifying. Last year the first flower opened on June 3 upon Rubens, and again this season buds are prominent on this kind, as well as on Niphetos and one or two others in the open border. Even if the weather keeps at its worst it cannot delay opening more than a few days, when shoots are so strong and buds so plump. All the kinds are now in vigorous growth, and never did they look more beautiful or give greater promise. The beauty of Tea Roses when in young growth is known to many, and some of our groups, though not yet showing a bud, are pretty pictures indeed, notably Mme. Charles, a group of twenty-four plants, the young shoots and leaves being almost crimson in colour. What the purple-leaved trees, such as the Copper Beech, are in the park and garden landscape, these lovely Tea Roses are in the flower garden when planted in groups and associated with the best hardy and other plants. The variety of colour is infinite, from green to the deepest purple-crimson. The copious and much-needed rains now come will contribute to their freshness, although probably the absence of rain has materially assisted the Roses, for the ground had sufficient moisture to start fresh growth, and was warmer in consequence of its comparative dryness. To this more than anything I attribute the rapid bursting and after progress of the Roses since pruning. April was a phenomenal month for its dryness. It may be that the change which brought the present rains damaged Roses less favourably situated than ours are. On May 11 a maximum of 50° was registered, and on the night of the 16th a minimum of 25° or 7° of frost, the high temperature accompanied by bright sunshine, the low one preceded by lightning and thunder, hail and snow. The frost on the night of May 16 must have left its mark for the season in many places, but our Roses escaped as before, thanks to elevation. The prospect will not be a bright one for those whose Roses were cut down last autumn in the fulness of autumnal bloom, and now are blackened in the tenderness of fresh growth. These early and late touches of winter's icy hand seem to extend that season over more than half of the year, from October to past the middle of May. Roses upon walls, Dijon Teas, and such kinds as Rêve d'Or and W. A. Richardson promise an unusually abundant crop of bloom, but this is partly owing to the fact that they are in a fair way to cover their allotted space, and in doing so have expended some of the exceeding vigour that characterises them for the first two seasons after planting, and this whether upon their own or foster roots.

One of the most pleasing of present prospects is the comparative absence of pests, such as maggot and green-fly. True, they may yet descend upon the Roses in numberless hordes, but the later they come the more effectually can we cope with them. When young Rose shoots are infested with fly before they are 3 inches long, the dressing that will kill the fly may injure the tender growth, but later there is not the danger, and if the shoot is carefully dipped in a weak solution of Fir tree oil, all insect life will be effectually killed. Dipping the shoots is a much more economical method than syringing for pests of this kind, especially if expensive antidotes are used. Perhaps a cheaper method of destroying fly can be found in the use of soft soap, which dissolved in warm water at the rate of one ounce to the gallon, and applied with the syringe, will do much towards keeping the plants clean, healthy, and free from disease or insect pests. This remedy I have also lately tried, and with good effect, for some kind of fly-like insect which attacks the under side of the leaves of Roses upon walls, especially Mme. Berard. I do not know what this insect is, but it sucks the juices out of the leaf till the whole plant appears like a red-spider-infested Vine or a thrips-infested Azalea. As it keeps to the under sides of the leaves, rain does not affect it, and vigorous syringing is necessary to dislodge it or keep it in check. The worst of Rose pests, however, is mildew, and the best of remedies is that which has before been recommended, namely, sulphide of potassium. Three or four syringings during the course of last season sufficed to keep our Roses clean and healthy. The mildest or worst attacks are at once arrested and kept in check. It was always worst, appearing first, spreading fastest and lasting longest upon some Roses on south-west walls, owing, as I thought, to comparative dryness at the root. At any rate already this season those Roses have been copiously watered, and it will be continued from time to time. I have observed that mildew is almost sure to appear when showers or a wet day follow upon a week or two of warm, dry weather, and it again becomes dry and warm. In times of excessive dryness it also appears. It would not appear possible to point out one common cause of mildew when the disparity between the conditions under which it appears is great, and even greater in comparison with plants under glass, which mildew attacks when the atmosphere is stagnant and laden with excess of moisture.

A. H.

Roses on trellises.—Some few weeks ago there was a discussion respecting the effect of frost and lightning upon Roses grown against iron or galvanised wire supports. Nothing very definite seems to me to have been arrived at, and I would like to add a few of my own observations of Roses so grown. I do not think the fact of the plants being grown against iron or wire is so much the reason of their dying during frosty seasons as the much greater exposure they are subjected to when grown upon such light supports. Where Roses are trained over iron or wire they are fully exposed to any biting and frosty winds, whereas walls and wooden supports afford greater protection. A steady quiet frost of even 20° or more will not do so much harm to Roses as one of 10° accompanied by a keen north or north-east wind. I have here some Roses growing upon a few wires stretched from post to post, and forming a screen of growth some 12 ft. high. The end of this screen that was exposed to a keen east wind has hardly any live Rose wood upon it, while the remainder is scarcely affected by the recent severe winter. In the other case the Roses are bush and standard plants growing in the open air, and in a corner of this bed not protected by a hedge at the back of the plants almost all of the Roses are more or less killed. This

cannot be put down to anything but the keen frosty wind to which these few plants were exposed. All growers must have noticed similar cases. If the fact of the plants being grown upon iron contributed to kill them by reason of this attracting the frost, I think we ought to see this more generally proved before accepting it as final. The same frost may not affect plants upon one set of iron supports that practically kills all of those upon another, and in all cases that have come under my notice those supports upon which the plants were most affected have been exposed to keen winds, while those partially sheltered, whether grown upon iron or any other material, were not nearly so much affected.—P.

ROSES SOUVENIR D'ELISE AND SOUVENIR D'ELISE VARDON.

I HAVE often heard amateurs giving very different reports respecting the growth and colour of blooms borne upon Roses under the name of Souvenir d'Elise. As it does not seem very well known among small growers that there are two distinct varieties under this name, I give a brief description of each so as to guide them as to which of these two they possess. Some years back a grower offered me a very large plant of Souvenir d'Elise, and as I wanted to get a good stock of this Rose I purchased it, intending to graft all the suitable wood. Had I seen the plant previous to buying, I should not have given half the figure I did for it, as it turned out to be the strong-growing Devonshire variety of this grand Rose, and as I had already got plenty of this the plant was practically useless to me. Since then I have been struck with the number of times I have heard the exhibition variety—Souvenir d'Elise Vardon—spoken of as an extra strong grower and making as stout a bush as any Rose grown. It will be needless to mention to any exhibitors well up among Roses that there is a vast difference between the two kinds both as regards their flower and habit of growth.

SOUVENIR D'ELISE VARDON, introduced by Marest in 1852, is one of the finest exhibition Roses grown; it has wonderfully stout shell-like petals, is grand in shape, and lasts in good condition a long time, while in size perhaps no Tea Rose can surpass it; colour a very pale straw and yellowish white, being a little deeper in the centre and slightly flushed with a rosy tint towards the edges of the young flowers. This variety is only of moderate growth, but every bloom produced will form a nice flower.

SOUVENIR D'ELISE (the Devonshire variety) is a particularly free and strong grower, being one of the earliest and freest blooming Roses we have; more often than not the first flowers come with a green core in the centre, caused by their being so forward in growth that frost affects them. This variety is one of the finest garden Roses we have, but is of little, if any use for the exhibition stand. I once used it and was disqualified for naming it Souvenir d'Elise; this was altered upon my explaining to the judge that there were the two sorts going under this name.

I think it a pity all growers do not add the latter part of the name to the show kind when describing it in their catalogues. Almost all of the Continental growers have it under the full name. I forgot to describe the colour of the Devonshire variety, which is a very pretty and deep pink, good shape when very young, but soon opening out into a flat flower with a triangular-shaped centre.

RIDGEWOOD.

What constitutes a good Rose?—The most essential point is a hardy, healthy, and fairly strong habit, as however good the individual blooms may sometimes come, unless the variety is hardy and of good habit I should not consider it a good Rose. I have such kinds as Comtesse de Nadaillac, Germaine Caillot, and Emilie Hausburg in my mind, the blooms of which are perfection when one is fortunate enough to get a flower from a strongly-grown shoot; but how seldom this happens. Good-habited Roses are such as La France, Mrs. John Laing, and Alfred Colomb among the Hybrid Perpetuals, while Marie Van Houtte and Mme. Lam-

bard may be said to represent the best habited Roses in the Tea-scented class. Next I should choose the following points in the order named: shape or form, size, fulness, fragrance, freedom in blooming and a decided colour. Whatever style of shape, whether 'cupped or globular, the petals should be evenly placed and not too crowded. The colour should be decided and permanent, not like Cheshunt Hybrid, for instance, which loses its pretty cherry colour so soon after the bloom is three parts expanded. Many Roses lose one of their chief beauties, viz., the satiny freshness of their colours, within a few hours of their expanding, and these I should not call good Roses. Baroness Rothschild possesses every good quality required in a Rose except scent, and this it is unfortunately quite void of. I name a dozen Roses that have every good quality mentioned above: General Jacqueminot, Marie Baumann, A. K. Williams, Duke of Edinburgh, Catherine Mermet, Marie Van Houtte, Maréchal Niel, Mrs. John Laing, Charles Lefebvre, Fisher Holmes, Anna Olivier, and Rubens. More might easily be named, but all of these I consider good Roses; and as we can have almost any shade of colour with the rest of the good qualities named, it seems a folly to grow so many quite second class varieties.—RIDGEWOOD.

TREES AND SHRUBS.

NOTES FROM GLEN COVE, N.Y.

THE JAPANESE FLOWERING APPLE (*Pyrus baccata floribunda*, commonly known as *P. Malus floribunda*) is the most beautiful object in our grounds to-day—broad and bushy shrub-trees, whose branchlets are a dripping mass of crimson buds or smothered in pink and crimson-tinted open blossoms. Words cannot convey any idea of their great profusion.

THE BLUE DAPHNE (*D. Genkwa*).—I see very little in THE GARDEN about this gem. It comes into bloom here about the end of April before the leaves appear and lasts till the second week in May or longer. Every little twig is smothered in lilac or violet-blue blossoms, and small plants only two years old bloom freely. The old plants are very beautiful. Plants a dozen years old are not over 3 feet high, and plants three years old are 2 feet high, and all covered with blossoms. It is a native of China and Japan.

ELÆAGNUS LONGIPES is in full bloom and a very pretty shrub it is, neat and comely in form, and smothered in silvery grey flowers. But it is as a fruiting shrub that it is most ornamental and useful. Since a year or two it has had quite a boom in this country, and the demand for it has vastly exceeded the supply, and many thousands of it have been imported from Europe, but I fear in several cases other species than *longipes*, notably *umbellatus*, have been substituted for it.

GRAFTING THE CYTISUS.—Why do you folks in England persist in working the different small species of *Cytisus* (*nigricans*, for instance), or at least many of them, standard high on Laburnum? Is it to render what otherwise would be a beautiful shrub an abomination, or what? If you cannot claim beauty for it, surely you will not lay it to utility.

MAGNOLIAS IN POTS (page 313).—Apropos of Mr. G. Wythes' note, let me suggest that he add *M. stellata*. It is the earliest and most free-blooming of all the deciduous Magnolias, even a day or two ahead of *M. conspicua*, and it is dense and bushy, while its sweet and graceful blossoms are admirably adapted for cutting. As a pot plant I have found *M. glauca* too slow and not abundant blooming enough.

WINTER COLOUR OF CONIFERS.—Let me add a couple of genera to "J. M.'s" note (page 328), namely, *Retinospora* in the species *ericoides*, and *Juniperus* in Douglas' Golden Juniper. "J. M.'s" reason for this change of colour, "the want of sunshine in winter," is, I fear, hardy tenable.

ARALIA MAXIMOWICZI is spoken of (p. 364) as "an erect, free-growing shrub." With us it acts as if it might be a pretty smart tree, and I am informed that it attains to considerable arboreal proportions in Japan. It is perfectly hardy with us.

STYRAX JAPONICA.—I am glad you have called attention to this shrub-tree. When in full bloom it is the loveliest plant in our collection, but, alas! it lasts only a few days in flower. Its blossoms, unlike those of *Halesia*, are snowy white, and so numerous as to weigh down the slender branches weeping fashion. The trees bear seeds abundantly, and the seeds take a year to germinate, but then they come up like Willows. With us it makes a very shapely round-headed little tree.

SPIRÆA LÆVIGATA (p. 383).—True, it is very distinct from *Spiræas* generally, and when it is in good condition and good bloom, as it now (May 5) is with us, it is quite ornamental. But as summer advances it begins to assume a seedy appearance, and about the middle or end of August it presents a very wretched aspect.

SPIRÆA MEDIA begins to bloom with us about the 1st of May. First of all comes, following in the order given, *S. Thunbergi*, *S. prunifolia* fl.-pl., *S. hypericifolia*, *S. lævigata*, and *S. media*. It is quite distinct from *S. chamaedrifolia*, which has square branches, while *S. media* has round branches. *Spiræa confusa* is a synonym of *S. media*.

SPIRÆA TRILOBATA (p. 383) is a very fine species, but completely eclipsed in habit and beauty by its variety *Van Houttei*. The flowers of the latter are larger and of a purer white than those of the true *S. trilobata*. Left alone, *trilobata* forms clumps 5 feet to 6 feet high with us, and *Van Houttei* a foot or more taller.

XANTHOCERAS SORBIFOLIA.—I am surprised to learn that this does not bloom very well in England. I wish you could see our plants in five or six days from now, when they will be in full bloom. On plants 5 feet or 6 feet high there are over 100 racemes apiece; they are not only terminal, but lateral from every bud on last year's wood. Our plants also fruit quite freely. No doubt the *Xanthoceras* is a capital shrub (with the habit of a little tree) for forcing in winter for conservatory decoration, but its blossoms are useless as cut flowers, as they wilt so soon after being cut.

THE HARDINESS OF SOME SHRUBS.—There is something curious about this. Take *Phillyrea Vilmoriniana*, for instance; it seems to be perfectly hardy with us, and so are *Azalea amoena* and *Bambusa Metake*, and right alongside of them the common Whin (*Ulex europæus*) gets killed every winter. And about the common yellow Broom. Plants from Surrey, in England, get winter-killed, while those we have from seed from Northern Europe appear to be perfectly hardy. But this same thing is evident in the case of some of our Spruces and Firs. *Picea pungens*, *Abies concolor*, and *Pseudotsuga Douglasi* from California seed are not reliably hardy here; whereas the same species from seed from the mountains of Colorado are among the hardiest Conifers we grow.

May 5. W. FALCONER.

The Cornelian Cherry and June Berry.—Few of our large-growing shrubs, or small trees,

are so well suited for planting side by side as the Cornelian Cherry (*Cornus mas*) and the June Berry (*Amelanchier canadensis*). They flower together, keep pace in growth, require the same class of soil, and fade during late autumn with the showiest of foliage tints. Flowering in early spring, before the untimely frosts have yet departed, and while but the Cherry and Almond dare open their pinky buds, these trees are especially valuable and add quite a charm at that early date to the positions in which they are placed. Mantled with its wreaths of snowy white blossoms, a well developed specimen of the June Berry is a decided acquisition to any, even a choice collection of hardy trees and shrubs, and it is only to be regretted that the tree is not more plentiful, for only in a very few gardens are specimens to be seen. It is of very free growth and succeeds well in any fairly rich soil, but is all the better for a little protection from harsh winds. The Cornelian Cherry, too, requires no special care or attention, is perfectly hardy, and one of the most profusely flowered, large-growing shrubs that anyone could desire. Individually the flowers are not very large, but being abundantly produced and of a bright yellow colour, they make a fine show, and at a time, too, when flowers are by no means plentiful. Both trees are rendered particularly showy in autumn, from the fact of the leaves dying off of the most gorgeous tints, those of the June Berry in particular being unusually rich.—A. D. W.

APPLE TREES IN SHRUBBERIES.

THE wealth of blossoms which can be seen on our hardy fruit trees—Plums, Apples, Pears, and Cherries alike—suggests the idea that varieties that are constant in bearing can be employed with great effect as shrubbery trees, much more indeed than is the case. An exquisite beauty pervades the flowers of these trees, and more especially so when an auspicious spring heaps up the blossoms on the branches in happy plenteousness. It was probably to this end Mr. Barron brought up from Chiswick Gardens to the last meeting of the Royal Horticultural Society small flowering branches of Apple trees, no doubt to show the variations in the size of the blossoms and in their tints. There is a very much greater variety in Apple and Pear blossoms than is generally supposed, and if anyone will take the trouble to examine the flowers of a dozen varieties, the differences will be made apparent, and it would be interesting to know if large-sized fruit followed large blossoms and small fruit small blossoms; also if any connection could be traced between the blossom and the colour of the rind of the fruit. The institution of inquiries of this nature would suggest others, and so a very interesting and instructive discussion might be opened up.

While the blossom of the Plum, Cherry and Pear is uniformly white, though flowers of the last are sometimes faintly tinted, there are probably but few varieties of the Apple that are wholly white. Any colour on the blossom of the Apple, so far as my own experience goes, is always on the reverse of the petals, and when any tint is visible on the inner surface, it is not actually laid on, but strikes through as it were, according to the depth it is laid on on the exterior. This statement is likely to be challenged, I am well aware, but I am recording the results of my own observation, and not attempting to lay down a dogmatic statement of fact.

In the collection shown by Mr. Barron, the largest and showiest blossom was that of the Dutch or Royal Codlin, a large and very handsome variety, the flowers deeply tinted on the exterior with dark rose. Warner's King, which was not in Mr. Barron's collection, comes very near to this in size and tint, and so does Lord Suffield. Lord Derby has rather smaller, but showy blossoms. The whitest was Gravenstein, almost a pure white and fine in the blossom. King Harry, an early dessert Apple of the first quality, has very pretty blossom, but not quite so deep in colour as that of Lord Suffield. Manks Codlin, a favourite old Apple, produces small flowers, but deeply tinted and very pretty; and that of the old Nonpareil is very like it. The White Summer Calville has flowers with the

slightest tint of deep pink at the base. The foregoing are but a few, but they serve to supply a selection of Apples with flowers varying in size and tint, and generally good bearers as well as good varieties.

A neighbour of mine has some standard trees of Apples that are pruned back very hard indeed each year, and though they were planted fourteen years ago, they have small sized heads compared with the size of the stems. But they are just now of great beauty, and they generally flower well despite the severe pruning to which they are subjected every year. Such trees are well adapted for

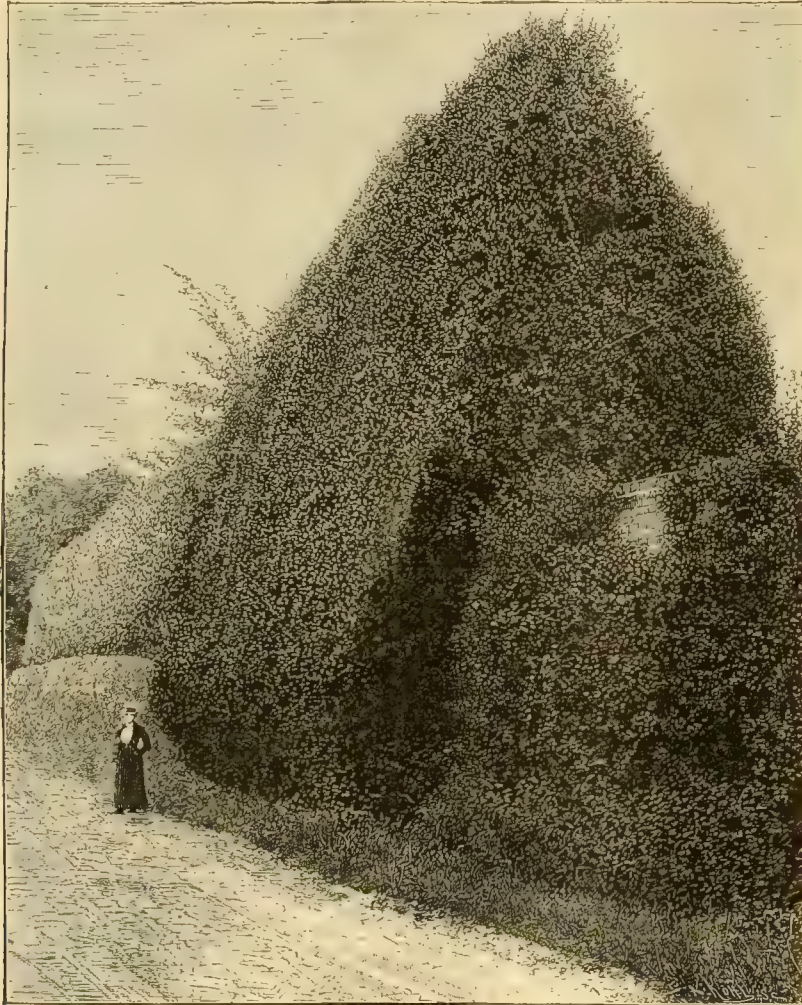
tion. But as Apples planted closely together in orchards, the branches of which mingle together, produce at times very heavy crops of fruit, it may, therefore, be reasonably supposed that trees in shrubberies may be likewise favoured, and a good yield of blossom and fruit alike reward the cultivators.—R. D.

— The various kinds of fruit trees now laden with blossom form most conspicuous objects in the garden landscape, and the wonder is that they are not more extensively used for ornamental planting. In a few establishments their merits in this respect have been fully recognised, and with the most satis-

If the planting of fruit trees for ornament be done with discretion, a prolonged display of bloom may be had. In early spring, the Almonds and Peaches, and particularly the large single and double-flowering kinds, are very effective, while following them closely come the Plums and Cherries. Of the latter, the common wild sort is very attractive when grown into a large tree and covered with beautiful white bloom. The double variety, too, is simply charming, the pure white flowers being also very useful for cutting. Then the Pears are usually a sheet of white bloom, which contrasts beautifully with the pinkish flowers of the common Crab and early kinds of Apples. In Apples alone a great variety of colour in bloom may be had. The richly coloured and large-blossomed kinds are much the best for this purpose, they being by far the most effective. Of these, there are many, including such kinds as Manks Codlin, Warner's King, Cox's Orange Pippin, New Hawthornden, Norfolk Beaufin, Lord Suffield, Grange's Winter Pearmain, Nelson Codlin, Red Astrachan, Worcester Pearmain, and others. Blenheim Orange makes a fine lawn tree, and the same may be said of Wellington. There used to be two or three fine trees of the latter variety on the lawn at Medstead Rectory, near Alresford, and these rarely failed to produce remarkably fine crops of fruit.—C.

HOLLIES.

HOLLIES succeed best when moved in April or May, and dull weather, if possible, should be chosen for the operation. August and September are also favourable months for transplanting Hollies. The ground intended for the line of hedge should be trenched from 18 inches to 24 inches deep and from 3 feet to 4 feet wide, turning out bad subsoil and stones, and replacing them with rich soil or fibry turf, well chopped up and intermixed with the original soil in the line of fence. The plants should be from 12 inches to 18 inches high, bushy, and well rooted, and planted just clear of one another. Smaller plants will succeed equally well and cost less money, but a longer time must elapse before the hedge will be a sufficient fence against cattle, &c. If the weather and soil be dry when planting is being done, wash the soil in amongst the fibres with a liberal soaking of water, finishing off by adding a thick layer of litter, Bracken, or any rough herbage over the roots. This will prove a sure safeguard should a dry summer follow. All the attention that is necessary for two or three years is to keep down weed-growth about the necks of the plants. When the hedge has become fairly established, the plants may be slightly trimmed, encouraging a broad base and narrow, wedge-like top. Holly hedges should not be topped until they have attained the desired height necessary to form a sufficient fence. The annexed illustration shows a part of a fine Holly hedge 40 feet high. B.



A fine Holly hedge at Bagshot, Surrey.

shrubby borders. I know that objection is often urged against the employment of Apple trees in such places, that their spreading heads would have an injurious effect upon the shrubs beneath them, but the trees in my neighbour's garden just referred to seem to show that the heads may be cut back hard at the winter pruning and yet be full of blossom and fruitful. What is required on the part of the planter is to select sorts that are constant bearers, securing at the same time as much variety in the tints of the flowers as possible.

Another objection urged against the planting of fruit trees in shrubby borders is that opportunity is afforded for insects to destroy the crop, as the trees cannot be so well looked after as if they were growing in an orchard or ordinary fruit garden. But no one would plant trees among shrubs for the sole purpose of securing fruit. What they would aim at would be the floral effect in spring, and the production of fruit would be a secondary considera-

factory results. The general opinion amongst those responsible for the laying out of English gardens appears to be that the orchard and vegetable garden are the only places in which fruit trees should be planted; but such an impression, it need hardly be said, is erroneous. Flowering trees and shrubs far less effective than either the Apple or Pear are given prominent positions in the flower garden and pleasure grounds, and therefore why exclude fruit trees? An old Pear tree on the lawn of a garden of my acquaintance has been a picture for some weeks past, and close by it are several huge Apple trees just bursting their charming pink blossoms. The stems, too, of these are covered with Ayrshire Roses, which flower most profusely through the summer, and thus the trees are by no means ineffective when their blossoms are over. Well would it be could the same be said of more gardens, and in shrubberies fruit trees are deserving of being extensively planted if only for their beauty alone.

Berberis dulcis.—From the district bordering on the Straits of Magellan to the northward there occur several evergreen Barberries, by far the best known of them being Darwin's Barberry, which is now so universally cultivated, and is certainly entitled to a place among the best of our early flowering shrubs. Still, *B. dulcis* must on no account be passed over unrecognised, for it is a handsome, free-growing bush, which reaches a height of 6 feet to 8 feet. The leaves are small, firm in texture, and of a very deep green hue, while the blooms, although solitary, are borne in great profusion, and impart a distinct appearance to the plant from being suspended on unusually long stalks. They are of a clear bright yellow, very different from the orange-hued blooms of *B. Darwini*, while what is also of considerable importance is that this species flowers earlier in the season than either Darwin's Barberry or *B. stenophylla*, which is perhaps the finest hybrid hardly shrub ever raised.

Another of these South American Barberries just on the point of expanding is the little *B. empetrifolia*, one of the parents of *B. stenophylla*, the other being *B. Darwini*. Among the deciduous members of the genus now in bloom, the first to expand is the pretty little Chinese *B. Thunbergi*, which attracted such an amount of attention last autumn when exhibited at some of the horticultural meetings. It was on October 28 awarded a first-class certificate by the Royal Horticultural Society, the principal autumn features being the intense crimson colour of the decaying leaves and the bright sealing-wax-like oblong-shaped berries. In spring the flowers and leaves make their appearance simultaneously with each other, and though the individual blooms are not showy, they are seen to advantage when associated with the tender green of the unfolding leaves. This species forms a dense, rather spreading bush, thickly clothed with small roundish leaves, while the flowers, which depend in great profusion from the undersides of the shoots, are brownish-crimson in the bud state, and when fully expanded the exterior of the flower remains of that hue, while the inside is of a sulphur-yellow tint. It is certainly a very pretty Barberry and should become much better known than it is at present.—T.

SOCIETIES AND EXHIBITIONS.

THE TEMPLE SHOW.

MAY 28 AND 29.

THIS was the largest exhibition yet held by the society in the Temple Gardens, and four very large marquees were required to give accommodation to the exhibits, and even then crowding was necessary. An excellent effect was maintained throughout, and great credit was due to Mr. Barron and his staff for the arrangement, which was greatly appreciated by the exhibitors. Entering from the eastern end of the gardens a tent with tabling down the centre and sides, Messrs. James Carter and Co., 237-8, High Holborn, W.C., filled a considerable space. They had very fine *Calceolarias*, superb *Mimulus*, *Petunias*, *Gloxinias*, and a panel of curious Cacti. On the right hand followed Mr. Pritchard, Southdown, Christchurch, Hants, with hardy flowers and alpine plants, conspicuous being a batch of *Ramondia pyrenaica* and the beautiful blue *Gentiana verna*. Then came Messrs. Barr and Son, King Street, Covent Garden, with a remarkable collection of hardy flowers, including Tulips in great variety, the brilliant Parrot types being very prominent; *Violas*, &c., and a batch of single *Pæonies* in pots. Messrs. Veitch and Sons occupied a good space of the centre table with a large batch of their seedling *Streptocarpus*, *Gloxinias*, Tulips, and many hardy flowers of a most attractive character. Mr. T. S. Ware, Hale Farm Nursery, Tottenham, followed on with a gigantic collection also, Lilies and *Pæonies* in pots occupying the centre, the sides lined with the many gems for which the Hale Farm Nurseries are so famous. The remainder of the table was occupied by a remarkable collection of Ferns from Messrs. W. & J. Birkenhead, Sale, Manchester. Filmy Ferns played an important part, and there were many choice hardy types of great interest for lovers of these subjects.

Following this was another long tent, and here the visitor got the first peep of the marvellous collections of Orchids the like of which never before has been seen. One side of the centre stage was filled by a gigantic collection from Mr. F. Sander, of St. Albans. The collection was rich in all the finest types, *Cattleyas* being in splendid form. In the centre of the group suspended in baskets was the finest display of *Odontoglossum citrosimum* that we have ever seen. One can scarcely attempt to compute the value of this remarkable collection. On the other side of the centre stage Messrs. H. Low and Co., Clapton Nursery, had a very fine collection—*Dendrobiums*, *Cattleyas*, *Miltonias*, *Cypripediums*, &c., being seen to great advantage. From Mr. Blandford, Moor Hill Gardens, Bitterne, Southampton, came a fine specimen of *Dendrobium*

nobile. The Rt. Hon. J. Chamberlain, M.P., Highbury, Birmingham, sent a remarkable collection of *Masdevallias* of large size and richly coloured. Next was a large and striking group of Orchids from Messrs. B. S. Williams and Son, Victoria Nurseries, Holloway, N., including *Lælia purpurata*, *Cattleya Mossiae*, and others in variety, *Oncidiums*, *Miltonia vexillaria*, large pieces of *Utricularia montana*, *Cypripedium selligerum majus*, &c. Mr. J. Cypher followed on with a collection, *Dendrobium Jamesianum* being a leading feature, the *Lælas*, *Cattleyas*, *Odontoglossums*, *Dendrobiums*, &c., being also noteworthy.

On the right hand side Messrs. H. Cannell and Sons, Nurserymen, Swanley, Kent, staged representative collections of single and also of double-flowered *Begonias* of high quality, the rich orange and golden colours among the singles being particularly striking. The same exhibitors had a large collection of bunches of the leading decorative *Pelargoniums* of fine character. Mr. C. Turner, Royal Nursery, Slough, exhibited some capital large-flowered *Pelargoniums*, and Mr. J. Wiggins, manager to Mr. D. Baldwin, Hillingdon Heath, had a basket of a rich-looking tricolor *Pelargonium* named Harbour Lights, finely coloured and of excellent habit. Mr. R. Miller, Southdown Nursery, had white *Pelargonium* Pearl, pure throughout, and Messrs. Balchin and Son, Nurserymen, Brighton, had a batch of the beautiful blue *Leschenaultia biloba* major, which they grow with so much success.

On the other side, Messrs. H. Low and Co. put up a miscellaneous group of charming flowering plants and foliage. Mr. H. B. May, Dyson's Lane Nursery, Edmonton, had one of his pleasing groups of Ferns, mixed with *Crotons*, *Dracænas*, and other bright-foliated plants—a collection of great merit. Messrs. John Laing and Sons, Stanstead Park Nursery, Forest Hill, S.E., set up a large collection of double and single *Begonias* mixed together, including several very fine varieties, such as *Rose Laing* (double), *Prince of Wales*, crimson; *Darkest Africa*, maroon-crimson; *Baron Schroeder*, double; *Mrs. Richard Dean*, light centre, with broad carmine edge of bright carmine; *Picotée*, white with slight edge of pink, &c.

The large tent of great breadth had a broad central stage, and on this were grouped the collections of Orchids from the leading amateur cultivators with a few choice subjects. On entering, the visitor was confronted by a wonderful bank of plants of the old Malmesbury and pink Malmesbury Carnations, grown in pots and bloomed as finely as one could well desire to see them. They came from Mr. J. Jennings, gardener to Mr. Leopold de Rothschild, Ascott, Leighton Buzzard. Following them on the right was a superb bank of Orchids from Mr. W. White, gardener to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, including *Lælias*, *Cattleyas*, *Vanda teres*, *Maxillaria Sanderiana*, &c. Then came another rich and varied collection from Mr. Ballantine, gardener to Baron Schroeder, The Dell, Egham, and one that forbids indulging in particulars, the examples being grown and bloomed in that fine character for which The Dell is famous. The richest treasures of the Orchid houses were found here. Mr. C. J. Salter, Woodhatch, Reigate, had a remarkably good collection also. From Mr. G. W. Cummins, The Grange, Carshalton, came a very good group in which *Cattleyas* were remarkably handsome. Mr. Whillans, Blenheim, Woodstock, had a collection including *Lælias*, *purpurata* being particularly fine. Mrs. Arbuthnot, Priory Place, Bexley, had a collection which included very fine *Cattleyas*, *Miltonia vexillaria*, &c. Mr. G. Reynolds, Gunnersbury Park, Acton, staged a large collection of *Vanda teres* which he grows so successfully. Mr. M. C. Cooke, Kingston Hill, Surrey, had *Cattleyas*, *Oncidiums*, &c. Mr. A. H. Young, East Sheen, Surrey, had a group also, including a fine piece of *Oncidium Marshallianum*. Mr. James Godfrey, Spetchley House, Southampton, had a group of *Phalaenopsis*. Mr. Thos. Statter, Manchester, had a very fine lot of *Cattleyas*, &c. From Arddarroch, N.B., Mr. R. B. White sent cut Orchids, &c.

The leading features round the sides of this tent

were groups of Roses in pots. The largest came from Messrs. William Paul and Son, Waltham Cross, and included several new varieties. Messrs. Paul and Son, Old Nurseries, Cheshunt, had plants of leading varieties. Mr. W. Rumsey, Waltham Cross, had a good collection of plants also.

Messrs. B. S. Williams and Son had a very large collection of miscellaneous plants, also Messrs. J. Laing and Sons. Mr. W. Iceton, Barnes, had Palms and variegated-foliaged subjects. Mr. J. Ford, Wexham Court, Slough, showed herbaceous *Calceolarias*. Messrs. J. Peed and Sons, Streatham, had a group of *Anthuriums*, &c. Mr. C. Turner showed specimen *Azaleas*. Messrs. James Veitch and Sons showed hardy flowering shrubs, &c., and Messrs. Cutbush and Son, Highgate Nurseries, put up miscellaneous flowering subjects. Messrs. Heinemann and Denis, Angers, France, had a fine collection of single forms of the Crown Anemone and double *Pyrethrums*. Mr. Geo. Phippen, Reading, had table decorations and a large collection of *Violas* in pans, and arrangements in flowers also came from other exhibitors.

Fruit.

A fine collection of fruit trees in pots, consisting of Peaches, Nectarines, Plums, Oranges and Pears, was sent by Messrs. Rivers, Sawbridgeworth; this group made a splendid feature, being staged at the entrance of the tent devoted to fruit and vegetables. Among these were several trees of a new Nectarine, stated to be one of the earliest varieties, even earlier than Napier. Home-grown fruit was shown in quantity by Mr. Geo. Monro, Covent Garden, comprising good Peaches, boxes of Strawberries, each containing six small punnets of fruit, good Melons, Grapes (some of these badly coloured), Tomatoes, Cucumbers, and Asparagus. Messrs. Veitch showed eighty-six dishes of Apples in grand condition at so late a period of the season. The best were Lane's Prince Albert, Dumelow's Seedling (in fine condition), Dutch Mignonne, Bismarck, Hoary Morning, and King of Tompkins County. This last was a grand dish of fruit. Eighteen large baskets filled with Channel Island produce were sent by Mr. Monro, and comprised Melons of fine size, black and white Grapes, Figs, and a collection of vegetables, including Peas, Beans, and Potatoes. Messrs. Cheal and Sons, Crawley, exhibited twenty-five dishes of fruit, chiefly Apples, in very good condition. The Uvedale's St. Germain Pears were remarkably good. Messrs. W. & E. Wells, Hounslow, exhibited twenty-four plants of Strawberries, bearing fifteen to twenty well-coloured fruits, also a basket of fruit of excellent quality. The variety in both cases was Sir C. Napier. Messrs. Burton, Bexley Heath, exhibited a box of eighteen Alexandra Peaches. They were of fine quality for so early in the season and well coloured. The Duke of Northumberland, Syon House, Brentford, showed large Brown Turkey Figs and President Strawberries in good condition. Good Tomatoes were sent by Mr. Forster, Frisden Gardens, Berkhamsted. Mr. McIndoe, Hutton Hall, Guisborough, York, sent two splendid dishes of Grosse Mignonne and Galande Peaches and fine Lord Napier Nectarines. A collection of ten dishes of fruit was sent by Mr. E. Pettet, Oatlands Park, Weybridge. The Grapes were well finished and coloured, and the Melons were also very good for the season. Mr. J. F. Campbell, Woodseat, Uttoxeter, Staffs, sent eight bunches of Grapes, these being Hamburg and Foster's Seedling. They were certainly a grand lot for so early in the season. A new scarlet-fleshed Melon named Raxley Lodge Favourite was sent by Mr. Miller. It was grandly netted and the flesh was of great depth, some of the fruits being ribbed. This will undoubtedly be a good Melon with more sun to give flavour. The same exhibitor sent two boxes of Raisins called Mildura, grown on the irrigation system at Mildura, and sent home by his sons. These were in excellent condition and of large size. As to the flavour, we can say nothing. Messrs. Veitch sent the new Fig St. John in pots, each plant bearing a heavy crop. This Fig was certificated last year and is certainly a great advance, as it does not shed the first crop so badly as many varieties.

WOODS AND FORESTS.

TRANSPLANTING EVERGREENS.

BOTH those who write on the subject and those who practise planting trees and shrubs are not agreed as to which is the best season of the year for planting evergreen trees and shrubs. Some plant in the autumn, others in the spring—any time from February till the end of May—and all hold that their own practice is best. As in every disputed or debatable matter, so in this question—a good deal may be said with some show of force on both sides. The advocates of autumn planting say that an Evergreen transplanted at that season has the remainder of the autumn before it to establish itself before winter comes on with its nipping frosts and cutting winds, and before the soil becomes waterlogged and chilled down to its minimum temperature. Those who stand by the practice of spring planting maintain that they altogether avoid the evils implied in the recognised necessity for planting early in autumn, because winter being gone before they begin, their plants have the whole summer before them in which to recover from injuries which are unavoidable in even the most carefully conducted planting. From my own experience I am decidedly in favour of spring planting of all kinds of Evergreens, about the transplanting of which there is any difficulty or risk. Many things may be planted at almost any season without risk, while others are particularly unmanageable, except at the most favourable season, and this I have proved is the period at which the particular sorts begin to grow. At that time life is fresh and buoyant; therefore any check administered is comparatively easily overcome. The influences of genial sunshine, gradually increasing in power, along with gentle showers, carrying warmth and nutriment into the earth, alike sustain and accelerate the process of healing the wounds inflicted on the roots! And this is the first process to be accomplished before any progress can be made by the plant in re-establishing itself in its new position. Circumstances are all in favour of this in spring, but the reverse is the case in autumn.

Winter, then, is very near before it is generally practicable to engage in planting in the autumn; consequently, the chances of plants recovering from injuries before they are forced to rest by the increase of cold and decrease of light are very small indeed. Such are some of the reasons in favour of spring planting, in so far as evergreen trees and shrubs are concerned. In the case of light dry soils, no doubt autumn planting is best, but they are the exceptions which, to my mind, prove the soundness of the rule. The particular period in spring in which the various classes of Evergreens, shrubs, and trees may be planted with the greatest safety varies very much. From the middle of April to the end of May is a pretty long period, considering the length of the day as compared with that of late autumn, and also the ease with which such work may be done owing to the soil being drier and in a more workable condition than in autumn.

Tender shrubs and trees may be transplanted in April and May with more safety than in any of the autumn months, and the result at the end of the first twelve months in many cases will be found as two to one in favour of spring planting. This is particularly the case with many of the choice Coniferæ, such as Deodars, Wellingtonias, and many others, which should

never be transplanted, unless they are to be moved many miles, till they have fairly started to grow and made some progress. No one need be afraid of the young growth suffering because of the check. I have lifted many sorts of Coniferæ of considerable size late in May, after some progress in growth had been made, and though the leading shoots which had grown 6 inches or 9 inches or more at midday leaned to one side quite alarming in appearance for some days after planting, yet every morning they stood as erect and firm as if nothing had happened to them, and in a few days they started growing, and continued to do so at a pace quite equal to the progress made by them in former seasons.

S.

Cut-leaved trees and shrubs.—Among desirable varieties of cut-leaved trees are the following: The common Oak (*Quercus robur*) affords some of the most elegant varieties there are of cut-leaved trees. Four of the most distinct varieties are *asplenifolia*, *filicifolia*, *pectinata*, and *heterophylla*, all of which are distinct and very desirable for planting in shrubberies and plantations, or for isolated specimens on lawns. The finest divided leaves are those of *asplenifolia*, each leaf being cut into narrow strips, giving the tree a feathery appearance. *Filicifolia* and *pectinata* are less divided, the former being intermediate between the comb-leaved and the Spleenwort-leaved forms. In *heterophylla* the leaves are cut in a curious manner, and are, moreover, of various sizes, a circumstance which makes it distinct from the preceding or any other Oak. The cut-leaved Sweet Chestnut bears the cumbersome name of *Castanea vesca heterophylla dissecta*. Of the numerous varieties of this tree it is by far the most elegant; indeed it is one of the handsomest of all hardy trees. The long narrow leaves of the upper parts of the branches droop in a graceful manner. The leaves at the base do not differ much from those of the common kind, and therefore form a striking contrast with the upper ones. In order to see this tree to advantage it should be planted in a conspicuous position away from other subjects, and then its fine habit will become fully developed. Of cut-leaved Alders there are two—*imperialis* and *laciniata*, both varieties of *Alnus glutinosa*. The leaves of *imperialis* are finely divided, rich green in colour, and, taking into consideration its fine habit, which is somewhat drooping, it is a great improvement on the older kind *laciniata*, which is so much appreciated for planting singly on lawns. The cut-leaved Birch should always be planted by itself in the most prominent and conspicuous position on the lawn. Although it is a rapid grower and attains to a considerable size, it is equally well adapted for large and small grounds, and wherever planted always renders a landscape charming and effective. For avenue planting it surpasses all other trees. It is the most graceful of all trees, and deserves to be better known and more widely cultivated.

The Shell-bark Hickory.—Apart from its value as one of the most distinct and handsome of hardy deciduous trees, the Shell-bark Hickory (*Carya alba*) is of considerable importance from a purely economic standpoint. It is a large and handsome tree, furnishing most valuable wood and the principal Hickory nuts of the North American markets. In a wild state it is found, according to Professor C. S. Sargent's "Catalogue of the Forest Trees of the Northern United States," in Canada, York County, Maine to the upper districts of Georgia and Northern Alabama, west to Eastern Nebraska, Kansas, and Arkansas. The wood is very heavy, strong, tenacious, elastic; furnishing the most valuable fire-wood of the Atlantic forests; extensively employed in the manufacture of agricultural implements, carriages, baskets, &c.; its specific gravity .838. The tree attains a height of from 50 feet to 70 feet, with a trunk 2 feet to 5 feet in diameter. As a striking object in the park or pleasure-ground, the Shell-bark Hickory—or as it is sometimes called the Shag-bark, on account of the

shaggy bark of the trunk, which exfoliates in rough plates or strips—is well worth the attention of the landscape gardener; whilst, with a view to planting for profit, it would be well for foresters to obtain seeds or young plants.

CULTURE OF THE LARCH.

IN dry favourable weather, when the ground is in proper order, Larch seed may be sown at any time from the middle of April up to the beginning of May. Before sowing, the seeds should be spread upon a floor to the depth of 10 inches or 12 inches and completely saturated with water. They should then be turned at least twice or thrice a day for nearly a week, by the end of which time the grains will have swelled and the "eyes" become prominent. The best soil for the seed-bed is that of a free sandy texture, and the situation should be open and not shaded in any way by trees or tall hedges. The best results are generally attained on ground that has been well manured at least a year previous to sowing the Larch seed. The beds should be formed 4 feet wide and the seed should be sown broadcast, 1 lb. of good seed being allowed for each four or five lineal yards of a bed the size specified. The seed should then be covered with one-fourth of an inch of fine pulverised soil. The beds should also be protected from the ravages of birds and vermin. In some parts of the country it is likewise advisable to stick into the ground a sufficient number of evergreen branches to protect the plants from late spring frosts. I have sometimes found it necessary to allow these branches to remain on the ground till the middle of June. Plants raised from foreign seed should have particular care in this respect, as they are scarcely so hardy as plants raised from home saved seed. By the beginning of October the plants will have perfected their growth for the season, and should they be found to be too crowded they had better be loosened with a fork and the largest-sized ones pulled out and planted into nursery rows 12 inches apart and 3 inches between the plants. Here they should remain for one year, when they, as well as the plants left in the seed-bed, will be in prime condition for planting out in the forest by the notch system. In cases where a larger size of plants is wanted, the seedlings will require to be transplanted and allowed to remain for another year, when they will then be found to have fine bushy roots and of a size suitable for pit planting.

J. B. WEBSTER.

The Lombardy Poplar (*Populus fastigiata*) is a desirable tree for the landscape, more on account of its tall, peculiar, spiry habit of growth, rendering it a conspicuous and picturesque object, than on account of its beauty. It is nowhere more suitable than in the neighbourhood of a town or country village, where it produces much the same effect as architectural embellishments. As the roots strike deep it can only be planted with advantage where the soil is deep and moderately dry. The roots readily decay when surrounded with stagnant water, and hence the trees sometimes are overturned by a storm, not without danger and occasionally accident.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.

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than cut too severely of any choice shrubs. Other most useful flowers just now are to be found amongst the Squills; of these the varieties of *Scilla campanulata* are of the greatest service, particularly the blue, the white, and the rose-coloured varieties. These should be extensively planted in woodland walks and around the margins of shrubberies. The spikes, if pulled when a few of the bells are open, will last good until the last bud has unfolded; the earliest will of course fade, but the later ones will supply their places. Most beautiful effects can be made with these flowers alone in combination with some of their own foliage and sprays of the copper Beech. When the spikes are pulled, not cut off, they can be had of such excellent length and are well suited for rather tall vases with small openings at the mouth; in these they are better held in a natural position. By growing these Squills in different positions their period of flowering may be somewhat prolonged. The common Bluebells of the woods can also be made good use of, but if in quantity, the colour should be relieved by the addition of white flowers in character, such as the light colours of the Squills just alluded to. Another excellent plant now in season from the open ground is the Lyre Flower (*Dielytra spectabilis*); for this nothing is more suitable than its own foliage; the flowers look best when cut and arranged in good lengths so that their beauty is better displayed. The latest of the Daffodils should also be made the most of; these will now include in most instances some of the poeticus section, also the *Gardenia Narciss*, with probably a few yellow ones still left in some districts. Those of the Tazetta section, where planted out of doors, will also yield a good supply about this time. With all of these Daffodils free use should still be made of their own leafage; nothing is better suited in small arrangements, but in larger ones shoots of the bronzy *Berberis* (*B. aquifolia*), or those from the common Oak with the brownish tints still fresh upon them. An excellent illustration of Daffodils with the *Berberis* was lately given in the columns of THE GARDEN. I do not, however, advocate the too free use of *Berberis* shoots at this season of the year unless the supply is unlimited; they will prove of much more value later on when well hardened. Beautiful arrangements may now be made with the late kinds of Tulips, such as *T. Gesneriana* and *T. Greigi* from amongst the species, and *Feu Brillante* and *Monstre Rouge*, commonly termed Parrot Tulips. These are all splendid for use in a cut state for producing bold effects, their own foliage being an excellent accompaniment, but shoots of either the Beech or the Oak could also be employed; the latter would be the best, being an assistance towards keeping the Tulips in position. For large vases the herbaceous *Pæonies* are grand objects; these should, I think, be used chiefly in entrance halls and corridors, where the perfume would not be so discernible as in rooms. These *Pæonies* are being more sought after and are highly valued for cutting; if cut young and the stems taken of good length and placed in a good amount of water, the blossoms will continue to expand, lasting in full beauty for several days. It does not, of course, require many of these in one arrangement; some of their own leaves should be used, but not too freely, otherwise they exhaust the flowers and quickly curl up themselves. The foliage previously alluded to will be found suitable for these also. For tall slender vases hardly anything surpasses natural grown shoots of Solomon's Seal with their flowers in full beauty; these should be cut off nearly close to the ground. Lilies of the Valley can now be had in profusion with their own leafage, but the addition of some foliage of the golden-striped variety is decidedly effective. These flowers should be pulled early in the blooming stage, being allowed a good amount of water; failing this, it is better to change it daily, or at least three times a week. Amongst dwarf plants now there are the Pansies which afford such an infinite variety in their colours; Forget-me-nots, too, will be plentiful. These can all be made use of in shallow glasses of good width with some Moss in the water, this Moss not only assisting in keeping the flowers more in position, but also safeguarding against the water being spilled over. Where the elegant foli-

age of the giant Fennel is abundant, it will be found extremely useful in varied ways when taken in small sprays. This has not so pungent an odour as the common garden kind; later on, also, as it fades away into a pale yellow, it is also of service in many instances, nearly always lasting well.

J. H.

ROSE GARDEN.

REINE MARIE HENRIETTE AS A STOCK FOR MARECHAL NIEL.

"RIDGEWOOD" makes a slight mistake. I did not suggest this or other free-growing stock as a probable antidote to mildew, but as an experiment worth trying as a cure for warts on the *Maréchal Niel*. If this well-informed writer can assist us as to the cause and cure of these warts on the *Maréchal*, for the true Rose warts are confined to this variety, he will confer the highest favour on rosarians great and small. But of course he will understand that there are warts and warts, and I by no means confine the inquiry to those mostly developed at the point of union of the scion and the stock. Such excrescences are mostly easily explained and have their root in the unequal growth of scion and stock. It would simplify the inquiry and render it more useful were these physiological inequalities either excluded from the inquiry or treated separately from the natural tendency to warts which seem inherent in the blood of this magnificent golden Rose, and which are ready at the shortest notice, or without any notice, to manifest themselves at any time or place over the entire area of this Rose. It is this wartiness in the blood that we must combat and master if we are to keep the *Maréchal Niel* in its pristine glory and vigour. Might I venture to suggest to "Ridgewood" to give the Cloth of Gold a pillar in his Rose house and report the result. In my own past experience and that of all I have seen in the past, this fine Rose was so shy as hardly to pay for house room under glass. Possibly in its old age it might prove amenable to "Ridgewood's" long rod system in his light and airy Rose house. So far as I am aware, it never developed the slightest suspicion of warts, and as we first knew, more years ago than one cares to write, it was a giant in vigour; and as generally grown in favourable sites in the open it has not yet been excelled by *Maréchal Niel* at its best. Permit me to thank J. Hinton (p. 473) for his interesting fact that the shoots of the *Mme. Bravy* stock did nothing to decoy away the warts nor to lessen their size. No; hitherto the cause and cure of this conscriptive strangling excrescence are alike unknown. But vigour in spite of their existence is something—that is if it lasts—and its durability mayhap be extended by the vigorous shoots of the fostering stock.

D. T. F.

Rose William Allen Richardson under glass.—"Ridgewood" is rendering useful service to rosarians by calling attention to the usefulness of some of the older and unique coloured Roses under glass. In many districts this fine old Rose is almost too tender for the open air, and in others it has grown more wood than flowers under glass. I agree with "Ridgewood" in all he says about this Rose excepting in this definite sentence: "The colour of the flowers sent you is the proper one for this Rose." This is rather too dogmatic, for one of the greatest charms of the Rose W. A. Richardson is that blooms of half a dozen or more different blends or shades of colour may often be cut from the same plant at the same time, and not a few prefer those of a bronzy shade to rich orange. But these are matters of fancy while there will certainly be a very general consensus of opinion in favour of the mode of long pruning under glass which will make William Allen Richardson as free-flowering as the *Maréchal Niel*.—D. T. F.

Indoor Roses.—Roses in pots should be plunged outdoors in a bed of coal ashes, guarding for the present against an excess of water at the roots until they are again growing freely. Forced Roses in pots will in a few weeks be fit for repotting. It is better to get this work done by midsummer so

that they can re-establish themselves again thoroughly by the autumn. In potting, it is best to rely chiefly upon good fibrous loam; if with a tendency to the heavy side it will not much matter, particularly in the case of the stronger growing kinds. Firm potting with the soil upon the dry side is the best plan to follow. Roses planted out, such as *Maréchal Niel* and *Reine Marie Henriette*, which are not continuous bloomers, should have the weakly wood thinned out to give room for and encouragement to the stronger, upon which most reliance must be placed for another season's crop of flowers. Keep down mildew as much as possible by the free use of sulphur, either applied to the foliage or upon the pipes when some heat can afterwards be turned on; in either case black sulphur is the least conspicuous.—J. H.

SINGLE ROSES.

THE single Dahlias have had a grand revival, and I trust to see the single Roses receive the same, for few are more beautiful than those found among this class of the queen of flowers. For vases and bouquets in a cut state they are admirably adapted, and they have a lighter and more graceful effect than most of the double and heavier varieties.

BERBERIFOLIA HARDII is a beautiful single yellow with deep maroon spots.

THE COPPER AUSTRIAN BRIER is one of the very best in this class, the flowers being bright nankeen-yellow with a rosy copper tint and very distinct.

MACARTNEY SIMPLEX, a large single white with shining foliage, is also good and is evergreen during most seasons.

PAUL'S SINGLE CRIMSON and white varieties are well worth growing; the colour of the first named is a rich vivid crimson.

CAMELIA JAPONICA is another good pure white with very large yellow stamens.

ROSA PISSARDI has slender and very spiny branches; these droop slightly and bear a quantity of pure white blossoms almost all the summer. This is a comparatively new kind and quite hardy.

Then we have the forms of *R. rugosa*, of which there is a pure white variety and also several shades of colour. This section of Japanese Roses is one of the very best for decoration. They flower early and continue all the summer, while the flowers are replaced with exceedingly showy seed-pods. These are almost as large as *Medlars*, and of a deep orange and crimson colour. The *rugosa* Roses have the prettiest and deepest green foliage of any, this throwing up the full beauty of the blossoms and berries. As flowering shrubs, particularly for any light sandy soil, very few plants indeed can surpass these Japanese Roses. RIDGEWOOD.

SHORT NOTES.—ROSES.

Rose Augustine Guinoisseau.—This Rose, sent out as a white *La France*, has proved a grand pot Rose with me. It possesses every good quality of its parent, being quite as free flowering and sweetly scented. As a pot Rose for forcing it is first-class, while as a garden Rose I am convinced it will soon be very largely grown.—RIDGEWOOD.

Climbing Niphotos.—This Rose is proving itself all that was claimed for it, the flowers being as large, white, and of equally good shape as those of the type. Shoots some 10 feet to 15 feet long are very common upon this variety, and they produce flowers from almost every eye. As a white climbing Rose under glass this must take precedence of any other variety, and will soon be extensively planted by all who have seen it growing.

Roses Souvenir d'Elise Vardon and Cleopatra.—"Ridgewood" is so generally correct in his remarks about Roses, that I am sure he will excuse my putting him right about the above named varieties. There are no two sorts of *Souvenir d'Elise*. The mistake probably arose in this way: Some thirty years since a spurious variety (*Duc de Magenta*) was distributed by a then celebrated Rose firm as *Souvenir d'Elise*. I bought some, but soon discovered the error. *Cleopatra* is anything but a strong growing sort, and not the least like a *Noisette*. The late Mr. Bennett wrote me that he

considered it a free-growing variety of the type of Princess of Wales, but flowers more in the way of Souvenir d'Elise Vardon.—BENJAMIN R. CANT.

NOTES OF THE WEEK.

Aquilegia glandulosa.—"R. D." writes in your last issue concerning the above, "It is a plant requiring good cultivation." Are we to use manure in connection with it? It is certainly one of the most beautiful of all hardy plants. The seedlings here bloomed the second year, but this year they will not flower.—G. H. C., *Brookfield*.

Aeranthus grandiflora.—This somewhat rare plant is now flowering with Messrs. Seeger and Tropp at Dulwich. It is a native of Madagascar, has distichous leaves, and the peduncle is slender, bearing a single flower, the outer portion being greenish-yellow. The sepals and petals are long-tailed. The large lip is white, the cordate tip of which is also greenish-yellow. It requires strong heat and moisture.

Cattleyas from Ireland.—I send you two flowers of *Cattleya Mossiae*, one of *Lælia purpurata*, and one of *Cypripedium bellatulum*, all of which I consider good varieties. The only fault I have to find with *Cattleyas*, &c., is the difficulty in packing them. They look lovely now, but I fear by the time you receive them they will not be so fresh-looking.—ROBERT TWISS, *Birdhill House, Co. Tipperary*.

* * All excellent varieties.—ED.

Miltonia vexillaria.—This is now flowering with Mr. Hardy at Pickering Lodge, Cheshire. The house the plants occupy is some 25 feet long by 20 feet wide, and there are now open and in bud upwards of 10,000 flowers. The plants are very vigorous, clean and healthy, and the varieties good. Mr. Measures, of The Woodlands, Stratham, has also a very fine show of this plant. The plants are very clean and healthy, but the heat given is slightly in excess of that given by Mr. Hardy.

Cattleya Mossiae majestica.—This appears to be the flower which comes from Mr. Broome, of Llandudno, marked No. 9. It is remarkable in size, measuring 10 inches across from tip to tip of petals, which are very broad and undulated at the margins and of a dark rose colour; lip very large, some 4 inches long, deeply and heavily fringed, dark violet-rose stained at the base with orange-yellow, and streaked in front with rich purple. It is certainly the finest and largest of the forms of *C. Mossiae* we have ever seen.

Apple Bramley's Seedling.—I send specimens of Bramley's Seedling Apple, which should be in every collection and extensively cultivated. You will find it fairly good to eat and excellent to roast or boil.—W. M. NEWTON.

* * Fine specimens of an excellent Apple which we find on tasting to possess some of the freshness and acid which all good Apples should have, and which late kept Apples in England so rarely have. We find this Apple grafted on the Crab grows better than any other variety in our orchard.—ED.

Flowers from Scarborough.—I send you in great haste a few flowers from outside to show how curiously kind the late winter has been on the north-east coast. *Genista fragrans*, *Convolvulus cneorum*, *Veronica Hulseana*, *Veronica* varieties, and *Stocks* are flowering freely. *Carnations* flowering from last year's stems deserve some notice as curiosities when such damage has been done elsewhere. I also enclose a few flowers of our fine *Scilla campanulata*. We have this *Scilla* in great sheets under the trees. The double Violet-scented Wallflower is very good this year; so will many things be if this fine weather lasts.—E. H. WOODALL.

Notes from Almondsbury.—With June 1 glorious weather has set in. The dripping weather of May was much needed; 3.91 was my rainfall, and the hardy flower border is full of promise. I must again eulogise *Iris Milesi*, which in the open border is full of bud. Two-year-old seedlings under a wall are nearly out. Tree *Pæonies* are in their glory; I have one single the deepest richest crimson with gold anthers, each bloom 27 inches in circumference, 9½ inches across. *Tulipa viridiflora* has great charms of its own; really green and yellow flowers should be cultivated more. I suppose one ought not to take the inch measure too much into the garden, yet it helps one to arrive at a standard of excellence. N. Bealby, a *Geranium* of Pearson's,

has fine trusses, and each bloom I find measures 2½ inches across. Are there any *Geraniums* grown finer than this? Lilies promise well, and I think I lost nothing but *Veronicas* by our severe winter. I have my doubts about the *Tigridias*, which I leave in the open; perhaps it is too soon to expect to see them.—C. O. MILES.

Agapetes buxifolia.—It has often been a matter of surprise to me that nurserymen do not "work" this very desirable plant. I have long been looking out for it, but do not remember to have ever seen it offered either by advertisement or catalogue, while a similar plant, but much less attractive, *Callixene polyphylla*, is often catalogued, and which I have grown for years.—J. M., *Charmouth, Dorset*.

Myosotidium nobile in the York Nurseries.—I was much pleased a few days ago when passing through the York Nurseries to see a fine example of this rare herbaceous perennial. It was growing in a cold greenhouse on a raised mound of earth. The general appearance of the plant resembles a small tuft of *Rheum* with an entire leaf and with very dark green glossy leaves. The blossoms are about half-an-inch in diameter, borne in a dense raceme or cluster surmounting a thick fleshy stalk 12 inches to 18 inches high. The blossoms are very pleasing, white with blue centres, the whole flower being also suffused with the same colour.—R. P.

The Snowdrop Tree.—There is not a more interesting and beautiful tree in the Kew arboretum just now than the North American Snowdrop tree (*Halesia tetraptera*), a fine plant of which near the temperate house is thickly hung with white waxy bell-like flowers resembling Snowdrops. One is attracted to it at once by its peculiar appearance, and because it is seldom seen outside a botanical collection. It is quite hardy and requires only a moist soil and sheltered spot in a garden, and in a few years it will grow into a good flowering tree. As it grows only about 10 feet to 15 feet high it is suitable for even a small garden. As the tree can be bought for a florin it should be commoner than it is.—W. G.

Dianthus Grievei.—The advantages of hybridising even in a genus like that of *Dianthus* are well demonstrated in the form called *D. Grievei*, which was raised by Mr. Lindsay, of Edinburgh, between *D. alpinus* and *D. barbatus*. The hybrid, which is a very interesting and beautiful one, has the habit and stature of *D. barbatus*, and the flowers are as large as those of *D. alpinus*. Its free flowering habit and variously tinted flowers make it a valuable addition for the rockery, where it blooms for at least three out of the twelve months. It may be propagated with ease either by cuttings or division. Another hybrid raised by Mr. Lindsay is *Phlox stellaria* × *amœna* or nearly allied species. In the hybrid the leaves are broader, while the flowers are produced in greater profusion, of a darker shade of pink or purple, and the segments not so deeply bifid. It is quite hardy and is very useful for the rock garden.

The Bluebells at Kew.—Now and for the next week or two the Bluebells make one of the most attractive features at Kew where there are some exceedingly pretty effects. Not only in the arboretum, where they grow naturally, and on the "mound," where they have been planted plentifully, but one comes across masses of them, here nestling at the foot of an otherwise bare-stemmed *Araucaria*, there in an extensive mass representing all the tints that the common Bluebell and the Spanish Squill (*Scilla campanulata*) are capable of producing. The prettiest effect perhaps is that of a broad mass carpeting the bare ground beneath a large group of *Araucarias* between the Palm house and the temperate house. Years ago this particular group of *Conifers* was conspicuously unsightly, but now it is made, as many other parts are, a beauty spot in the grounds. The Bluebells will probably be followed by Shirley and other Poppies, so that for the greater part of the year there is brightness under the not over-ornamental *Araucarias*. Kew is altogether looking very beautiful just now, and it is quite worth a journey to see the Bluebells and Horse Chestnuts alone, not to speak

of countless other plants of interest and beauty.—W. G.

Hybrid Fuchsia.—Last autumn I sent you specimen flowers of a hybrid *Fuchsia* raised here, a cross between *F. fulgens* and *F. cordifolia*. I now send a spray of the same in its spring aspect. Like *F. cordifolia*, the flowers appear simultaneously with the foliage, but unlike either parent it goes on blooming nearly the whole of the summer. The individual blooms partake more of the colour of *fulgens*, but have the flattened tube of *cordifolia*.—J. M., *Charmouth, Dorset*.

* * A distinct and beautiful variety.—ED.

Early old Rhododendrons.—Every year that I see the old early-flowering *Rhododendrons* in the gardens at Kew, in the part known as the *Rhododendron Walk*, I am so struck with their beauty of growth of leaf and flower, that I regret that they are not plentiful in nurseries, so that one might plant them in sheltered gardens. The fact is that nurseries as a rule are generally so exposed, that these somewhat tender kinds are liable to be cut by late frosts; hence they do not find favour with nurserymen. But there are so many gardens where among the sheltered screens of dense Evergreens they thrive well and their swelling flower-buds are seldom injured by late frosts. It is really surprising that after such a winter as the last, followed by an exceptionally cold spring, these early *Rhododendrons* in the sunk walk at Kew should be so finely in bloom, and they are the more enjoyable as their brilliant masses of bloom stand out prominently amidst the surrounding greenery of the late kinds. The finest in bloom now are named Hogarth, Johnsoni, Broughtoni, and Russellianum, all of shades of brilliant crimson, and all (I believe) raised many years ago.—W. G.

Notes from Derby.—The past winter has made sad work here. Nearly all the shrubby *Veronicas*, many of which had been exposed for years, have perished. The only kinds of *Cisti* which have survived the winter are *laurifolius*, *cyprius*, *formosus* (which is flowering against a south wall), and *algarvensis* (a fine plant, which has suffered little against the garden hedge facing the south); *purpureus*, a most beautiful kind, seems to be one of the tenderest. All the *Tritomas* are gone, except a plant or two of *T. Uvaria*, and all the *Montbretias*, except *Pottsi* and a plant or two of *crocosmiæflora*. *Cathcartia villosa* is dead. *Meconopsis simplicifolia* has stood the winter without protection, and is going to bloom. *M. Wallichii* perished in the open. The different varieties of *Primula Sieboldi*, also many of the alpine *Phloxes*, are very beautifully in bloom. The different species or varieties of *Trollius* I never saw so good, and the *Calthas* are remarkably fine. *Myosotis rupicola* is beautiful, and not far from it the beautiful little gem *Houstonia cœrulea alba* has been in bloom for many weeks. It is planted in light peaty loam in a rather shady situation. Not far from it is a grand patch of the lovely *Campanula pulla*. I have in another part of my garden a patch of it about 6 feet by 4 feet which will be a perfect mass of bloom a little later on. It is growing in a damp part of the garden. I have, unfortunately, lost two favourite plants of mine—*Ranunculus cortusifolius* and *Dracocephalum grandiflorum*. I saw the latter flowering beautifully in my friend's garden (the late T. Williams, of Bath Lodge, Ormskirk)—J. WHITTAKER, *Ferrobay Brook, Morley*.

New Tulips.—Where do all the new Tulips come from is a question which has puzzled many growers during the last few years. Amongst Parrot Tulips which may be to all appearance clean one year, we get various distinct varieties with no more apparent relation to Parrot varieties than *T. australis* has to Golden Eagle. The so-called species *T. Billietiana* is almost identical with Golden Eagle, and if this proves to be so, the origin of Parrot Tulips is by no means so complicated as was at one time supposed. *T. vitellina* and *flava* are often confused in gardens, though perfectly distinct. *T. flava* is yellow, very robust, and tall, and at least a fortnight later in blooming than *T. vitellina*, the flowers of which are pale yellow, almost white when old.

FLOWER GARDEN.

THE WHITE WATER LILY.

(NYPHÆA ALBA.)

WATER plants of northern and temperate regions associated with those of our own country, if selected and well grown, add much interest to a garden. A great deal of beauty may be added to the margins and here and there to the surface of ornamental water by the use of hardy aquatics. We usually see the same monotonous vegetation all round the margin if the soil be rich. In some cases when the bottom is of gravel there is only an unbroken line of washed earth between wind and water, and in others water plants accumulate till they are a nuisance. A well-developed plant or group of plants (as in the illustration) of the white Water Lily, with its large leaves and noble

the difficulty of getting this fine Violet in good condition and full flower in the open air. I admit that it sometimes fails and is generally most effective in a sheltered part of the kitchen garden or other sheltered place, but very much of its hardiness or otherwise depends on its propagation through division every year and the character of its culture. It is well to be able to write, after such a winter and cold spring as we have hardly yet passed through, that Comte de Brazza stood the killing severities of the last as well or better than the Neapolitan and Marie Louise, and even better than the single sorts. But not all nor everywhere. Within a distance of less than half a mile some blocks and masses of Comte de Brazza were taken and others left. Of course, too, the flowers from under glass were much larger, purer and longer-stalked than those from the open air; but, nevertheless, we had good carpets of the Comte de Brazza through April and May that also afforded most useful pickings for bouquets, vases and other purposes. I quite agree with all that

appeared he concluded there was no vitality in the seeds and placed them under a north wall, but fortunately without throwing away their contents. At the end of the summer he was gratified with a harvest of plants, and writing a few days since said some were still coming up through the soil.—R. D.

PANSIES.

ONE of the showiest of the self-coloured Pansies in my collection is Blue Beard, and it has the advantage of being fairly early. In the autumn I broke up three or four old plants and planted them out in a bed composed largely of old potting soil and vegetable mould, together with ashes from a burnt heap of garden refuse. In such a compost the plants quickly established themselves. They came through the trying wintry weather in safety, and they are now rewarding me with an abundance of fine blossoms. Everyone admires it, and no wonder, for its rich hue of blue is very striking; besides it is a strong grower and blooms freely. It is a good season for Pansies. They like a cool, moist spring, and during such weather they seem to store up a reserve of vigour that when warm sunny days come the cultivator who has been considerate enough to plant them in suitable and good soils reaps a great harvest of blossom. Top-dressings during the summer are very helpful. I adopt the plan of drawing the surface soil away from the plant, and in its place put a finely sifted soil of a stimulating character, and over this I crumble some rather stiff yellow loam. I find this helps to keep the surface cool and moist, conditions very helpful to Pansies during hot weather. Neither in a dry nor a poor soil will Pansies succeed, but it matters not how hot and exposed the position, Pansies will do well if planted in appropriate soil in the first instance, and then duly watered and top-dressed as occasion requires. No plants answer so readily and satisfactorily to good cultivation as the Pansy.

The hawkers of plants in our streets do a big trade in the Pansy. It is a favourite with everybody. Certain varieties are largely grown in various parts of the suburbs of London, and one that appears a favourite is a large yellow ground variety with a large dark blotch in the centre and broadly belted with maroon. It is not a show variety in the ordinary acceptation of the term, but it is of a dwarf, compact, though vigorous habit and very free. The large and showy fancy or Belgian varieties also find great favour with villa gardeners, but so many are imperfectly planted that it is no wonder they die. A small hole is made in the soil and

the roots rudely thrust into it. They do not readily penetrate the surrounding soil, and when a spell of hot weather arises they dwindle away and die. Many a forecourt to villa residences round London might be converted into a pretty and attractive flower garden if residents would have their beds and borders prepared with proper soil, plant their flowers in a right manner, and give them some attention when planted.

Many persons who attempt to grow Pansies plant too late. To plant in May, unless it is done in the best possible manner, is to court failure. If a bed of Pansies is to be in June what the cultivator requires, it should be planted by the first week in April, as the plants then get well established before hot drying weather sets in. April is proverbially a moist month, and the showers of April are invaluable in securing the thorough establishment of the plants. A light sandy garden soil needs to have some heavy yellow loam mixed with it, in order that drought shall not be so keenly felt, and a soil that is clayey and moist and inclined to heaviness must have some leaf soil and well-decomposed ma-



A white Water Lily at Burvale, Walton-on-Thames. Engraved for THE GARDEN from a photograph sent by Major A. Terry.

flowers, is an object not surpassed by any other in our gardens; but when it increases and runs over the whole or a large part of a piece of water, thickening together and becoming weakened, then the queen of British water plants loses its beauty. In small gardens Water Lilies may be grown in large tubs sunk in the Grass.

Major A. Terry, whom we have to thank for the photograph from which the engraving was made, thus writes of it:—

The white Water Lilies are growing in a small lake in the garden here at Burvale, Walton-on-Thames, in about 4 feet of water. The roots were put into soft, flat-bottomed baskets that would rot, and, after being filled with soil, were sunk. The bottom where the different groups are is rather muddy. They grow very freely; in fact, in places they spread rather too much.

Comte de Brazza Violet.—"S. D." in his genial criticism of one of my notes (p. 456) refers to

"S. D." says about the old Arabis; it has also passed unhurt through the arctic severities of the past winter and the still (May 26) passing spring, which made ugly gaps in the beautiful Aubrietias and other good companions on bank, herbaceous and alpine border.—D. T. F.

Seedling Auriculas.—The need of patience on the part of raisers of seedling Auriculas is shown in the case of some pans, the seeds having been sown in the autumn of 1889. Some germinated quickly, and by May following I was able to prick off into store pots several that were far enough advanced to admit of its being done, and this spring a few flowered. From that time forward young seedling plants have appeared above the surface, and during the past two months not a few. It is, therefore, certain—and the fact is vouched for by other raisers of seedlings—that Auricula seeds if sown as soon as gathered germinate very irregularly and at long intervals, hence the necessity of patience. An acquaintance of mine sowed some seeds of Auriculas in April of last year, kept the seed pots for six months, and as no plants

nure mixed with it. I have used finely sifted ashes from the kitchen fireplace mixed with cocoa fibre in heavy soils with great advantage, and though possessing little in the way of manurial qualities, yet they afford something into which the plants root readily.

In the south, autumn planting can be followed generally, but in the cold and moist districts of the north it is safest to plant in spring, for though the Pansy is thoroughly hardy, yet the hardest of plants not infrequently feel the effects of a hard winter, and the severe winds experienced, especially the cold east and west winds of February and March, are very punishing; indeed, in some localities so much so, that growers take up all their plants in the open ground in October and November, pull them to pieces, throw away all the old growths, and plant all the young pieces in prepared beds in cold frames. These frames are filled with brick or other rubbish to within 15 inches of the glass, and 6 inches of good soil placed over it; the plants are thus near the glass, they are kept dry in wet weather, and as hardy as a free ventilation can make them. It is frost and damp together that kill so many Pansies in the north when left in the open, and this is why frames are resorted to during winter. The plants so wintered make admirable stuff for spring planting. Being kept well aired they are quite hardy, and no covering is placed upon the glass of the frames, no matter how severe the weather, the plants are looked over when the weather is favourable, and all decaying foliage removed.

In the south the task of preserving the plants through the winter is a comparatively easy one, and although in the case of such a severe winter as that we have just passed through the tops are much injured, yet the roots survive and break up into young growths when the spring weather sets in and blooming wood is quickly formed. The majority of my Pansy bloom is from young wood thrown up this spring. The real work of preserving the plants comes with the prevalence of hot dry weather in June and July, when they feel the effect of the hot sunshine, and some to all appearance thoroughly healthy in the morning go down hopelessly before night. It is at such a time that frequent stirrings of the soil, top-dressings, and sprinklings overhead by means of a rose watering pot prove so beneficial, taking care, however, the water reaches the roots if at all dry. Water overnight, stir the surface soil the following morning, and add some top-dressing. The roots are thus kept moist and cool, and by keeping the leading shoots well pegged down young growths are produced that carry on a succession of bloom through the season. R. D.

Veratrums (p. 456) at home are growing in the densest shade of woods. I think it makes a suitable plant for covering bare spaces under trees. In the Alps of Lower Austria I remember to have passed woods of *Pinus austriaca*, the undergrowth being *Daphne Laureola* and *Veratrums*. Open to the sun, exposed parts without trees are the home of *Adonis vernalis* and *Anemone Pulsatilla*.—LOUIS KROPATSCH, Vienna.

The blue *Marguerite* (*Agathaea celestis*).—This plant is worthy of the little note which appears in its praise on p. 488, but it alludes chiefly to pot culture, under which, though a pretty, it is not a showy plant. It is valuable in the flower garden, and is exceedingly pretty in a mass out of doors, flowering freely from the time it is planted out till frost checks it. Those who want a charming blue for dwarf masses should make a note of this plant. I filled six boxes with cuttings last autumn and placed them in a cold frame with white *Marguerites* till rooted. They were then housed with *Pelargoniums*. Quite 12° of frost reached them during the winter without doing the slightest injury. When signs of fresh growth appeared in spring, the plants were turned out and put in thinly in other boxes, remaining in the same house till fresh roots were at work, when the whole lot was removed to an unheated pit to remain till planting-out time. The late Mr. Wildsmith used to grow the plant largely both for the flower garden and to gather its flowers for indoor decoration. There appear to be two distinct forms of it, one being more compact in habit and with a

larger, greener leaf. Our large stock is a mixture of both, as the difference is only in habit, the colour, size and freedom of bloom being the same.—A. H.

IRISH DAFFODILS.

It is now a fact generally accepted that there are no indigenous Daffodils in Ireland; even the common Lent Lily of England is there unknown, and Bentham and other botanists are agreed that the Daffodil in Ireland is merely a naturalised subject, and not by any means a native of the Emerald Isle. But, on the other hand, there is no gainsaying the fact that Ireland generally, and more especially the genial south, is really the adopted home of the Daffodil, since these flowers thrive there even when neglected, and yield results that can only be obtained in English gardens by dint of great cultural labour and solicitude. I say this much of Daffodils generally, but when we narrow down the question and consider only the rare and beautiful white Daffodils, then we find out what splendid results may be obtained, since these delicate varieties are as a rule most luxuriant and free flowering in Irish gardens, although "uncertain, coy, and hard to please" in most English ones. I scarcely expect all, or even the greater portion, of English Daffodil growers to believe me, but at the same time I can fearlessly say what I firmly believe, and that is that Daffodils generally may be grown in Ireland finer and better than in any other country, and that of white Daffodils this is especially the truth.

I think there is a little friendly rivalry between the Irish and English growers of these flowers, and when the sizes and heights of our best flowers are quoted to them, or the actual specimens are produced, we are sometimes told that our flowers lack solidity and substance. The last impression is due, as I believe, to the flowers having been seen after a long journey by post, for which ordeal it is possible they had not been duly prepared after the methods now well known to all growers of flowers for market. As I have said, no *Narcissi* are really wild, i.e., indigenous to Ireland, but many Daffodils are abundantly naturalised there. Perhaps the most abundant of all are *N. princeps* and *N. spurius*, which on some old garden sites have spread and increased by the thousand. The form of *N. spurius*, most abundantly naturalised in Kerry, Limerick, and Waterford, and now and then Co. Tipperary, is what we know now as *Ard-Righ*, a first-rate Daffodil for the Grass, and, as so grown, early and strong, although it frequently dies out under rich border cultivation. In Ireland *Ard-Righ* is often quite as early as *N. pallidus præcox*, from which, of course, it is quite different, being broad-leaved and having a bold rich golden flower. One of the very best of all the yellow Irish Daffodils, however, is *Countess of Annesley*, bold, vigorous, and free-flowering; indeed, I know of no other variety that yields such a profusion of flower-scapes in proportion to the leaves. When I first saw its flowers I thought it a large, broad-petalled form of *N. princeps*, but on further acquaintance found it quite a distinct pale form of *N. spurius*, and so it was eventually distinguished by its owner, who had it in his grounds by the thousand as *N. Countess of Annesley*. How singular it all seems to a student of Daffodils that some of the finest and most distinct varieties should have existed in Welsh valleys and in Irish parks and domains certainly for generations, and perhaps for centuries. Of such I may allude to Sir Watkin, of which the big and beautiful *Countess of Annesley* is a counter-

part in Ireland. Of course, flowers thus localised are enjoyed by those who see them, even if only as Peter Bell enjoyed "the Primrose by the river's brim;" but it is only by accident, as it were, that they become generally known and appreciated at their true worth as distinct garden variations.

Long ago the late Dr. J. T. Mackay, in his "*Flora Hibernica*," mentioned the fact that the small pale English Daffodil of the "*English Botany*" did not grow in Ireland, the variety which he included as growing on the sites of former gardens and demesnes being *N. major* or *N. spurius*. It is a little curious that Mackay never alludes to white Daffodils as naturalised in Ireland, although he must doubtless often have seen and heard of them.

The following list is that of Daffodils which are or have been naturalised in Ireland: *N. princeps*, *N. spurius*, *N. major*, *N. nanus*, *N. cernuus*, *N. Colleen Bawn*, *N. albicans*, *N. Telamonius plenus*, *N. eystettensis*, *N. odoratus plenus*, *N. minor fl.-pl.* (=Rip Van Winkle), *N. white minor*, *N. Minnie Warren*, *N. Countess of Annesley*, *N. Countess of Desmond*, *N. St. Andoan's*, *N. Little Nell*, *N. Gladys Hartland*, *N. Silver Barr*, and *N. Richard Boyle*. There are others scarcely less distinct than the above, and one other so different and distinct from all known Daffodils, that one can well understand its owner and discoverer being very proud and jealous of it and its welfare. I, of course, allude to the frilled trumpet Daffodil, found on a lawn in Co. Limerick years ago, and now known as *Crom-a-Boo*. Of this there is said to be a white counterpart existing in the garden of an Irish artisan, and I have in my possession a dried flower.

It is perhaps not to be wondered at that a strong feeling exists in Ireland that the Irish Daffodils have, as a whole, been rather badly treated by the *Narcissus* committee of the Royal Horticultural Society, as well as by the English growers, who continually say that the Irish grown Daffodils have no substance. Now as a simple fact, no Irish grower can hope to stage flowers in London in the best condition unless he carries them over with him. If sent by parcels post to reach England on Tuesday for a meeting of the *Narcissus* committee they must be posted on Saturday, and lie in a London post-office all day on Sunday to be delivered on Monday, and it need not be a matter of much surprise if flowers thus treated do look a little lax and limp four days after they have been cut, and lacking moisture most of the time, to say nothing of the injuries they are so apt to receive in the postal hampers by the way. If English grown flowers had to endure a similar ordeal before being submitted to a jury in Dublin, I fancy they would get the character of being limp and flimsy also. Even the Scotch growers with a nine hours' train service find themselves very heavily handicapped in showing plants and cut flowers at the metropolitan exhibitions, so that one need not wonder that Irish growers so seldom venture to compete on English soil. After all, any unequal competition of this kind is not an absolute necessity, and one way out of the difficulty would be to form in Ireland a *Narcissus* committee of our own. Such an installation is now a real necessity, and one result of such a new departure would be the collecting, naming and study of all the species and varieties of *Narcissi*, of which many seminal forms have without a doubt originated spontaneously in a country the soil and climate of which are naturally so well suited to their welfare.

"Then why on earth do you not grow Nar-

cissi on a large scale?" the practical-minded will at once say, and there is a good deal in the suggestion. But for how long have the best English nurserymen really grown their Daffodils? Twenty years is a wide limit, and as a fact they were never really cultivated generally with success until Mr. Walker took them up for the flower market. The culture of Narcissi in the Scilly Islands on anything like a commercial plan dates only from the year 1883, when Mr. Smith Dorrien took up the matter in earnest on behalf of his tenantry and supplied them with the best bulbs for the purpose. Nowhere in Ireland have we soil and climate especially suitable for Narcissus culture, but we want a few Mr. Walkers and a few Mr. Smith Dorriens, and also cheaper and more rapid facilities, so that our perishable produce shall reach the best markets in time to be fresh and saleable. There are select and specially sheltered spots around the east and southern Irish coasts quite as favourable as Scilly, or the coasts of Hampshire, Devon, and Cornwall, and there are crops for which our mild and comparatively frostless winter season is especially suitable, apart from Narcissi. Of such desirable crops I may mention early Potatoes, Asparagus, Seakale, Violets and Violas, Primroses, especially the rarer double-flowered kinds, and Tulips, and I am convinced that as a cultural ground for Snowdrops Ireland is far ahead of Lincolnshire, which is the English trade centre for these bulbs and flowers. In a word, Ireland has a great future before her if her people will but adopt the garden farm industry so popular and profitable, not alone in the south of England and Scilly, but also in the Channel Islands, Normandy, Belgium, and in France. Just now there are welcome signs and tokens of improvement in Ireland, so far as good land culture is concerned. The Royal Dublin Society has taken up the matter, and only the other day a deputation to the Postmaster-General was assured that some reduction might be looked for in the postage of farm and garden produce from this country. It is also most desirable that these products should be carried not only quickly and cheaply, but also carefully and safely, which is now not always the case. Indeed, perhaps the most remarkable of all the information elicited by the Grape conference at Chiswick last autumn was the fact that as careful carriers of small parcels of fruit, the railway companies were far ahead of the postal department. If all our Irish landlords were as ready and as willing to assist their tenants as was Mr. Smith Dorrien in 1883, we should soon have a better state of things in the country. Of course I do not say or believe that the culture of Narcissi alone will ever do as much for Ireland as it has done for the Scilly Islands, but I do know that the only hope of the Irish peasant is in the land, and by growing the more certain and profitable of crops instead of the Potato, that so often fails in a wet season, he will be better able to become a happy and contented peasant proprietor than is at present the case.

In order to make the best of early flowers, fruits, and vegetables in Ireland, glass houses will be as necessary as in Scilly or the Channel Islands. There are many sunny and sheltered spots on the limestone where Grapes and Strawberries could be produced cheaply by the ton by the aid of glass, which is also a necessity in the preparation of early hardy flowers for market. Rough winds rather than cold and frost are the principal drawback to garden farm culture in many parts of Ireland, so that shelter is often an all-important feature here, as elsewhere.

F. W. B.

NOTES ON HARDY PLANTS.

Caltha parnassifolia is a distinct and showy thing in its way, and I do not think many lovers of hardy flowers would care to be without it after once seeing it in a flourishing and flowering state. I should like to say that the very moist or boggy condition of the soil is not essential. It does well in an ordinary border if the soil is inclined to stiffness. I thought it might be as well to state this, as I know the genus is considered by many to require almost wet land. The flowers are of good size, numerous, and of a deep and bright yellow colour. It begins to flower in April and keeps up a succession until July.

Centaurea ruthenica.—I wish at present to speak more particularly of the merits of this uncommon species as an effective foliage plant, though by no means deficient as a floral subject. Young plants three years old from seed closely resemble young Palms, *e.g.*, *Cocos Weddelliana*.

Lilies and the frosts.—Lilies, as *auratum*, *lancifolium*, *testaceum*, and *tigrinum*, had the appearance of boiled heads of Asparagus on the morning of May 18, and it is doubtful if they will do much good now this season. After the long and numerous vicissitudes of a notably hard winter, I think this May series of late frosts is the unkindest cut of all. It is lamentable to see how some of even the hardiest of plants are disfigured. They are now hanging their heads in blackened and pulpy strings or masses. Not only have we had ice almost a quarter of an inch thick, but snow and hail for two days; and as I write the wind still remains in the same quarter, and enormous black clouds are scudding by. Two days ago the country hereabouts looked charming with fruit blossom; now all is changed, and excepting in the case of the later blossom, I fear there can be little or no hope of a fruit crop. Surely the plants that flourish after all this in the coming summer and autumn may indeed be termed hardy plants, and those gardeners who are not totally discouraged in their gardening efforts may also be considered true or persistent flower lovers. I find the Lilies are improving after a bath of cold water, shade from sunshine, and sticks to support their softened stems. It might be added that the minimum on the Grass on the night of the 17th and 18th showed 12° of frost, and, in the words of a neighbour friend, it "has cut down the new fronds of British Ferns, and made havoc of some naturalised plants that resist our coldest winters when at rest."

Cypripedium acaule.—Speaking of this in relation to the above-mentioned frosts, the bulky flower-buds which were just ready to open are now hanging by black and withered strings. I shall not have a flower from this species this year. Oddly enough, close by, *C. pubescens*, *C. candidum*, and *C. Calceolus* are uninjured, so far as I can see at present.

Anemone Fannini, close to the above-mentioned *Cypripediums*, I am pleased to say, seems all right. It has stout sprouts, or rather I should say rudimentary leaves, some 2 inches or 3 inches long. Whether from the great proportion of long silky hairs or the inherent hardness of the sappy portion of the plant, it would appear that this large and new species is likely to prove suitable for our climate, for in different parts of the garden I have roots growing that have been out during the past severe winter. I should add here that such roots were not only strong ones, but deeply planted, and they never showed the least tendency to push growth until the worst weather was over. Besides these plants I have roots that reached me in February of the present year that had been protected from the cold and showed signs of starting into growth. Wishing above all things to thoroughly test the hardness of this plant as soon as possible, I set the roots in the open at once during a short interval of milder weather; these roots are now growing well. Although the frost might not have reached the roots after that date, as is well known we have had plenty of trying weather, and considering that these roots had previously been slightly stimulated by protection and disturbed between that

period and the present, I think they afford a peculiarly well attested proof of the hardness of what is likely to prove a stately and beautifully distinct species of a favourite genus for English gardens.

Alstroemerias.—There need be no wonder at the non-appearance of newly-planted species and varieties, owing to the terrible winter and equally unfavourable spring. It is well known that even the hardiest kind, *aurea*, may be killed by frost if it has not become well established, or, to speak more clearly, has not grown sufficiently to get deeply away in the soil, and, according to its natural habit, beyond the reach of frost. I have seen grand masses of the less hardy sorts in cold districts in the north beyond the Borders, where they flourish year after year. Much, of course, is due to accident, and all depends on the favourable chances of the roots becoming established before the frost penetrates to the original depth at which the roots were placed. Old clumps are safe; "baby" specimens will require nursing. Should there chance to be a mild winter, like 1889-90, likely enough small plants will have gone down deeply and the roots found a safe home, but in more trying winters the surface should be deeply protected with cocoa-nut fibre or Bracken, so as to keep frost from entering the soil at all. One autumn a man may plant and succeed, and in another, if followed by a severe winter and all other conditions the same, there may be a failure, unless, of course, the above precautions have been taken.

Hesperochiron pumilus.—This exquisite little plant, so rare and so slow of growth and increase, I have the best of all reasons for classing among the very hardiest. A specimen has been in my possession now for three winters, and during the last it stood half plunged in a small pot. Otherwise quite exposed to all the bad weather and hard frosts, yet it has started away into growth as vigorously as ever, though there are hardly more than a dozen leaves, but quite as many of its delicate white *Convulvulus*-like flowers opening. The recent severe late frost made no impression on the buds in the way it has done with hundreds of other things.

Orchis foliosa.—I made a new plantation of this last autumn, and the larger palmate tubers, the size and almost the shape of a baby's hand, were placed perhaps somewhat too near the surface. Among them were three or four small tubers. It is to my mind a curious fact that all the large roots were turned to pulp by the frost, though they had become well established, as proved by their long tail-like roots, with bright white points that are even yet to be seen, and which had gone a long way down; whilst the small tubers have all grown. Possibly there may be some analogy of this fact with that of young plants of many herbaceous and woody species that are known to endure a trying winter better than older specimens. Another batch in the open not disturbed last year, came up all right, but the severe frost of the 18th ult. has turned them yellow, almost grey. It is interesting to keep the geographical idea in mind when looking around the garden at the present time, and indeed the condition of the plants from more favoured climes than our own seems to force such recollection on one's mind.

Saxifraga Fortunei.—This belongs to the class of plants just now referred to. Not only is it cut down in the midst of its beauty in the autumn, but owing to its early tendencies of growth in the spring, it is liable to be also cut down at that season too. The fine leaves of a few days ago are totally gone, and yet it is a hardy plant. I sometimes think it would be worth while for hardy plants to be sub-divided; for instance, according to their hardness of flowers, of leaves, and of roots, for it is well known that many roots of hardy species will endure what the leaves will not, and again, that the leaves of some plants remain uninjured when late and early frosts kill the flower-stalks and buds. And then there are others neither of whose leaves or flowers can endure more than 7° or 8° of frost. The present plant is an instance of the last-named; some *Cypripediums*, *Asphodels*,

and *Primulas* of the first-named. *Dicentra spectabilis* is also a plant that would strongly suggest some such study or classification of this kind, because though doubtless one of the most handsome hardy plants of English gardens, it is practically useless for the open air, owing to its early tendencies of growth and the way it is cut by late frosts.

Woodville, Kirkstall.

J. WOOD.

ALPINE PHLOXES.

IN the hardy plant garden the alpine *Phloxes* at the present time are very conspicuous. What charming masses of many of these easily grown plants may be had in the large ornamental vases that are to be seen in many a terrace garden, or should these not exist, the plants may be grown in ordinary pans and allowed to occupy such positions as these while they flower, and thus enhance the beauty of the surroundings in the early months of the year when many bulbous plants are over and the ordinary bedding plants have not been put out. Plants of the alpine *Phloxes* are easily and readily obtained, and anyone desirous of securing such should now procure a few of the most distinct forms and plant them out in good rich soil in nursery beds for the remainder of the year. They can be so easily and readily lifted in the early days of the year that they may be placed in pans in February and March and flowered. After they have bloomed, plant them out again in good rich ground for another year. Thus treated they would only remain in the pans some three months at the most. Another way in which they display themselves to advantage is in the spring garden when judiciously employed. In such places they may be planted in groups of separate colours in beds alone, or distinctive shades of them might be employed as an edging to central masses of *Violas*, *Forget-me-nots*, or crimson *Daisies*—anything in fact with which they would blend or harmonise. A very good bed may be made with alpine *Phloxes* as a groundwork and *Crocuses* springing up thickly from their tufts. In gardens of a picturesque nature where fine banks of *Rhododendrons* are to be found, these *Phloxes* may be made singularly happy as marginal plants 12 inches or 18 inches wide; or, again, on the large rockery in broad spreading patches, where their beauty is always seen at a glance, these cannot be too freely employed. What can equal handsome masses of their snow-white flowers overhanging some projecting ledge of rock, with others of bright pink and others of the liveliest rose? The foregoing remarks chiefly apply to those kinds which are known and included under the head of *P. setacea*, for all of which we are indebted to the late Mr. Nelson, who raised many fine hybrids, the majority of these being in cultivation to-day. They are all of sterling worth, but the most distinct and therefore the most likely to merit general favour are—

MODEL.—Bright rosy carmine, very free and compact, its cushion-like tufts being literally smothered with its lively coloured blossoms.

THE BRIDE has snow white flowers, which are produced in the greatest profusion on a neat and compact tuft. The flowers individually are rendered the more conspicuous owing to a faint pink eye; this variety, while being one of the best for massing and the like, is in favourable positions inclined to emit roots freely from the prostrate stems, by which means a stock may soon be raised.

GRANDIFLORA is one of the best, very free, and bears flowers of a rich shade of mauve.

ATRO-PURPUREA is more trailing in habit than the majority, and therefore suited for planting in those positions where its growths may have opportunity to overhang the sides of the rockery, and thus display itself to advantage. It is exceptionally vigorous, and provides a remarkable display of its large rosy purple blossoms.

VIVID.—This bright and charming kind is well named, for it certainly is one of the most beautiful and brilliant of all the group. In habit it is very dense and compact, the flowers very abundant, though not so large as in some kinds, and the colour a brilliant rose with carmine centre.

NELSONI is a very old kind with white flowers. It was in cultivation many years before the new set of *setacea*

varieties came into notice, and is not even now eclipsed by any of the new comers. It differs but slightly from the variety of *setacea* called *The Bride*. *Nelsoni* in reality belongs to the *subulata* group, and is sometimes called *subulata alba*.

FRONDOSA is a very old and free-growing species, producing masses of flowers of a bright pink. This one is excellent for the rockery or the border.

AMENA.—Still one of the most useful for general purposes, for not only does it produce in spring-time its dense masses of lovely pink flowers, but it continues to bear them with a remarkable persistency for a very considerable time. In the spring months when flowering is well-nigh completed, I have cut it closely over with a knife and replanted it in good ground at once, in about six weeks or two months it has begun flowering again, and in October and November I have had a bed of it 30 feet long as bright and effective as in spring-time. It is indeed a charming plant for almost any position.

These, then, are the most important of a varied and useful group of spring flowers that, strange to say, are not so extensively grown as they should be. Other kinds are *procumbens*, *stellaria*, *navalis*, *reptans*, *divaricata*, *ovata*, *stolonifera*, each of which has its own peculiar value and points of interest. It may be well to say a word about the requirements of the majority, and in particular of the *setacea* varieties, all of which prefer a fairly good holding and deep rich soil, and in summer positions removed from the hottest midday sun, which with excessive drought disfigures them very much. All may be freely increased by cuttings of the young growths when flowering is complete or nearly so, and these if detached with a heel and inserted in sandy soil will invariably root well in about a month. Care should always be taken that the cuttings be not allowed to shrivel before being inserted, for if so, they rarely recover. In the case of *P. amena*, increase by division is so simple that there is no need for troubling about cuttings, and those who have neither time nor convenience for taking cuttings had better resort to pegging the growths into very sandy soil, and keeping all fairly moist for a month, by which time many will have sent forth roots quite freely.

E. J.

The Flame Flower (*Tropæolum speciosum*).—The great difficulty, as Mr. Wood says in *THE GARDEN* of May 23 (p. 478), is to establish this plant, at least, if we may judge from the number of failures from time to time recorded. Yet few things better repay any little trouble taken with them. It is interesting to hear that Mr. Wood has been so far successful with seeds, but if the seedlings are growing thickly in pots or pans and have to be removed, a great percentage may yet be lost. Perhaps if raised in small quantities and planted out direct from the seedling pots good results might be obtained, granted, of course, that soil and aspect alike were suitable. Even these are not so important, as the finest lot of this plant that I know in the south of England drapes both the sunny and shaded sides of an *Arbor-vitæ* hedge, and flowers as freely on one side as upon the other. I have successfully established it in two spots, both of which are shaded, the soil being a light sandy loam. I have now another batch of plants for trial in a third situation. These were obtained by the same method that Mr. Wood endeavours to contrast unfavourably with raising from seed, only at a little later period, and all things considered, it is the best way of raising or increasing a stock of this plant, and a good step on the road towards its successful establishment. This is by potting up the fleshy roots, starting them and planting out in May without further disturbance. The colony established last year was treated in this way, but the plants were purchased. Early this year, however, a gentleman kindly sent me some roots taken from a garden where the plant grows freely. These were potted up and placed in a little warmth and new growth soon appeared, whilst no seedlings could have been raised so quickly, strongly, or easily in a much greater length of time. It is more than probable that the roots Mr. Wood put in would have done better if they had been potted in the early months of the present year instead of last autumn, whilst

it is equally certain that many could raise plants in this way who would fail with seed, though it were perfectly good.—A. H.

NOTES FROM GLOUCESTER.

COLOURED PRIMROSES.—I was much disappointed when in London about ten days ago not to see any of these beautiful flowers. Men were going about with baskets of wild yellow *Primroses* on their heads, and they looked fresh and pretty. But nosegays of mixed colours are simply lovely. I am glad to see an improvement in the use of flowers in London. At the restaurants the tables are decorated with fresh flowers nicely arranged, chiefly, I noticed, the wild single *Daffodil*, an exceedingly good flower for the purpose, but coloured *Primroses* for a variety would look bright, and they are also deliciously sweet. Mine have been better than usual this year; they are beginning to go off now, but even those sown only last spring have given quantities of flowers, and visitors have been very much struck with their beauty. They present an almost endless variety of colour. I cannot agree with a writer in *THE GARDEN* who suggested that *Primroses* look best when kept separately according to colour. This seems to me like going back to the old ribbon border system, which, I hope, is well-nigh exploded. My *Primroses* are in long lines in some places, but the colours are mixed, so that there is an interest in comparing the varieties one with another.

I saw a charming lot of white *Polyanthuses* in a warm greenhouse in the early spring of this year. They scented the whole house delightfully and looked exceedingly pretty. They were grown in 5-inch pots, and were placed near the glass on a high shelf. At such a time in the midst of the bitter weather of last spring such an immense quantity of a beautiful scented white flower was invaluable. Then there is something about the *Primrose* among other flowers, like the robin redbreast among other birds, which makes it specially homely and a general favourite. A packet of seed sown in March, the seedlings pricked out into boxes about six weeks later, and grown on in the shade of a north wall will in the autumn give hundreds of fine plants, which can be finally transplanted to flower the following spring. I am sure no one who will take a little trouble with these beautiful spring flowers will be disappointed with them.

NARCISSUS ORNATUS.—Amongst all the varieties of *Narcissus*, which are so universally admired, the old Pheasant's-eye, or poeticus, is still able to hold its own. It is simply delightful to gather a nosegay of its fragrant flowers when the warmth of a glorious May day invites one to saunter round the garden. I find it objects to shade, and that even under favourable circumstances it is not so free-flowering as its counterpart, *N. ornatus*. When some years ago the *ornatus* was offered as almost similar to poeticus, but earlier, I at once gave it a trial, and it has never disappointed me. It forces readily, bearing strong heat, which drives it rapidly into bloom, and the flowers so produced are not poor and weak, but as good in all respects as those now going off in the outdoor garden. This is an excellent quality. Moreover, I have never known a bulb to fail. Outdoors or indoors, forced or flowering at its own will and pleasure, every bulb of the *ornatus* seems unfailingly to bloom. It prolongs wonderfully the *Narcissus* season, or rather, I ought to say, it fills up a time where before there was a gap. The *Polyanthus Narcissus* goes out of flower, then comes this *ornatus* and then the old

favourite poetical. With me the last are just coming into flower, and where they are exposed to the full glare of the sun there will be plenty of bloom.

ANEMONE APENNINA.—Every year I am more and more enchanted with the beauty of this lovely spring flower. We have had so far a sunny May, and this makes the pale blue flowers expand and show themselves off. Those in the sunshine do not last long, but flowers on plants growing in the shade at the roots of trees or by an Ivy stump last on long after the others have faded. It is pleasant to come unexpectedly on a little group of this *Anemone* in the shady walks of the shrubbery. Unlike most things, it will grow and flower well even under the shade of a Beech tree. It is certainly one of the loveliest and most easily grown of all our hardy spring plants. I think it likes to be planted near the surface; its woody roots soon form fibres which penetrate deeply into the soil. This and other spring flowers seem to be unusually free-flowering this year. Is it because of the quantity of snow which we have had in the past winter? Snow is said to be a wonderful fertiliser, and farmers always welcome it when it comes in due season. The abundance of flowers of every kind in the outdoor garden this year may be owing to the large quantity of this natural fertiliser, which was not altogether pleasant when first it came upon us. If this flowery season is the result, it certainly goes a long way to atone for the disagreeable accompaniments of snow in the past.

GENTIANA ACAULIS.—There is no flower more genuinely "old-fashioned," and there is no hardy flower of our gardens more beautiful. Just at the present time sods of it are throwing up their great bell-shaped flowers, which seem to challenge admiration as they look up to us to show off their brilliant blue colouring. Many of us enjoy this May flower all the more because it reminds us of happy days on the Swiss mountains; we seem to be back once more among the snowy ranges and icy glaciers of Switzerland. Our forefathers almost invariably used this plant for an edging. It was evidently a great favourite with them, and it was grown in large quantities. But it makes an ugly border; the foliage is not close enough nor sufficiently green. It is best to make it a rockery plant and to grow it among stones, as we see it in the Alps. It is not only pretty on the rockery, it will bear gathering, and looks well in a saucer with some Moss. Many complain of this plant for not flowering; aspect seems to have a great deal to do with success in growing it. It does not much resent being moved, so the best plan is to move it about till the right place is found for it. It seems to like sun, good drainage, and a good deal of moisture, and, as a correspondent lately said, to be firmly planted in the ground. If the leaves are large and healthy, flower-buds will form in March and open in May, or earlier than that in mild seasons or in the west country.

A GLOUCESTERSHIRE PARSON.

Polemoniums.—Somewhat over-rated plants are Jacob's Ladders, and if allowed to retain the seed-stems, soon become intolerable nuisances. Plants which seed too freely are apt to degenerate unless closely looked after and have the stems cut down so soon as the bloom is past its best. We used to make some fuss over the variegated form of *cœrulea* some years ago, commending it as a bedding plant for spring decoration, and if kept pinched also for the summer. The plant seems, however, of late to have very much died out, and as it was not of a robust nature, subject to injury

from hard weather, or to decay from heavy rains, perhaps it is no great loss. All the *Polemoniums* have a certain graceful habit, and the variegated one was so far very pleasing, though never very robust. We have, beyond getting somewhat away from the bedding-out craze, also lost some of our old regard for miffy, variegated plants; hence, perhaps, may be found yet another reason for the comparative decadence of the silver-leaved variety. I replaced the old *cœrulea* some few years ago with *Richardsoni*, but I have not found so much gain as was looked for. The plants grow gross, they flower fairly freely, though not more so than do the old forms, but the blooms are rather larger and of a deeper colour. There is some gain, but it is not a great deal, and does not redeem the *Polemonium* from my original criticism, that it is an over-rated plant. Stock can easily be obtained from seed or by division. The plants may be parted at almost any time except when in bloom. For the making of a solid row or line of green foliage dense and compact, the *Polemonium* is excellent if the flower-stems be kept gathered off. If left to bloom, a strong clump here and there in any mixed border is quite enough. When there are so many really beautiful hardy plants to be had, we need not trouble to give much space to *Polemoniums*.—A. D.

SWEET WILLIAMS.

Any time during the month of May or even early in June is a good time for sowing Sweet William seed. The time the plants may be fit to dibble out from the seed-bed depends materially upon the soil, but, as a rule, they should be ready for transplanting in about six weeks. It is not wise to allow the plants to remain to become too large or thick. If that be so they suffer somewhat, and will hardly develop into those sturdy clumps, each having some half dozen shoots, which it is desirable to see in the winter. I prefer sowing in a broad, shallow line, say 12 inches across, as then there is ample width and the plants are never unduly crowded. Then if a planting be first made from the strongest plants on either side, the centre ones in a couple of weeks fill out and become sturdy too. A soil which is too retentive of moisture on the one hand, or too richly dressed with manure, is but too likely to produce fungus in the Sweet William, and once that pest attacks the plants, even the Hollyhock fungus is hardly more destructive. Retentive soils seem to help generate this fungus. Last summer's heavy rains did infinite harm to Sweet William breadths about this locality, so also does heavy manuring. I prefer to plant out after a crop of Peas or early Potatoes, but, of course, it is rare that such breadths are at liberty until July, when it is not found possible to plant out direct from the seed-bed where the plants are to bloom. There is some gain in dibbling the seedlings up thinly on any spare piece of soil for a few weeks and transplanting later with good balls of soil and roots. Whilst planting in bulk and in large breadths doubtless facilitates the spread of the fungus amongst the plants, it is certain that the effect got from the heads of bloom the following season is immensely enhanced thereby. That is especially the case where a strain gives abundant variety of colour and markings. Pure white Sweet Williams are rarely good; the blooms invariably lack substance and size. The very deepest coloured, on the other hand, are not only usually very good, but are strikingly effective. No modern strain gives dark-coloured flowers in great proportion, and to have these in profusion, it is advisable to save seed exclusively from selected dark flowers. Excellent as these are, however, it is by no means common to find amongst the dark ones the same size and boldness of pip found in the ringed or edged flowers. Of these there is usually a large proportion, and very beautiful they are as well as effective, but too many have a great aspect of sameness. I find more of variety and of beauty in the mottled or spotted flowers than in any marked section. We may find generally white, pink, red, purple, and crimson selfs, ringed smooth-edged flowers, Auricula-eyed, having usually serrated edges, but most of them very beautiful, and the mottled flowers, which have

in them infinite variety of colours and markings. In some of these one finds pips of remarkable substance, size, and smoothness of edge. Were any one bent upon creating a specifically varied strain of smooth-edged flowers, it would not be at all difficult to do so, but I do not for one moment admit that any strain of Sweet Williams would be improved by obliterating the variously-coloured fringed-edged flowers. In some respects there is room for somewhat dwarfer habit perhaps with some strains, but absolute uniformity of height is not desirable, neither are stems too short nor stunted. From 14 inches to 16 inches is an excellent average height, but some will be shorter. Where plants have ample light and air and can thus throw up stout, firm stems, they do not require any sort of support. The suggestion of sticks and ties for bunches of Sweet Williams is obnoxious. When the heads of bloom are from 6 inches to 9 inches over they should not be in any way crowded by close tying. The large dark-leaved Sweet Williams so favoured in the winter and early spring, because of the effectiveness of the leafage, invariably have very small poor flowers. Any attempt to improve the quality of the bloom would probably lead to the deterioration of the leafage. In selecting plants of these for seed production, the grower is guided solely by the boldness, breadth, and depth of colouring of the leafage. To him the flowers produced later are of no consequence. Those who would have really fine summer Sweet Williams should obtain only the finest strains. A. D.

THE SAXIFRAGES.

(Continued from p. 503.)

SECTION BORAPHILA (Engl.).

This section comprises typical species, with white greenish-yellow, or purplish flowers.

S. TOLMÆI (Torr. and Gray).—A native of the western hills of N. America. A caespitose species, forming a sheet or carpet of pretty tufts, from which arise stems each bearing from one to three white flowers. Not in cultivation.

S. NEGLECTA (Gray).—A native of Siberia. A very handsome species with roundish leaves, toothed at the margin, and white flowers. Not in cultivation.

S. STELLARIS (L.).—A native of the mountains of Europe, Central and Northern Asia, the northern parts of America, and of the arctic regions. A small-sized species, well known to mountain climbers, as it grows near every spring and in every moist spot on the Alps, especially in granitic districts, but seldom occurs on calcareous formations. The leaves are of a light green colour, glistening, glabrous, obovate-cuneiform in shape, and are disposed in small rosettes, from which arise the erect flower-stems, bearing small rosy white flowers in a graceful little panicle. Under cultivation it is grown in a compost of peat, loam, and Sphagnum Moss in the full sun, but in a position which is cool and moist. The following varieties are to be met with in herbariums: *S. glabrata* (Sternb.), *S. hispidula* (Rochel), *S. robusta* (Engl.), *S. obovata* (Engl.), *S. pauciflora* (Engl.), *S. comosa* (Poir.). None of these are in cultivation, and they differ from the type only in characters, which are essentially botanical.

S. CLUSII (Gouan).—A native of the Pyrenees, the Asturias, and the Cevennes Mountains. This species differs from the preceding one in the much larger dimensions of its forms, the very great abundance of its flowers, which form an immense panicle nearly 10 inches high, and in many botanical characters. It is cultivated in the same manner as *S. stellaris*. A variety named *S. propaginea* (Pourr.) is found in the Asturias, but is not in cultivation.

S. LEUCANTHEMIFOLIA (Michx.).—A North American species, which has deeply incised leaves of a light green colour and slightly hairy. The flowers are large and white, with two spots of light yellow in the centre. I do not think it is in cultivation. In the island of Baranow a variety has been found which Engler named *S. Brunoniana*.

Another variety, which bears the name of *S. integrifolia* (Engl.), occurs in California.

S. STRIGOSA (Wall.).—A native of the alpine regions of the Eastern Himalayas, at an altitude of 3000 to 4000 metres. A species which has rigid lanceolate leaves and white flowers, not very abundantly produced, forming small corymbs of, at the most, three to five flowers each. Not in cultivation.

S. CAREYANA (A. Gray).—A native of the mountains of North Carolina, at an altitude of 1000 to 1500 metres. Leaves glabrous and of a lively, bright green colour. Flowers white, marked with numerous bright pink dots. Not in cultivation.

S. CAROLINIANA (Torr. and Gray).—A native of the Alleghany Mountains, in North Carolina. This species is distinguished from the preceding one by its glandular-pubescent character and by the shape of the petals. Not in cultivation.

S. PUNCTATA (L.).—A native of the mountainous regions of Northern Asia and of the northern parts of North America. A very interesting species with round, long-stalked leaves, which are toothed at the margin and form handsome rosettes, from which arise flower-stems 12 inches to 16 inches high, each bearing a fine cluster of pure white flowers. Not in cultivation. The following varieties are to be met with in herbariums: *S. Nelsoniana* (Don), *S. acutidentata* (Engl.), and *S. mandchuriensis* (Engl.).

S. MERTENSIANA (Bong.).—A graceful species from North America with reniform, hirsute, deeply-toothed leaves and large branching panicles of numerous white flowers. This species is grown in England, but not on the Continent.

S. SIEVERSIANA (Sternb.).—A native of Eastern Siberia and Kamschatka. Leaves small, roundish, with deeply-incised lobes. Flowers white, marked with yellow dots, and borne in corymbs. Not in cultivation.

S. PALLIDA (Wall.).—A native of the alpine regions of the Himalayas at an altitude of 4500 metres to 5500 metres. This species forms tufts of deep green, hard, coriaceous leaves, from which spring graceful flower-stems 4 inches to 6 inches high, bearing fine branching panicles of numerous large flowers with rosy-white petals and deep purple calyces and pedicels. Not in cultivation.

S. MICRANTHA (Edgw.).—A native of the sub-alpine regions of the Himalayas at an altitude of 3000 metres to 4000 metres. This species very much resembles the preceding one, from which it is distinguished by its weaker habit and the much smaller dimensions of all its parts. Not in cultivation.

S. LYALLI (Engl.).—A very pretty species from the Rocky Mountains, with light green leaves and large flowers of a very pure white with deep purple calyces and pedicels. Not in cultivation. *S. laxa* (Engl.) is a hybrid between *S. Lyalli* and *S. punctata*.

S. TILINGIANA (Regel and Tiling).—A native of Northern Asia. A very well-marked species with stiff leaves of a deep green colour, oval in shape and glabrous. Flowers handsome, white, borne in a panicle of twelve to fourteen blooms. Not in cultivation.

S. REFLEXA (Hook.).—A North American species, forming broad rosettes of foliage. Leaves coriaceous, deep green on the upper side, incised at the margin, and oval in shape. From each rosette of leaves arises an erect flower-stem bearing a small corymb of white flowers, the petals of which are marked with golden yellow dots. Not in cultivation.

S. VIRGINIENSIS (Michx.).—A North American species, which also forms rosettes of foliage. Leaves oblong, hirsute, obtuse. The rosettes lie close to the ground, and from the middle of each springs an erect, hairy, simple flower-stem, bearing a cluster of not very conspicuous flowers of a greenish-white colour with red stamens. This species likes a moist, spongy soil and a half-sunny position. It is multiplied by sowing the seed and by division of the tufts. The following varieties are to be met

with in herbariums: *S. vernalis* (Willd.), *S. elongata* (Sternb.), and *S. circinata* (Engl.).

S. NIVALIS (L.).—A native of the northern and arctic regions of Europe, Asia, and America. This species is very largely cultivated on account of its handsome foliage. Leaves of a fine glistening green colour on the upper side and brownish underneath, forming a large rosette, which lies close to the surface of the ground, and from which arises a slender flower-stem, 4 inches to 6 inches high, and bearing a light cluster of white and not very conspicuous flowers. The plant likes a peaty soil and a half-sunny position, and is easily multiplied by sowing the seed. *S. nivalis* var. *densiflora* (Rgl.) is also a northern form, seeds of which were sent to us some years since by Dr. Regel. It differs from the type in the far greater number of flowers of which the inflorescence is composed. The variety *S. remota* (Engl.) is only found in herbariums.

S. DAVURICA (Pall.).—A native of Eastern Siberia and the northern parts of N. America. Leaves glistening green, forming broad rosettes of foliage, which lie close to the surface of the ground, and from which arises an erect flower-stem 4 inches or 5 inches high, bearing a cluster of small, white, and not very conspicuous flowers. This variety appears to be grown in England, but I am not sure that the plants so named there are the true variety. The variety *S. unalaschensis* (Sternb.) is to be met with in herbariums.

S. MELALEUCA (Fisch.).—A native of the mountains of Siberia. This is one of the finest species of the section, and growing plants of it should produce an excellent effect. From the specimens which I have seen in herbariums I should pronounce it a beautiful kind of Saxifrage, the rosettes of leaves forming verdurous tufts of lively green foliage, from which spring the dark-coloured panicle flower-stems, of no great height, but bearing large white flowers with deep purple calyces. Not in cultivation.

S. INTEGRIFOLIA (Hook.).—A North American species. Leaves elongated, entire, spreading on the ground, and forming large rosettes, from which spring erect flower-stems 8 inches to 12 inches in height, and bearing spikes of white flowers with red stamens. Not in cultivation on the Continent, but seems to have been introduced into England.

S. PENNSYLVANICA (L.).—A well-known North American species, with broad, entire, spatulate, hairy leaves, forming a rosette close to the surface of the ground, from which issues an erect, simple flower-stem 12 inches to 20 inches high, and bearing a spike of numerous small greenish flowers with brick-red anthers. It is grown in deep fibrous loamy soil in the full sun, but kept moist at the roots. Multiplied by sowing the seed and by division of the tufts. In herbariums we find the varieties *conglomerata* (Michx.), *corymbifera*, (Michx.), *semi-pubescent* (Sweet), and *glabra* (Schr.).

S. EROSA (Parsh.).—A North American species, very closely resembling the preceding one, but differing from it in having a more divided and spreading flower-spike, besides some other distinct characteristics of a purely botanical nature. Not in cultivation.

S. HIERACIFOLIA (W. K.).—A native of the mountains of Hungary and the northern and arctic regions of Europe, Asia, and America. Leaves entire, hairy, oblong, forming rosettes close to the ground. Flower-stem naked, erect, 4 inches to 8 inches high, and bearing a cluster of numerous small, closely-set flowers of a light green colour, with brick-red anthers. This species is grown in moist, spongy soil in a half sunny position. Multiplied by sowing the seed and by division of the tufts. In gardens this plant is often confounded with *S. pennsylvanica*, from which, however, it is distinguishable by its different foliage and its much smaller dimensions. A variety named *foliosa* (Engl.) occurs in herbariums.

(To be continued.)

Pyrethrums.—These are certainly, as stated by "E. J." (p. 476), "truly useful and extremely valuable border flowers," while in addition to their other merits

there are very few plants that will hold their own under the disadvantageous conditions of a London garden. Even when not in flower the mass of bright green, prettily divided foliage forms a very cheerful object. For London the brighter-coloured flowers are more satisfactory than the light-tinted ones, as the heavy smoke-laden atmosphere mars the purity of the blossoms, and consequently destroys much of their beauty. They are also (but more especially the single varieties) good wet-weather plants, so that in every way their merits are of a high order.

NATURE AND ART IN THE GARDEN.

A BEAUTIFUL house in a fair landscape is the most delightful scene of the cultivated earth—all the more so if there be an artistic garden—the rarest thing to find! The union—a happy marriage it should be between the house beautiful and the ground near it is worthy of more thought than it has had in the past, and the best ways of effecting that union artistically should interest men more and more as our cities grow larger and our lovely English landscape shrinks back from them. The views of past writers will help us little, for a new and wholly different state of things has arisen in these mechanical times. My own view is that we have never yet got from the garden, and, above all, the home landscape, half the beauty which we may get by abolishing the needless formality and geometry which disfigure so many gardens, both as regards plan and flower planting. Formality is often essential in the plan of a garden—never as regards the arrangements of its flowers or shrubs. To array these in lines or rings or patterns can only be ugly wherever done!

That men have never yet generally enjoyed the beauty that good garden design may give is clear from the fact that the painter is driven from the garden! The artist dislikes the usual class of garden with its formality and bedding; he hates it, and cannot help hating it. In a country place he will seek anything but the garden, but may, perhaps, be found near a wild Rose tossing over the pig-stye. This dislike is natural and right, as from most flower gardens the possibility of any beautiful result is shut out! Yet the beautiful garden exists, and there are numbers of cottage gardens in Surrey or Kent that are as "paintable" as any bit of pure landscape! Why is the cottage garden often a picture and the gentleman's garden near, wholly shut out of the realm of art, a thing which an artist cannot look at long? It is the absence of pretentious "plan" in the cottage garden which lets the flowers tell their tale direct; the simple walks going where they are wanted; flowers not set in patterns; the walls and porch alive with flowers. Can the gentleman's garden then, too, be a picture? Certainly; the greater the breadth and means the better the picture should be. But never if our formal "decorative" style of design is kept to. Reform must come by letting Nature take her just place in the garden.

After we have settled the essential approaches and levels around a house, the natural form or lines of the earth herself are in nearly all cases the best to follow, and

in my work I face any labour to get the ground back into its natural grade where disfigured by ugly or needless banks, lines, or angles.

In the true Italian garden on the hills we have to alter the natural line of the earth or "terrace" it, because we cannot otherwise cultivate the ground or stand at ease upon it. Such ground exists in many countries, and where it does, a like plan must be followed. The strictly formal in such ground is as right in its way as the lawn in a garden in the Thames valley. But the lawn is the heart of the true English garden, and as essential as the terrace is to the gardens on the steep hills. English lawns have too often been destroyed that "geometrical" gardens may be made where they are not only needless, but absolutely harmful both to the garden and home landscape. Sometimes on level ground the terrace walls cut off the view of the landscape from the house, and, on the other hand, the house from the landscape!

I hold that it is possible to get every charm of a garden and every use of a country-seat without sacrifice of the picturesque or beautiful; that there is no real reason existing, either in the working or design of gardens, why there should be a single false line in them. Also, that every charm of the flower garden may be secured by avoiding wholly the knots and scrolls which make all the plants and flowers of a garden, all its joy and life subordinate to the wretched conventional design in which they are "set out." The true way is the opposite. We should see the flowers and feel the beauty of plant forms with only the simplest possible plans to ensure good working; to secure every scrap of turf wanted for play or lawn, and for every enjoyment of a garden.

Such views I have urged, and carry them out when I can, in the hope of bringing gardening into a line with art, from which it is now divorced. It is natural that these views should meet with some opposition, and the consideration of an article by Mr. R. T. Blomfield in the "Portfolio" gives the opportunity of examining their value.

The question, he says, briefly stated is this: Are we, in laying out our gardens, to ignore the house, and to reproduce uncultivated Nature to the best of our ability in the garden? Or are we to treat the house and garden as inseparable factors in one homogeneous whole, which are to co-operate for one premeditated result?

No sane person has ever proposed to ignore the house. So far from ignoring the house in my own work, where there is a beautiful house it tells me what to do! Unhappily, the house is often so bad that nothing can prevent its evil effect on the garden. "Reproducing uncultivated Nature" is no part of any gardener's business, as the whole reason of a flower garden is that it is a home for cultivated Nature. A wretched flowerless pinched bedding plant and a great buff climbing Tea Rose are both cultivated things, but what a vast difference in their beauty! There

are many kinds of "cultivated Nature," and every degree of ugliness among them.

Sir C. Barry's idea was that the garden was gradually to become less and less formal till it melted away into the park. Compromises such as these, however, will be rejected by thorough-going adherents of the formal gardens who hold that the garden should be avowedly separated from the adjacent country by a clean boundary line, a good high wall for choice.

Would Mr. Blomfield put this high wall in front of Gilbert White's house at Selborne, or of Golder's Hill at Hampstead, or many English houses where the erection of a high wall would cut off the landscape? Not a word about the vast variety of such situations, each of which would require to be treated in a way quite different from the rest! There are many gardens in every county that would be robbed of their best charms by separating the garden from the adjacent country by a "good high wall."

The custom of planting avenues and cutting straight lines through the woods surrounding the house to radiate in all directions was a departure from that strictly logical system which separated the garden from the park, and left the latter to take care of itself, a system which frankly subordinated Nature to art within the garden wall, but in return gave Nature an absolutely free hand outside it.

Nature an "*absolutely free hand!*" Imagine a great park or any part of an estate being left to Nature with an "*absolutely free hand!*" If it were, in a generation there would be very little to see but the edge of the wood. Callous to the beauty of English parks, he does not know that they are the object of much care, and he abuses all those who ever formed them, Brown, Repton, and the rest.

THE TRUE LANDSCAPE.

Mr. Blomfield writes nonsense and then attributes it to me—

that is to say, we go to Claude, and having saturated our minds with his rocks and trees, we return to Nature and try to worry her into a resemblance to Claude.

I am never concerned with Claude, but seek the best expression I can secure of our beautiful English real landscapes, which are far finer than Claude's. At least I never saw any painted landscape like these—say that from the Chestnut walk at Shrubland, looking over the lovely Suffolk country. That is the precious heritage we have to keep. And that is where simple and picturesque gardening will help us by making the garden a beautiful foreground for the true landscape instead of cutting it off with a "high wall" or anything else that is ugly and needless.

The lawns are not to be left in broad expanse, but to have Pampas Grasses, foreign shrubs, &c., dotted about on the surface.

I have fought for years for the lawn destroyed by the terrace builders and bedding-out gardeners! But how are we to have our lawns in "broad expanse" if we build a high wall near the house to cut off even the possibility of a lawn? This has been done in too many cases to the ruin of all good effect and repose, often to shut out as good landscapes as ever were painted!

There are flagrant cases in point to be found in private gardens in the suburbs of London.

BUILDINGS IN RELATION TO THE GARDEN.

The place of formal gardening is clear for ever. The architect can help the gardener much by building a beautiful house! That is his work. The true architect, it seems to me, would seek to go no further. The better the real work of the architect is done, the better for the garden and landscape. If there are any difficulties of level about the house beautiful, they should be dealt with by the architect, and the better his work and the necessary terracing, if any, are done, the pleasanter the work of the gardener who has to follow him will be.

That a garden is made for plants is what most people who care for gardens suppose. If a garden has any use, it is to treasure for us beautiful flowers, shrubs and trees. In these days—when our ways of building are the laughing-stock of all who care for beautiful buildings—there is plenty for the architect to do without spoiling our gardens. Most of the houses built in our time are so bad, that even the best garden could hardly save them from contempt. When the architects of the period build houses as good as Longleat, Castle Ashby, and many other old English mansions, then we should not grudge them a little gardening. It should be remembered, however, that our garden flora is now so large, that a life's work is almost necessary to know it. How is a man to make gardens wisely if he does not know what has to be grown in them? I do not mean that we are to exclude other men than the landscape gardener proper from the garden. We want all the help we can get from those whose tastes and training enable them to help us—the landscape painter best of all, if he cares for gardens and trees; the country gentleman, or any keen student and lover of Nature. The landscape gardener of the present day is not what we want, his work often looking more like that of an engineer's. His gardening near the house is usually a repetition of the decorative work of the house, of which I hope many artistic people are already tired. And as I think people will eventually see the evil and the wastefulness of this "decorative" stuff, and spend their money on really beautiful and artistic things, so I think the same often repeated knots and patterns must leave the garden.

TIME AND GARDENS.

Not one word of the great changer, Time. Its effect on gardens is one of the first considerations. Fortress-town, castle, and moat all without further use! In old days gardens had to be set within the walls; hence, formal in outline, though often charming inside. To keep all that remains of such should be our first care; never to imitate them now! Many old gardens of this sort that remain to us are far more beautiful than the modern formal gardening, which by a strange perversity has been kept naked of plants or flower life! When safety came from

civil war, then came to us the often beautiful Elizabethan house, free of all moat or trace of war. At one time it was rash to make a garden away from the protecting walls. Now, any day in a country place beautiful situations may be found for certain kinds of gardens far away from the house, out of sight of it often.

Again, in the home fighting days there was less art away from the house. Rugged wastes and hills; vast woodland districts near London; even small houses moated to keep the cattle safe from wolves—fear of the rough hills and deep woods. In those days an extension of the decorative work of the house into the garden had some novelty to carry it off, while the kinds of cultivated plants were enormously fewer. Hence if the old gardeners wanted an evergreen line, hedge, or bush of a certain height, they clipped an evergreen tree into the size they wanted. Notwithstanding this we have no evidence that anything like the geometrical monotony often seen in our own time existed then. To-day the ever-growing city, pushing its hard face over the once beautiful land, should make us wish more and more to keep such beauty of the earth as may be still possible to us. The horror of railway embankments, where were once the beautiful suburbs of London, cries to us to save all we can save of the natural beauty of the earth.

TRUE USE OF A GARDEN.

To suppose, says Mr. Blomfield, that love of Nature is shown by trying to reproduce the effects of wild Nature on a small scale in a garden is clearly absurd; anyone who loves natural scenery will want the real thing; he will hardly be content to sit in his rockery and suppose himself to be among the mountains. And, again, some loyalty to her methods might have been expected of these enthusiasts for Nature. It is surely flying in the face of Nature to fill our gardens with tropical plants, as we are urged to do by the writers on landscape gardening, ignoring the entire difference of climate and the fact that a colour which may look superb in the midst of other strong colours will look gaudy and vulgar amongst our sober tints, and that a leaf like that of the Yucca, which may be all very well in its own country, is out of scale and character amidst the modest foliage of our English trees.

A passage full of nonsense! There are many men of good taste who do try and succeed in "reproducing the effects of wild Nature on a small scale in a garden." No one loved the hills of Northern England better than the late James Backhouse. But he could not be always there to do his work, and so he was right in making his beautiful rock garden. The true use and first reason of a garden are to keep and grow for us plants *not* in our woods and mostly from other countries than our own! The Yucca, Mr. Blomfield says, is a "plant out of scale and character among the modest foliage of our English trees"! The Yuccas of our gardens are natives of the often cold plains of Eastern America, hardy in, and in every way fitted for, English gardens, but *not* amidst English trees. Is the aim of a garden to show the "modest foliage" of English trees when

almost every country house is surrounded by our native woods? According to such childish views of landscape gardening, the noble Cedars in the park at Goodwood and on the lawn at Pain's Hill are out of place there!

What is declared by Mr. Blomfield to be absurd is the soul of true gardening—to show on a small scale it may be some of the precious and inexhaustible loveliness of vegetation on plain, or wood or mountain. This is the necessary and absolutely only true, just and fair use of a garden.

FORMAL GARDENING.

But those who attack the old English formal garden do not take the trouble to understand its very considerable differences from the Continental gardens of the same period.

No one has "attacked" old English gardens. Part of my work has been to preserve much record of their beauty. The necessary terraces round houses like Haddon may be and are as beautiful as any garden ever made by man. Can anything be more unlike than the delicate veil of beautiful climbers and flowers over the grey walls of the courtyard at Ightham Mote and the walls of some gardens of our own day? The great dark rock-like feudal Berkeley is clad with Fig and Vine and Rose as far as they can reach. No trace in these old gardens of the modern "landscape architect," who said, My walls are not made for plants, and for my beds I prefer coloured brick!

What, then, is the

KIND OF FORMAL GARDENING

that is bad? It is purely formal or stone garden made for its own sake, often without a shadow of excuse. The garden of the Crystal Palace in part; the stone garden at the head of the Serpentine; Versailles; the Grand Trianon; Caserta, Schonbrunn are among the public gardens of Europe where this kind of garden is seen. Great harm has come to many a fair English lawn through this system. Let us learn by one instance, easily seen, the harm done in formal gardening, even where the ground called for an amount of terracing not usual in the plains and mostly gentle lawns of England—I mean the flower garden at Shrubland Park, laid out by Sir Charles Barry, of which I have recently altered the plan and which I planted with graceful life where I found bare walls.

We will assume that the main terrace lines here were needed, as the place stands on a bluff, and speak of a secondary evil of this formal gardening, which arose, I think, about the time Barry laid out Shrubland. That was that the walls of the house or garden were *not* to be graced by plants, and that to secure the keeping of the design, coloured gravels were to take the place of flowers. This rule, as is well known, has been carried out in many gardens—it was rigid here. I see it in some of the new gardens, and in asking at Worth Park why a long terra-cotta wall had not climbers on it, was told the

designer would not allow it! Yet Nature clothes the rock walls with beautiful life, even to the snow line, where the gems of the flower world stain the rocks with loveliest flowers. The crag walls of every alpine valley are her gardens; the Hairbells toss their azure bells from the seams of the stones in the bridges across the mountain streams; the ruins of the temples of the great peoples of old, who really could build nobly, grow many a wild flower. Even when we take the stone and build with it, tender colours of lowly plants soon come and clothe the stone.

But the maker of these miserable garden walls, without use or need, says in effect, *Here Nature shall not come to hide my cleverness. I have built walls, and bare they must be!*

Well, with this bareness of the wall there were the usual geometrical pattern beds, many filled with sand and broken stone, and only very low and formal beds of flowers pinched into very low carpets, with much Box often edging beds a foot across. When I first went one spring day with Mr. Saumarez, we saw a large showy bed, and on going near, found it composed of pieces of broken brick painted yellow, blue, and red!

So, apart from needless formality of design and bare walls where no walls were wanted, there was often an ugly formality of detail, a senseless attempt to leave Nature out of the garden, an outrage against all that ever has or ever can make a garden delightful throughout the year by ruling that even the walls of the house should not shelter a Rose! And that is only part of what we get by letting "builders and decorators" waste precious means in stone that should be devoted to the living treasures of garden, lawn or wood.

W. R.

GARDEN FLORA.

PLATE 808.

XEROPHYLLUMS.

(WITH A COLOURED PLATE OF XEROPHYLLUM ASPHODELOIDES.*)

THE accompanying coloured plate illustrates a class of plants that may be said to be at a discount in gardens, and that do not receive even the appreciation which their merits really entitle them to. I refer to the Clintonias, the Smilacinas, and many allied genera from North America, which are not only of undoubted hardiness, but are so beautiful and interesting in themselves and so comparatively easily managed, that owners of small gardens even need not despair of growing them. A shady spot and a moist vegetable soil (well decayed leaf soil answers very well) are their chief requirements. The flowers of all the plants mentioned are beautiful, and last in good condition longer than a great many of those of our showier plants. They do not require a bog, as many people suppose. Xerophyllum asphodeloides is the name under which this beautiful liliaceous plant is best known under cultivation, al-

* Drawn for THE GARDEN by H. G. Moon at the Broxbourne Nursery. Lithographed and printed by Guillaume Severeys.



though botanists give precedence to that of *X. setifolium*, which seems to have been the first published. The old name of *X. asphodeloides* will want a great deal of uprooting, as it is not only well established in all our gardens, but is thoroughly appropriate and descriptive. No doubt botanists can give good and sufficient reasons for changes of this kind, although it does not seem wise to interfere with the names of plants that have been so long in cultivation as the above. It increases the confusion, already almost overwhelming, and puzzles and annoys growers to such an extent that they often give up the whole thing in disgust and will have nothing whatever to do with the scientific or botanical side of their profession. *X. asphodeloides* was introduced as long ago as 1765. It was not, however, until the summer of 1880 that it was

narrow, Grass-like leaves, from the centre of which springs a tall flower-stem crowded with narrow leaf-like bracts and a dense raceme of white or yellowish white flowers. The perianth segments are longer than the stamens, the style longer than the ovary, the capsule rounded and with two seeds in each cell without appendages. It is a beautiful and stately plant, varying from 1 foot to 4 feet in height, the flowers delicately fragrant and lasting a very considerable time either on the plant or in a cut state. It seems to have been first brought by a Mr. Young to the Royal Gardens, Kew, where it flowered the following year. It is figured in the *Botanical Magazine* (tab. 748). Although it likes moisture in summer when growing, it should be kept dry during the winter. It flowers in May, June, and July, and is a native

June and July, we cannot but give *X. tenax* a first place amongst hardy early summer-flowering Liliaceæ. It seems to thrive best in a shady peat border, where it has grown vigorously, but we are told that it succeeds in the most exposed situations and in the driest seasons. It is found wild in many parts of North America, especially in the sterile portions called Pine barrens, on the east and west sides of the continent. The natives inhabiting certain districts in the Rocky Mountains where *X. tenax* is abundant are said to weave water-tight baskets from its tenacious flax-like leaves. *X. tenax* was first raised in the Royal Horticultural Society's Gardens at Chiswick from seed sent by Douglas, to whom we owe so much. It grows from 2 feet to 5 feet in height, the leaves broader than those of *X. asphodeloides*, often 2 feet or 3 feet long. The flower-stems grow from 2 feet to 5 feet high, the raceme varying from 1 foot to 2 feet long, the flowers crowded and very attractive, the segments white with a violet centre. The segments are shorter than the stamens, the capsule oval and pointed, three-valved with two to four seeds in each cell. Propagated by division in early spring, and seed sown as soon as gathered. D. K.



Xerophyllum asphodeloides at home.

shown and received a first class certificate from the Royal Horticultural Society. This may have been either on account of its reputed shy-flowering habit or because it had never been a candidate for the above honour. I am under the impression that its reputed shyness to flower has been the result of having one instead of several plants in a collection. I know from long experience that, after blooming, individual plants take a year or so to recover, but they have invariably flowered again the second year with as much vigour as they did at first. It belongs to the Colchicaceæ division of this charming and popular family. It is nearly allied to our native bog Asphodel, although quite distinct in habit and general appearance, as may be seen from the accompanying coloured plate. It has a dense tufted habit of numerous,

of S.E. America. It may be increased by division, which must, however, be performed with the greatest care.

X. DOUGLASSI.—This, first described by Dr. Asa Gray as a variety of *X. asphodeloides*, was collected by Douglas in Oregon, and afterwards near the Columbia River and in the mountains of Montana. It is not so showy as the above species, from which it differs but slightly, and can well be left out.

X. TENAX.—This very beautiful species has also been a considerable time in cultivation. It was figured in the *Botanical Register*, 19, tab. 1613, under the name of *X. setifolium*, but this, as shown above, belongs to another species. I lately received *X. tenax* from the York Nurseries, and whether we regard the elegance of the gracefully curved, neat-looking foliage, or the fine racemes of the violet and white flowers which it produces in

THE WEEK'S WORK.

HARDY FRUIT GARDEN.

GRAPE VINES.—During favourable seasons in warm or the more southern districts serviceable crops of fruit are obtained, especially from the Vines of the common Sweetwater; but, whether productive or not, all Vines in the open will now require attention, or otherwise the young shoots will soon become disordered and unsightly, while in the case of those showing bunches, everything that can be done to forward these should be carried out. All lateral growths should be freely thinned out, not more than one shoot being left to each spur, and that reserved should be stopped at the second joint beyond the bunch; or, if there are no bunches, stop the laterals at about the fifth joint. Directly the growths are sufficiently set to admit of their being safely tied or otherwise fastened back to the walls, this should be done. If the bunches are very numerous, reduce the number at once, this making a great difference in the quality of the rest. It also pays well to thin out the berries much as they are treated under glass. Keep later formed shoots or sub-laterals well thinned out, and stop the rest at the first joint. Well ripened young canes are usually the most productive against open walls, and the latter should therefore be superseded as much as possible by the former. Lay in well-placed young shoots low down on the old canes, stop them when about 6 feet in length, and take good care that they are not smothered by foliage, or they will not ripen properly. Another good old plan at one time in vogue in Kent and Sussex consists of laying in young growth at short intervals all over the old rods, these being stopped when about 2 feet long and cut out after they have fruited once, their places being taken by other short canes laid in to succeed them. The main rods ought in all cases to be not less than 30 inches apart, and comparatively young Vines ought not to be allowed to form very long canes in one season, or the ripening will be faulty.

VINES MILDEWED.—Mildew is the greatest enemy open-air Vines have to contend with, this being responsible for very many failures. Sulphur dusted over the affected parts, as well as over the bunches, seems powerless against this disease in the open, though it is effective enough under glass when assisted by a higher temperature and a drier atmosphere. Bentley's mildew specific is perhaps the best remedy that can be recommended, though other makers' compositions might well be given a trial rather than the Vines should be ruined. Thoroughly wet all the stems, leaves, and bunches with the specific, duly mixed with water according to the instructions on the bottle, and syringe it off the bunches before they have become dry. This will not disfigure the berries in any way,

and one or two applications will usually destroy, or at any rate much check, the fungus.

STRAWBERRIES.—The very earliest or those with a fairly good crop of fruit set, and also the latest to flower, are but little injured by the late frosts, but all the rest are very badly damaged. The smallest flowers will most probably be followed by fruit, and a few larger fruit may result from late spikes on vigorous clumps, so that no one need despair of gaining something for all his labour. Showery weather has washed the mulching fairly clean, but if this has been long on the ground it is advisable to surface it over with either much fresher litter, or clean straw cut up into convenient lengths for the purpose and laid well up under the fruit. Those who have still a good promise of a heavy crop ought also to take advantage of showery weather to give the beds either another surfacing of guano or other soluble manure, or else a good soaking of liquid manure or sewage water, this being kept well clear of the fruit and leaves. Showery weather has also been favourable to the increase of slugs, and they are likely to be as troublesome among Strawberries as ever they were, especially where the precaution had not been taken prior to mulching of well stirring in soot, lime and strong manures, these, in addition to greatly benefiting the plants, also having a very deterrent effect upon slug life. Slugs do not travel well over straw cut up into coarse chaff, the latter also serving to keep the fruit clean. A mulching of spent tan also proves obnoxious to slugs, and does not injuriously affect the flavour of fruit resting upon it. Wire crinolines or anything, including short stakes and raffia, that will keep the clusters of fruit well off the ground are the best preservatives, and fruit thus raised from the ground is less liable to rot in a showery season. Young plants, no matter how small, will attempt to bear fruit, but the flower-spikes should be kept pinched out of all not sufficiently strong to sustain a crop without prejudice to further healthy progress. The best runners are to be obtained from strong young plants, and it pays well to prevent a few of the latter from fruiting in order that they may produce a greater abundance of extra strong early runners. No runners should be permitted to form on small plants intended for cropping heavily next season.

GOOSEBERRIES AND CURRANTS.—Those who have deferred pruning the former till the fruit is large enough for use ought not longer to neglect the operation, or otherwise an almost unmanageable thicket of growth will be the result. Frosts have much lightened the crops, but on those bushes not severely pruned there are yet plenty left, the additional protection afforded by the branches saving the fruit underneath. Many of the bushes of large-fruited or exhibition Gooseberries are of low spreading habit, and unless the ground between them is mulched with strawy manure, the fruit is liable to be badly splashed in showery weather. Such a mulching would also be beneficial to Gooseberries generally, and likewise to Currant bushes, all being surface-rooting and moisture-loving. Currants, both Black and Red, are likely to be a light crop this season, but that is no reason why they should be neglected. Those of the latter against walls should have the lateral growth spurred back to a length of about 4 inches and be early netted over, extra fine bunches of fruit being usually obtained from trees thus treated. It is also advisable to thin out and shorten back the side shoots on bushes, leaving the leading growths untouched. If the ground about fruit bushes generally is not mulched, keep it free of weeds and prevent cracking by means of frequently stirring with flat hoes.

W. I.

THE KITCHEN GARDEN.

FRENCH BEANS.—The earliest sowings having been made on south or warm borders, these naturally quickly fail to fruit, so for later or successional crops a cooler site should be selected, this being very essential on light soils. Even on a heavy soil I find it of great advantage to sow on an east border, as the plants continue in bearing and also keep green for a considerable period. For sowing at this season Cana-

dian Wonder is the best variety, and being a strong grower it succeeds admirably on a cool site. The rows should not be less than 30 inches apart, and where space is no object, an extra 6 inches may be allowed with advantage, the extra width being both beneficial to the growth of the plants and gathering more easily carried out. The best results are also attained by sowing thinly. With such a strong growing variety it is also necessary to place small sticks on each side to keep the plants from toppling over. In sowing the seeds draw a wide drill and place the seeds in position, this being better than trickling the seed along the rows, as in this case the rows have a crowded appearance, unless due care is taken in thinning early.

RUNNER BEANS.—Runner Beans will certainly be late in many gardens and districts, especially where the growers ventured upon too early sowing, the past exceptional weather having cut them off wholesale. Later sowings escaped well in our own case, these appearing in a few days after the storm passed away. In ordinary seasons these would have commenced to wire ere this, but upon a return to warmer weather the moist condition of the soil will ensure a rapid growth. Where thick sowing was resorted to, do not neglect the precaution of early thinning as soon as the best plants are discernible, for where a crowded growth obtains, the plants do not succeed nearly so well. Early thinning and early staking are both very essential; this latter should be attended to upon the first opportunity after earthing up.

LATER CROPS.—Although the main crop will keep on bearing where the pods are kept closely picked, yet it is very important that later sowings be made, as these will keep on yielding far into the autumn, provided we have no early frosts. Many people rarely make a sowing for late produce, but a more profitable crop could hardly be provided for the time being. The coolest part of the garden should be selected, and even if the soil is of a retentive or heavy description, there a late crop may be grown to perfection. On light soils the precaution should be taken of sowing in prepared trenches, and if the weather should prove dry, wide drills should be drawn and these soaked overnight, as in dry soils the seeds germinate very irregularly.

MAIN-CROP TURNIPS.—A rich soil is very essential for Turnips at this season of the year, for a quick early growth is what is required, so as to grow away quickly from the ravages of the Turnip fly. If the weather should be favourable the seeds will quickly germinate, but during a dry time the precaution should be taken of soaking the drills overnight. As an extra precaution against the fly, a little Peruvian guano or any approved artificial manure sown in the drills with the seed will enable the seedlings to grow away quickly. Upon the first appearance of the seedlings, dusting with soot in the early morning whilst the surface is wet with dew will also guard against attacks, and also early hoeings. On poor soils the plants are more liable to attacks, and the quality of the roots deteriorates in proportion. Veitch's Red Globe is a capital variety for summer sowing, this remaining in use much longer than the white-skinned varieties.

Y.

ORCHIDS.

SINCE the unseasonable Whitsuntide frosts the weather has been cold for the time of the year, and in our district at least there has been but little sunshine. If it is not too cold at night such weather is perhaps as favourable to the healthy development of Orchids as any other, for it is easy to have a high enough temperature, and probably the natural shade of the clouds is better than that of artificial screens of scrim or canvas. It has certainly been a better season for cool Orchids than the last was; the *Odontoglossums* are making better growth, and the pseudo-bulbs seem to be rather better ripened. We had some *Masdevallias* which seemed to have got into rather bad condition, but they have very much improved and are making a cleaner healthier growth than heretofore. The

past winter was certainly not favourable to the growth of cool Orchids, as too much artificial heat was necessary to maintain the temperature. During the past week the outside atmosphere has been constantly moist, and to keep up the temperature of the house as high as we wanted it required very little aid from the heating apparatus; therefore, with the moisture-laden outside moisture and the hot-water pipes about milk-warm, it required very little damping down to keep the plants in a healthy growing condition. Of course, everyone likes to maintain the flowers in beauty as well as the plants, and to hold the balance of just enough moisture for the plants without doing any injury to the delicate blossoms of the *Odontoglossums* is the happy medium which every good cultivator must strive after. What signifies healthy plants if the delicate pearly-white corolla is disfigured with damp spots. I have before this urged the importance of the Sphagnum Moss being kept in a healthy growing condition on the surface of the pots of *Masdevallias* and *Odontoglossums*; if the Sphagnum does not thrive it may be concluded that there is something wrong, and measures should be taken as soon as possible. Many good Orchid growers object to repotting cool Orchids in June, July and August, but I have done it often and have had no reason to complain of the results. When it has been necessary to remove all or nearly all the compost from the roots the plants suffer more in the summer than they do in the spring and autumn, the pseudo-bulbs will shrink a little and the plants experience a check. Those plants requiring repotting should be carefully turned out, or if the roots cling too firmly to the sides, the pots be broken. Remove the plant carefully, repot it at once, and it will if thus treated grow away without experiencing the least check. Any plants that may be thought all right underneath the surface should be surface-dressed if the Sphagnum has died off in patches. Remove the surface part entirely and have ready some live Sphagnum chopped up, some clean, tough, fibrous peat, and clean potsherds broken up with pieces of charcoal. Distribute the Sphagnum and peat evenly over the surface, mixing with it the potsherds and charcoal. Green-fly must be kept from the flowers and the young spikes, which, as they issue from the axils of the leaves, are sometimes found to be smothered with this pest. Repotting and surface-dressing if necessary may now be done in the *Cattleya* house. As advised some little time ago, the *Dendrobiums* will have been removed from this house and placed in one with a much warmer atmosphere. This gives more room for the *Cattleyas* to make their growth. We repotted our *C. Trianae* as soon as they passed out of bloom; indeed, some of the later-flowering varieties were repotted with the flowers upon them. These Orchids require a very large proportion of good fibrous peat and but very little Sphagnum. Some of the charcoal and broken potsherds should be mixed with it. Such *Cattleyas* as *C. Mossiae*, *C. Mendeli*, *C. Schroederæ*, *C. Skinneri*, *Lælia purpurata*, &c., yet require repotting, and they will be seen to as soon as they pass out of bloom. *Cattleyas* do not recover so rapidly from injury to the roots as *Odontoglossums* and *Masdevallias*; it is therefore necessary to be very careful in removing the plants from their pots. When a plant has been two years in one flower-pot it takes such strong hold of the sides of it that there is no probability of getting it out without breaking the pot, hammering a small piece at a time and carefully removing the portions, and even in that way many roots are injured. At this season they recover more readily than at other times.

THE MOTH ORCHIDS (*Phalænopsis*) may be placed in new baskets, which is preferable to planting them in pots or pans. It may not be necessary to do all of them, and in that case some of the old partly decayed material may be removed, replacing it with good clean Sphagnum. The teak baskets are usually square-shaped and fastened at the corners with a piece of copper wire. They can be taken to pieces readily by drawing out the wires at each corner and carefully extracting the pieces from amongst the roots. Those who have been most successful in the culture of *Phalænopsis* have been careful to disturb the roots as little as

possible, and when it has been necessary to give the plants new baskets the utmost care has been taken of the roots in the process of removal. When the plants are doing well, it will be seen that the greater part of the roots are outside the basket and the material placed for them to root into. Those intending to grow these lovely Orchids should obtain plants that have not been long imported; they generally do better in the hands of the inexperienced than old-established specimens, which may not like their new treatment, and decline in vigour. The best varieties or rather specific forms to start with are *P. amabilis*, *P. Schilleriana*, *P. Sanderiana*, and, best of all, *P. grandiflora*. The best way to treat newly imported plants is to place them in small shallow teak baskets at once, using nothing but live *Sphagnum Moss*, pots, sherds, and pieces of charcoal. J. DOUGLAS.

PLANT HOUSES.

THE CONSERVATORY.—Where the glass accommodation is adequate for keeping up a good supply of flowers for the decoration of the conservatory, there will not now be any scarcity of plants nor lack of variety from which to choose. The chief endeavour where there is a good supply should be to prolong that supply as far as possible. This can be managed by retarding a goodly number of plants in cool pits and in frames; the latter can sometimes be placed in a shaded place with a north aspect. In order to keep plants back in a successful manner, however, they must be taken in hand in good time, and before they are advanced to the flowering stage. It does not answer so well by a long way if deferred until the plants are really fit for use. *Cinerarias*, for instance, may be had in good condition into June even by putting the plants in cold frames at the end of March, provided they were a late-sown stock. *Calceolarias* (herbaceous) may be retarded to the end of June if needful and even into July by the same means. By regulating the flowering period of show and fancy *Pelargoniums*, by stopping the plants at various times in the spring, and by a judicious selection of varieties, instead of having too many of one sort, the season of flowering may be considerably lengthened, and all the more so if the latest batches are kept in cold pits and frames with the lights off day and night in fine weather. In this way they may be easily kept in good condition for the conservatory to the end of July. It will be seen that my remarks tend to the lengthening out of the flowering period in each respective case as far as possible. A proportionately smaller collection of plants can with good management be made productive of better results than a larger one under a more haphazard mode of treatment. It may look very attractive to see a houseful of any one kind of plant just upon the flowering stage, but when utilised later on for conservatory decoration there is the inevitable waste. This waste is in more ways than one; overcrowding is a waste not only in itself, but also from the fact of one plant doing harm to its neighbours, and with too many in flower at one given time it is not always possible to make the best use of them whilst in good condition. This evil does not end here; it also prevents the succession stock from having a fair chance, with the result of a dearth of plants before the season is out.

In the conservatory itself the arrangements should be varied from time to time and as much as possible. The indiscriminate mixing up of all kinds of flowering plants should be avoided. This can be effected by grouping plants of one kind together, thus creating oftentimes a greater interest by the opportunity afforded of making comparisons as to colour and varieties. In this way also plants may be so arranged as to light and shade suitable to their special needs. *Pelargoniums*, *Ericas*, *Aphelexis*, and many other hard-wooded plants will be better accommodated with a fair amount of light and air. Herbaceous *Calceolarias*, tuberous *Begonias*, *Azaleas* and *Rhododendrons* will keep well if rather more shaded. Orchids are not often used in the conservatory, yet they may in very many instances be taken there during the summer season, their peculiar beauties being thus seen with far

greater comfort than in the Orchid houses proper. *Cattleya Mossiae* and *C. Mendeli* with *Laelia purpurata* and such like kinds from the Mexican house will not come to any harm if carefully looked after; in fact, I think they afterwards start into growth more kindly than if kept in a more equable temperature. The chief points to guard against are an excess of water at the roots and overhead, with a fair amount of shade and a careful avoidance of cold draughts. *Odontoglossums* I have kept in good condition for a long time in a conservatory, choosing a cool and rather moist spot. Those in baskets or upon blocks can with good effect be hung upon Tree Fern stems or the stout footstalks of the larger Palm leaves, the friendly shade thus imparted being congenial just for the flowering period. Many of the hardier kinds of *Dendrobies* and that beautiful old-fashioned Orchid, *Oncidium flexuosum*, can also be safely taken to the conservatory whilst in flower. As soon as their beauty is over, remove them by all means back to their usual quarters. From the stove *Anthurium Scherzerianum* may for a time be taken when in full flower by adopting the same precautions as recommended for the Orchids. If these and other plants were more used for such purposes their popularity would be further increased; the only obstacle to overcome is the common idea that they cannot be safely taken from the houses in which they are usually grown.

Some conservatories are not so well adapted as others for displaying plants to the best advantage. I remember inspecting one not long ago in which specimen hard-wooded plants told with singular effect, each plant standing quite by itself with only dwarf ones around it no higher than the pot. This could not be done in very many instances for the simple want of room. Later on in the same house specimen *Chrysanthemums* played a most important part in the decorations. Conservatories are oftentimes too small for their effective arrangement. These are consequently overcrowded with plants, which are eventually injured thereby. Constant attention should be given to the removal of all faded flowers from day to day. I prefer to see this done at the time of watering rather than for it to be deferred until a general turn out or rearrangement is made, probably once every week. If green fly is found to be troublesome, no opportunity should be lost in checking it. This may be done by a moderate fumigation or two until a chance occurs of giving a stronger dose. When there is an opportunity, a thorough good turn with the syringe or garden engine amongst the permanent bush plants and climbers will do a deal of good. Do not at such times depend upon pure water alone. Nicotine, soap, or paraffin oil insecticide may be safely used, weak only if the case in point is not a bad one. At such times look well to the watering of permanent plants and give an extra amount wherever necessary. Where *Lapagerias* are planted out a sharp watch must be kept against the depredations of slugs upon the young and tender shoots. Nothing, I think, is more susceptible to injury from slugs than the *Lapageria* shoots. As soon as any are appearing above the ground some wadding may be pegged around each one until long enough to have a small amount tied around it at the base, as in the case of Orchid spikes. The lateral growths higher up should not be allowed to entwine themselves together, as these will later on produce flowers; the effect will be all the better if each one is kept free. Do not on any account tie these shoots in close; in fact, it is better not to put a tie at all to them, but let each one grow in a free manner. It will be quite time to think of tying in (and then even only as much as is really necessary) when the flowering season is past. By all means avoid formality with this and all climbers. Those climbers which grow in a rapid manner, such as *Cobaea scandens* and its variegated variety with some of the *Passion Flowers*, should not be allowed to cover too much roof space at the expense of other good things. Each one may be good and useful in its way, but variety should not be sacrificed to obtain such effect. In the case of *Passion Flowers*, thinning out of the weakest shoots and allowing the rest, save leading growths, to hang down will be conducive to flowering. *Camellias* where planted out

will now be growing freely; guard against any injury to the young foliage, both from the rays of the sun for want of shading and from other sources. Encourage the plants by a free use of the syringe and plenty of water at the roots to perfect as good a growth as possible. Those in pots will now be greatly assisted by occasional doses of manure water where pot-bound; do not on any account allow such to become dry.

As soon as the main part of the *Azaleas* (Indian) are past their best, some of their flowers dropping and the rest faded, they should be picked over and removed into a moist growing temperature to make their growth. Those that require potting ought to be seen to at once, following out instructions as previously given. A close watch should be kept for thrips, which often increase apace about this time. This work should not be postponed, for if any time be lost by allowing the plants to stand out of doors or in a cool house the chance of a good crop of bloom another season is lessened through want of time to develop the flower-buds in a proper manner. All other *Azaleas* of the hardy kinds which have been forced and since made a good growth should now be turned out of doors, gradually inuring them to full exposure of light and air. *Deutzias* and other forced plants will now have completed their growth also; these should all be turned outside. In this way room will be made for the *Azaleas* first alluded to. *Spiraeas* and *Lilies* of the Valley in clumps should be planted out in good, well manured garden soil, where they can remain for at least a season or two to gain strength. The latter in this manner can be allowed to remain for a permanent out-of-doors supply, or in about three or four years would make good plants for lifting and again forcing. If single crowns are the object, the clumps should be divided up before planting and then put out in rows about 10 inches apart, so that a hoe can be easily worked between each row. *Dielytras* and *Solomon's Seal* had better be put out in clumps; also let the same attention be given to any plants or bulbous subjects which it is well known cannot be relied upon with any certainty for another season's forcing. It is useless to keep such things in pots, giving labour in watering and also injuring the plants.

J. HUDSON.

ORCHARD AND FRUIT GARDEN.

UNPROFITABLE WALL TREES.

A CLOSE examination of the fruit trees generally trained against walls discloses the fact that much fruit has been ruined by the late severe frosts, and in many cases also the welcome information that there is yet plenty perfectly sound. Old trees principally furnished with long ugly spurs are the greatest sufferers, while the younger trees of *Pears* and *Plums* in particular are so heavily laden as to require severe thinning out. It is not the first time by a long way that much the same thing has happened, but probably the lesson that trees mostly covered with long spurs are the least profitable was never more forcibly brought home to fairly observant cultivators. Expensive walls are not merely built to support fruit trees and to afford shelter to vegetables, neither the one nor the other sufficiently repaying for the outlay. Walls ought to be made, and doubtless were originally intended, to attract, hold, and radiate warmth solely for the benefit of the trees closely trained against them, and directly the fruiting spurs are permitted to extend from 9 inches to 12 inches in length, much of the benefit of the additional warmth as well as shelter is lost. Occasionally instances are also met with of the trees being allowed to grow considerably beyond the top of the walls, and the heads thus formed, in addition to deriving no benefit from the walls, also ruin the lower branches that are trained against the latter. There ought to be no heads or thickets of growth above the copings of walls, nor should trees be allowed to form long, comparatively useless spurs.

In some instances, notably in the case of *Pear* trees, old spurs might at the winter pruning be gradually sawn off near to the main branches, fresh fruiting spurs being formed from the young shoots that

usually follow upon this operation, good care being taken to prevent them from again becoming too long to be serviceable. Apricots, Plums and Cherries are not so often restored to a better condition in that way, but supposing the trees are in good health, a considerable number of young shoots is usually available each season. These, instead of being cut away, ought where possible to be laid in either between or over the old branches, and the old spurs being cut off as the young growths require the room, what at one time was an unprofitable tree is gradually restored to a productive state. Not only are the young branches the most productive, owing to their close proximity to the walls, but they also yield much the finest fruit. If the trees are not amenable to these restorative measures, then ought they to make room for young ones.

Many seem to have a prejudice against young trees owing to the time supposed to be taken up in bringing them to a productive state, but where there are a good many large trees the younger ones are not so closely watched and waited for, and in any case a young ought always to be coming on to take the place of unprofitable old ones. Nor, after all, if properly managed, are they such a long time in reaching a profitable state, especially if well attended to during the growing season, and not recklessly pruned in the winter. There ought to be no delay in the matter of thinning out young shoots and pinching back all those reserved other than are required for furnishing. This favours the growth of the latter, strong shoots from 2 feet and upward being made in one season, and which in very many cases need not be shorted next winter. The over-pruned young trees are the most unprofitable, and I could point to numerous young trees of Cherries, Pears, Plums, Apricots, and Peaches that are bearing freely this year, and yet have only been planted three seasons. Some would fruit almost from the time they were planted, but to allow them to do this would be a mistake, stunted being only another name for unprofitable trees. In laying the foundation of profitable trees or those that will bear fruit in most seasons, the value of spurs on both the upper and lower sides of the branches must not be lost sight of, for reasons already given. It is those young shoots jamming hard against the walls and all standing out straight from the branches that ought to be pulled out now, spurs formed by stopping the latter being especially useless during such a season as we are now passing through. It is also unwise to leave very many young shoots in the favoured positions or all may be weakly. Thin them out to about 3 inches apart, and stop at a length of 4 inches or thereabouts. If more severely pinched back, wood-buds, or even growths this season may develop at the back joints, whereas what is most needed are good clusters of fruit-buds. Apricots, Plums, and Cherries should form the latter by next autumn, but the Pears may be two or three seasons before the formation of fruit-buds is actually completed. Summer stopping must always be followed by rather close winter pruning, and it is the neglect of this precaution that so often leads to long unprofitable spurs being formed. Strong young shoots if stopped with the finger and thumb will usually push out afresh from near the old wound, a second stopping being sometimes practised, and these spurs with secondary growths attached should, at the winter pruning, be shortened to a length of about 1 inch. In this manner close spurs will be formed, these deriving all possible benefit from the walls against which the trees are trained. I. M. H.

Melons failing to set.—The complaint of Melons failing to set fruit seems very general, and at the same time this failure is not easy to account for. In our case pot plants set far more fruit than required, more being pinched off than were left on, but the case was somewhat different with the plants having a much less limited root-run. These grew very strongly, as Melons usually do when there is but little sunshine going, and most probably the failures to set fruit were due to grossness of the plants. I was not at all anxious to set many fruits on the plants, well knowing that I should be more suc-

cessful later on, and a longer succession of fruit result. Most of the plants are now furnished with one, two or three nearly fully-grown fruits, and many of different sizes and ages are also swelling fast. In very many cases it is almost a misfortune for several Melons, or say about six in number, to set and swell off on such plants while yet they are young, this being more than they can properly support, and overcropped plants are the most liable to collapse before the fruit is ripe. Better by far crop lightly at first. Treat them in the matter of watering and top-dressing similarly to Cucumbers and they will continue to gain in strength and productiveness. Bees are good gardeners' friends in the way of fertilising Melon flowers, these accomplishing this far more effectively than any human agency can, but they naturally interfere with seed saving, the crosses being many and uncertain. One or two kept in or frequently turned into a Melon house will soon do all the fertilising needed, and just now they are working too well for us.—W. IGGULDEN.

The fruit crops in May.—Never was the promise of a plentiful fruit harvest in the open more brilliant than this year; but who can say what the killing frosts have left us? Fortunately, such erratic visitations are mostly too short-lived, shall we say, to level down any large districts of country; hence even within the limited range of East Anglia almost every district and each garden had its own share of the cold wave that, with the exception of about three days, has swept over and through the entire month. But no man, however experienced, can now say for himself or his neighbours what the frost has left us of the current year's fruit crop. That something will be left seems certain; the bloom was too plentiful, the foliage too ample for all to be destroyed, unless in those localities in which the frost ran down to the blasting point of from 12° to 20°. We have suffered heavily, but less so than some of our neighbours. Apples, Plums, Pears and Apricots seem as yet a crop, but Peaches well protected with boughs seem thin, though the leaves and shootlets never looked more vigorous and healthy. Early Strawberry blooms are also hard hit, while Gooseberries and Raspberries look suspicious. One thing is certain; hitherto fruit trees have been singularly free of insect pests.—D. T. F.

Paris Green on orchard trees.—My thanks are due to "A. B." for directing attention (p. 494) to an important error on my part in recommending Paris Green to be used for destroying caterpillars at the rate of 1 lb. to 50 gallons of water. This was simply a slip of the pen, and which I should have detected had I read through the paragraph the same day as the paper was received. Last season I only had occasion to experiment on one tree situated among Filbert bushes, and found that 1 oz. of the poison mixed into a paste and then well stirred into 9 gallons of water was both effective and safe. What I therefore intended to recommend was 1 lb. for about 150 gallons of water, and this I believe would answer well, though, fortunately, there appear to be so few caterpillars that it is not advisable to run any risks in the matter. As far as the effect upon the foliage is concerned, I believe it to be wise to select a dull time for applying any kind of strong insecticide, and in any case to well damp the trees or bushes with clear water prior to using it. Further, I am of opinion that the Paris Green will be either quickly effective or fail altogether to kill the caterpillars, and if, therefore, an engine or syringe with clear water followed upon its application, say next day before the sun has gained much power, this would save the foliage and dislodge the only partially stupefied caterpillars.—W. I.

—On page 494 "A. B." asks for the experience of others on the use of the above. Having used it extensively last year and again this season, I have had good opportunities of ascertaining the strength it should be applied to the trees. Last year I applied Paris Green at the rate of 1 oz. to 10 gallons of water as a first application to Apples, Pears, and Plums. No injury was done to the Plums at that strength, but Apples and Pears had the foliage badly burnt. The next time I sprayed I used 1 oz.

to 20 gallons of water. This destroyed the caterpillars and did no harm to the foliage. I have tried stronger and weaker doses, but the result was that the safest and best mixture was 1 oz. to 20 gals. of water. I may say that I have some thousands of fruit trees under my charge, and last year I sprayed them ten times at the latter strength. As the eggs of the winter moth continued hatching over a period of seven weeks, and so many caterpillars were destroyed that last autumn we had very few winter moths to deposit eggs. However, we have had some caterpillars this year, but very few compared with former years. I am inclined to believe that Paris Green properly applied will render grease banding unnecessary, but to apply 1 lb. of Paris Green to 50 gallons of water and put same on trees would make the remedy worse than the disease.—S. S. W.

LATE FORCED STRAWBERRIES AND MILDEW.

THOSE who grow a large quantity of Strawberries are often seriously handicapped by having their plants injured by mildew, and as it greatly disfigures the fruit, the best preventive, I find, is to check its ravages in the early stages, as when once allowed free play it spreads alarmingly if not arrested. I find the safest remedy is to dust the plants over with fine sulphur as they are introduced into their fruiting quarters, taking each plant separately and dusting the underside of the foliage. No doubt with a lot of plants it is a tedious process, but a necessary one, and one that pays in the end. I saw this done lately at a large grower's who grows thousands for market, and in one house alone he had over a thousand plants with ripe fruit in splendid condition without a trace of mildew, and he informed me that it was a great saving of labour to dress the plants when first introduced. Everyone who forces President well knows how liable it is to mildew, even under the best of treatment. I have taken the precaution to dip the plants, also to syringe with sulphur, but prefer the dusting over at the early start and find it gives the best results. In badly ventilated houses some plants suffer so from mildew, that it is best to guard against it by greater attention to the ventilation. I find frames are often more troublesome than any houses, and as the cultivator is often obliged to utilise for Strawberries many houses and frames containing other plants that it is difficult to air properly, it is best to grow those kinds least subject to the disease. In some instances the pipes may be painted over and to a certain extent the disease be checked, but it cannot always be accomplished owing to the injury to bloom and other causes. In frames mildew is more difficult to deal with, especially if the late plants are planted out. So far I have found the best remedy is to go over the plants singly and dust them over carefully by taking the foliage in one hand and dusting with the other, keeping the plants on the dry side for a short time. This should be done before the plants come into bloom. Mildew often attacks the plants at a later period after the fruit is set, so that more care is necessary to prevent disfigurement of the fruit, and in an airy house syringing with a special preparation of sulphur, afterwards with clear water, will check it. It is also a safe plan to thoroughly syringe over all woodwork, walls, and stages, especially after a crop has been gathered and before introducing a fresh batch, using some sulphur and warm water for the purpose. I think this season mildew has been more troublesome in frames than ever, no doubt owing to sudden changes in the temperature. Tomatoes and Roses have been difficult to keep clean. Tomatoes especially have been persistently attacked, and owing to cold winds and want of sun free ventilation has been very difficult. I have used soluble paraffin oil with advantage for both the latter, and it soon checks mildew if applied in time. I have also used soluble paraffin oil for Strawberries when set, syringing with clear water afterwards. G. WYTHES.

Increasing Raspberries.—The best way to increase Raspberries is to go through them about May and dig up carefully with a few roots the young green

suckers rising where they are not wanted, planting them where they are wanted at once, or making a row or two of them in reserve. These get no encouragement to grow ordinarily, being usually chopped off with the hoe. It is far better to save them in this manner, and you never then want to chop off pieces from the old stools to increase stock. Such chopped pieces are not sure growers. The planted suckers are quite sure to grow.—A., *Dorking*.

ORCHIDS.

AUSTRALIAN DENDROBES.

I AM glad to see that these plants are again coming into favour, though I cannot say that among the great number of Orchids staged at the Temple show last week there was one Australian species. *D. speciosum*, here figured, was first introduced to this country by Allan Cunningham nearly seventy years ago, and some thirty or forty years ago it had become common. It was always a favourite plant of mine, and I used to grow and flower

has arrived at a flowering size, it will not fail to bloom annually. It is found at various places for over a thousand miles along the Australian coast, but always near the banks of rivers.

D. HILLI, figured by Sir William Hooker as a distinct species from the first plant that flowered in the country with myself in the spring of 1861, is by many considered only a variety of the above, but it certainly is easily distinguished even when not in flower by its pseudo-bulbs, which are much thinner than those of *D. speciosum*; the raceme, too, is much longer and more dense; the sepals and petals are of about the same length, soft creamy white, the lip being of the same colour, with some oblong bars and spots of purple. This plant comes from the south of Queensland, and was named in honour of Mr. Walter Hill, then director of the Botanic Gardens at Moreton Bay.

D. TETRAGONUM.—Of this I had until this winter the original plant that was figured in the *Botanical Magazine*, t. 5956. It forms woody tubers or corms, from which the quadrangular pseudo-bulbs spring. The flowers are mostly produced singly from between the leaves, and measure between 3 inches

now. I do not remember to have seen it since 1864. It is a small growing plant with yellowish-white fragrant flowers, produced in the early spring months.

D. KINGIANUM is now rarely seen. The flowers are few in number, white streaked and dotted with purple. Mr. Smee, of Carshalton, has a pure white variety of this called *album*, which makes a spike a foot long bearing about a score of flowers, each being about an inch across; this is really a beautiful plant, doubly valuable, as it flowers in January and February.

D. BIGIBBUM is the best and most showy of all the Australian Dendrobies. It has stem-like pseudo-bulbs each a foot or 20 inches high, the leaves being confined to the upper part of the stem; these are evergreen for a year or two, and I have seen them remain upon the plant until the third year; the spike is produced from the upper part of the growth; when strong, I have seen this carrying nine flowers, each measuring upwards of 2 inches across. The flowers are of a deep magenta-purple, the lip being the darkest, with a pure white crest; the peculiar roundness of the flower and its beautiful colour cannot but find admirers wherever seen. This plant requires a great deal of heat and moisture, as it grows only on the extreme end of the northern coast of Australia; indeed, I believe most of the plants that come to us now are brought from the adjacent islands.

There are several other small-flowered species such as *teretifolium*, *cucumerinum*, and a few others. W. H. GOWER.



Spike of *Dendrobium speciosum*.

it annually. *D. speciosum* flowers early as a rule, usually in February and March, after which the plant should be encouraged to make its growth. This may be done by giving it heat and moisture. During the growing season I recommend that the plant be stood in the East India house well exposed to the light and treated to a liberal supply of water. When the bulb is fully formed, it should be gradually inured to a lower temperature and water withheld. About the month of July or August the plant may be stood in the open air fully exposed to the sun and without any water. Some glass lights must be kept convenient to put over it in the event of a downfall of rain, because no water should be given it until the flower-spikes begin to swell. The bulbs are stout and surmounted by thick, leathery, oblong, shining green leaves, which last many years. The old leafless bulbs should be cut away gradually as the plant gains strength; the spike is pendent, from 18 inches to 2 feet in length, sometimes more, raceme dense, the flowers being creamy white and pleasantly fragrant. Treated in the above manner, if the plant

and 4 inches across from the point of the dorsal sepal to the end of the lateral one. The lateral sepals are pale yellow tinged with rosy pink, and bordered with a narrow red line; lip white, the side barred transversely with pink. Native of Queensland. Imported by the Messrs. Rollisson, of Tooting, from Rockingham Bay.

D. LINGUEFORME is another species one rarely sees in our Orchid collections. It flowered with me at Kew in the winter of 1860 from a consignment of plants received in the early part of the same year from Mr. Walter Hill. I do not think I saw it again until I met with a fine specimen doing well with Mr. Searing when in charge of the late Mr. Partington's fine collection of *Phalænopsids*. It is not a gay species, but its feathery sprays of ivory-white flowers are very useful during the winter months. It has a curious woody rhizome from which the leaves spring. The spike is erect, springing from the base of the leaf, about 4 inches long, having from twelve to twenty-four flowers. The sepals and petals are long and slender, ivory white; the lip, which is small and not much seen, is yellow with red dots. This also occurs on the coast between Sydney and Brisbane.

D. ÆMULUM is another plant one seldom sees

Cattleya Mossiæ Hardyana.—This is a very singular and handsome form of the species, and one that has stood the test of years. The flower is large, the petals very broad, the ground colour purplish-lilac, the whole outer perianth being streaked and blotched in a most extraordinary way with rich magenta-purple. The lip, also streaked with deep magenta-purple and pale purple, has a rich golden yellow throat and is deeply fringed. To those who admire these flaked flowers it is a veritable gem, thriving well with other *Cattleyas*. It was shown in splendid form at the Manchester exhibition in Whit-week.—W.

Cymbidium Mandaianum.—This is a lovely variety, for at present I do not think it a distinct species. The plant in its growth and manner of blooming resembles *C. Lowianum*. At present it has about fourteen flowers on the spike, but they will doubtless increase in number as the plant gains strength. The flower now before me, sent by Mr. Manda, of the United States Nursery at Hextable, is upwards of 4 inches across, the sepals and petals yellow, tinged with green; lip white at the base, with a large patch of citron-yellow where the colour is deep maroon in *Lowianum*. The side lobes are also tinged with yellow at the extreme base of the lip, and at the base of the column is a blotch of rich yellow, the lip being ornamented with two large, raised, white, fleshy ridges. It is a magnificent and distinct plant.—W. H. G.

Orchid blooms from Warrington.—I have received some Orchid flowers from William Bolton, of the above named place. Among them was a spike of *Odontoglossum maculatum* bearing seven large flowers finely coloured, the lip being freely spotted and beautifully dentate on the edge. I have not seen more than eight flowers borne upon a spike of this kind before. A flower of a beautiful bright variety of *O. nebulosum*, the lip and base of sepals and petals thickly spotted with bright chestnut, was also sent. It has, however, the usual flimsy petals, which preclude its use as a coast flower. A spike of what seems to me the *O. vexillarium roseum* (last year Mr. Bolton says it had a spotted lip; the flowers appear to be quite vigorous and healthy now; was the spotting of last year a deformity? if not, it may appear again) and three or four spikes of a very large form of *O. cirrhosum*, the flowers measuring each over 5 inches and heavily spotted with very deep velvety purple, reminding one of the variety *Klabochorum*, were

also sent. I should like to see them again another season. These flowers had been very badly packed.—W.

SOBRALIAS.

THIS genus of Orchids has long been known in English gardens, although it is almost entirely to a single species—*S. macrantha*—that this acquaintance may be said to be due. According to Sir Joseph Hooker, the genus comprises upwards of fifty species, but owing to the short duration of the flowers, combined in some instances with a shy-flowering character, the number in cultivation has always been small. *S. macrantha* has, however, ever since its introduction in 1841 ranked as a favourite summer-flowering Orchid, and two new species (*S. leucoxantha* and *S. xantholeuca*), both very distinct from the older ones, will certainly, if ever sufficient quantities are found, equal it in popularity, as they do in beauty. In habit the *Sobralias* are easily distinguished from all other Orchids, having slender, erect, Reed-like stems, furnished with plaited and slightly coriaceous leaves. In the species mentioned below these stems are usually from 2 feet to 5 feet high, but in a Peruvian species (*S. dichotoma*), which is not, I believe, in cultivation, they grow to a height of 12 feet to 20 feet, and are described as forming dense impenetrable thickets. In all the species the flowers are produced from the top of the stem, which has never, or very rarely, more than one flower open at a time; these, however, succeed each other so rapidly as to compensate for their short duration, and plants with a dozen or more stems are seldom without bloom during the flowering season. In size, richness of colour, and general outline the flowers of *Sobralias* are not unlike those of the *Cattleyas* of the labiata section. Like them, they are large and spreading, and range in colour from the richest purple to yellow and pure white. They are spread over a very large area in Central and Tropical America. The *Sobralias*, when fairly established after importation, thrive most satisfactorily when grown in an intermediate house alongside *Cattleyas* and similar subjects, although *S. macrantha* will succeed in temperatures both above and below what are usually given to those plants. I have found that newly imported pieces, not having had pseudo-bulbs or other reserves to help them, require rather careful treatment for some time, and are benefited by being given more tropical conditions until they begin to root freely. The compost at first should consist of lumps of fibrous peat mixed with chopped Sphagnum and some such material as charcoal or pieces of soft brick, preferably the latter. They are strong-rooting terrestrial plants, and at the second potting a proportion of one-third loam fibre may be added. One of the most important items in their cultivation is the supply of water. During the growing season too much can scarcely be given to healthy plants, a fact which points to the necessity of abundant and careful drainage. Some idea of their requirements in this respect may be gathered from the description given by Mr. Skinner of the habitat of *S. macrantha*. This species is a native of Mexico and Guatemala, and it grows in positions which during the wet season are frequently flooded for two or three months together, the roots during that time, of course, being continually immersed. In some of the older records *S. sessilis* is said to have been found in hot, dry localities, but it was probably collected during the dry season or in some exceptional position. My experience with it, at any rate, is that, in regard to moisture, it is no

exception to the rule. Healthy, well-rooted plants of all the kinds are benefited by an occasional supply of weak manure water in the summer months. During the winter season water should be withheld to a considerable extent, without, however, allowing the roots to become quite dry.

S. MACRANTHA.—At present this is by far the most useful species in cultivation, there being no other at once so plentiful and so beautiful. The stems are from 3 feet to 6 feet high, the flowers being over 6 inches across, and the colour a rich glowing purple relieved by a spot of pale yellow on the lip. It may be very successfully grown in an ordinary plant stove or in a warm and moist greenhouse, being of the easiest culture and never failing to bloom. Although it had been repeatedly gathered by botanical travellers prior to 1841, it was not until that year that Messrs. Skinner and Hartweg succeeded in transporting a few plants safely to England. Since then some very beautiful and distinct varieties of it have appeared. The most valuable perhaps of these is var. *Kienastiana*, with flowers entirely of the purest white, excepting a small sulphur-coloured blotch on the lip. In var. *pallida* the flowers are rose-coloured. Another variety of dwarf habit, but with flowers as large and as richly coloured as in the type, is named *nana*.

S. LILIASTRUM.—Although half a century has passed since this fine species first appeared in cultivation, it is rarely seen now-a-days. Its tall stems, measuring 6 feet in height (considerably more in a state of Nature), make it unsuitable for most houses. It was first sent over from British Guiana by Schomburgk, but had been previously discovered by a German collector at Bahia. The flowers are white or rose-coloured marked with yellow veins and measure about 4 inches in diameter.

S. LEUCOXANTHA.—If it were not that this species is so rare it would certainly become one of the most popular of Orchids. Its flowers are as large as those of *S. macrantha*, the whole flower being pure white with the exception of the lip. This part of the flower is of the greatest beauty, the whole of the outside and the margin of the inside being pure white; in the throat the colour deepens into a rich golden yellow marked with a few brownish veins. As in all *Sobralias*, the sides are wrapped over the column, rendering it funnel-shaped. The front expanded portion is $2\frac{1}{2}$ inches wide, the edges being much frilled. It is a native of Costa Rica.

S. XANTHOLEUCA.—Similar to *S. macrantha* in habit, this species has flowers nearly, if not quite, as large. It is undoubtedly one of the loveliest of cultivated Orchids. The sepals and petals are of a pale sulphur-yellow, the lip, which is handsomely frilled, being of a deeper shade. This species originally appeared about ten years ago in a private garden, having been grown as *S. macrantha*. Mr. Sander has since succeeded in importing a number of plants, but it is still very rare and valuable. Its flowers are more lasting than those of *S. macrantha*.

S. SESSILIS deserves some notice because of its dwarf, convenient habit, especially as this is combined with considerable beauty in flower. Its stems are from 1 foot to 2 feet high, the flowers being 2 inches in diameter, with pure white sepals and petals, and a yellow lip flushed with rosy pink. This species is very irregular in its time of flowering, although it is generally between January and August that most of its blooms appear. It is a native of British Guiana. W. J. B.

Cypripedium Sanderianum.—This species I have seen before in the nursery of Messrs. Low and Co., Clapton, also in the collections of Sir Trevor Lawrence, Bart., and Mr. Tautz. The plants which I saw in bloom had only been recently imported. When at Mr. Young's at Linnet Lane, Liverpool, a short time since, he showed me a strong plant that had been in his possession over three years. It was in vigorous health, had a very strong growth; the last made had a scape with three buds. I have just received a letter from him in which he says the buds have opened, and I shall be

curious to know the length of the tails on the home growth. Those flowers which I have off Mr. Low's plants were 20 inches in length, and I should imagine on a well-established home-grown plant the length will be greater on account of the extra vigour thrown into the plant. I do not think we have yet seen this species at its best.—W. H. G.

Masdevallia Heathi.—This fine *Masdevallia* was shown at the Manchester show and also at the Temple on Thursday last by Messrs. Heath and Son, of Cheltenham. It is the result of a cross between *M. Veitchiana* and *M. ignea*. It has the bright vivid colour of *M. ignea*, but the dorsal sepal is turned back, thus improving upon the only fault that *M. ignea* possesses. It has also the deeper-coloured lines of *M. ignea*, and if the flower is turned sideways, the grand purplish shades which are such a feature in *Veitchi* show up; the flower, too, is a decided improvement on *ignea* in size, it being like a small *Veitchi* flower.—W. H. G.

Cattleyas from Llandudno.—I have sent eight blooms of *Cattleya Mossiae*. They are good in substance, colour and form. No. 6 is 10 inches across.—J. BROOME.

* * No. 6 is the finest *C. Mossiae* we have seen, the petals broad, the lip immense, beautifully fringed and very deep in colour. No. 9, also very good, fine colour. No. 7, rich colour, compact flower. No. 5, ordinary *C. Mossiae*. No. 2, ordinary form. No. 1, good colour.—ED.

Orchid blooms from De Montfort House, Streatham.—A few flowers come from M. Hardy-Voss for names and opinion. The first, a *Cattleya Schroderae* from a twin spike, is a very fine large flower of good shape and exquisite sweetness. The *Odontoglossum Pescatorei* is a good flower and very free from spots. I am unable to distinguish any different formation in the lip. The hybrid *Odontoglossum* is pretty, but I cannot name it from a single bloom.—W.

Odontoglossum polyxanthum grandiflorum.—This was very grand in the collection set up by Messrs. Charlesworth, Shuttleworth & Co., of Heaton, Bradford, and Clapham Park. It is a bold flower and richly coloured.—G.

STOVE AND GREENHOUSE.

LILIUM TIGRINUM SPLENDENS.

IN a recent article in THE GARDEN on plants suitable for growing in pots and employing for indoor decoration in the autumn, mention is made of the Tiger Lily as affording a pleasing variety when grown in pots. This I would supplement by directing attention to the great superiority possessed by the variety *splendens* over the common form, more especially for pot culture, as irrespective of flowers, *splendens* will when grown in this way retain its foliage in far better condition than either the common Tiger Lily, or its varieties *flore-pleno* and *Fortunei*. The variety *splendens* has been several times noted in THE GARDEN, and was illustrated by a coloured plate in Vol. XXVII. It is easily distinguished from the ordinary form in all stages of growth by the leaves being broader, less woolly, and of a deeper green, the flowers larger and more brightly coloured with much larger spots, while it is rather later in flowering. The stem, too, is quite smooth and almost black, while in the others it is more or less covered with whitish wool. Even now when but a few inches high it is very different from the rest of them, as the leaves are almost erect, being for the greater part adpressed to the stem, while in *L. tigrinum* itself, and more especially in its double-flowered variety, they are much reflexed. With increased height, however, the leaves reflex as in the others. As above stated, the one desirable feature possessed by the variety *splendens* over the rest of the Tiger Lilies is that the leaves are retained so well even to the base of the plant. This for greenhouse decora-

tion is a great point in its favour. The most distinct forms of *L. tigrinum* that I am acquainted with are the ordinary kind, splendens, also known as Leopoldi, flore-pleno, and Fortunei.

The double form is the best example we have of a double-flowered Lily, as the petals are arranged in regular rows one above the other, while in what is called the double form of *L. elegans* or *Thunbergianum*, viz., *staminosum*, it is caused by the interior of the flower being more or less crowded with stamens, which have been partially transformed into petals. In the double Tiger Lily the leaves, stems, and unopened buds are all very woolly. This character is also noticeable in the variety *Fortunei*, which is a bold, strong growing plant, with rather pale coloured blossoms. Of this some enormous bulbs are occasionally sent here from Japan during the winter months, and disposed of at the various bulb sales. A prominent characteristic of the Tiger Lilies is the number of small bulbils that are produced in the axils of the leaves, and which in the autumn when they drop speedily take root. Under favourable conditions these will in three years attain flowering size. A near relative, by some regarded as a variety of *L. tigrinum* under the name of *L. tigrinum jucundum* or *Maximowiczii*, and by others looked upon as a distinct species and known as *L. pseudo-tigrinum* or *L. Maximowiczii*, differs from the Tiger Lilies proper in the stems being totally without these bulbils, and besides this it is altogether a more slender plant than the Tiger Lily. The flowers are of a vermillion-red colour, dotted more or less with black, while they remain fresh longer than those of most Lilies. This peculiarity is also shared by *L. Leichtlini*, an extremely graceful Lily, in general features a good deal like *L. Maximowiczii*, except that the flowers are of a bright straw colour dotted with brown. In these last two, as in the Indian *L. neilgherrense*, the flower-stem will often proceed underground in a horizontal direction before it makes its appearance above the surface.

H. P.

Arthropodium cirrhatum.—We read sometimes of plants (such as the *Agapanthus*) which when once established in good-sized tubs may be kept in health for years with but little trouble, simply protecting them from frost in the winter, and standing or plunging them outside during the summer months. Among plants such as this must be included the *Arthropodium* in question, which forms a clump a good deal after the manner of an Iris, but the leaves are broader and very gracefully recurved. So ample is the foliage, that in this respect alone a flourishing mass is very ornamental. The flowers are star-like, pure white in colour, and borne in large open panicles, which well overtop the foliage. A notable feature is furnished by the orange-coloured anthers, which stand out conspicuous against the spotless purity of the rest of the flower. This *Arthropodium* is a native of New Zealand, from whence it was introduced as long ago as 1821. It succeeds best with fairly liberal treatment, so that when kept year after year in the same spot or tub occasional doses of liquid manure are very beneficial.—H. P.

Leschenaultia biloba major.—This lovely greenhouse plant, like *Hovea Celsi*, is a native of New Holland. Fifty years ago it was exhibited by Messrs. Veitch and Sons before the Royal Horticultural Society, and a large silver medal was awarded to it for its exceeding beauty. It was figured in the *Botanical Register* for the year 1842, plate 2. Like many others of the same class of plants, the *Leschenaultia* fell into comparative neglect, but it was exhibited again in several trade collections at the late exhibition in the Inner Temple Gardens, where the lovely blue of its flowers

so freely produced even on small plants was very pleasing. Its general culture is much the same as that for *Hovea Celsi*. It is more easily increased from cuttings, which can be plentifully obtained. The plant does not grow so freely nor does it form such a large spreading bush as *L. formosa*, a species with reddish or scarlet flowers which ought also to be grown in every greenhouse. With ordinary care the plants may be grown into much more beautiful specimens than those exhibited recently in the Temple Gardens. The plants should have the growths frequently stopped and tied out to neat sticks when quite young and pliable; after they become hardened they too readily snap off, and the plants are thereby disfigured. Green-fly fastens upon the young growths, and being exactly of the same colour, its presence, if unsuspected, is not observed until much mischief is done and the growth greatly hindered.—J. DOUGLAS.

Elæocarpus cyaneus.—This Australian shrub was introduced during the first years of the present century, and though really charming when in flower, it is even now but rarely met with. It is a free-growing subject whose usual habit is to push up a straight stem clear of branches for a little way at the base, after which it spreads out regularly. The flowers, which are often borne for a considerable time during the summer months, are pure white, bell-shaped, and deeply fringed in an extremely delicate manner, so unlike anything else at that time in bloom. This *Elæocarpus* was illustrated by means of a coloured plate in *THE GARDEN* in the autumn of 1883, a glance at which will show the chaste and beautiful character of the inflorescence. Even when out of bloom another attractive feature is furnished by the berries, which are freely produced, and when ripe of a bluish colour. They are about the size of very small Sloes. Though this *Elæocarpus* attains a considerable size, plants raised from cuttings will flower freely in a small state, and in this way they may be successfully grown in structures where there is not space for their full development. For planting out in a large conservatory this *Elæocarpus* is well suited. It will thrive in any ordinary potting compost, but as it very much dislikes being disturbed at the roots the soil used should be such as will remain sweet and open for a considerable time. Cuttings of the partially ripened shoots will if put into pots of sandy soil and kept close strike root without difficulty.—T.

Vriesia brachystachys.—I would advise "W. H. G." (p. 486) to include this beautiful little Bromeliad in his selected dozen, for like most of the others it is of easy culture, the foliage is neat though less showy than that of many of them, while it may be depended upon to produce its bright coloured blossoms every year, and that, too, during the dull days of winter, when flowers of all kinds are scarce. The entire plant, flower-spike included, reaches a height of about a foot, one half of it or so being occupied by the foliage. The leaves, which are arranged in a vasiiform manner, are of a pleasing shade of light green, while the blossoms are disposed in two rows on the upper part of the flower-stem. As in many bromeliaceous plants, the boat-shaped bracts which subtend the blossoms are actually more showy than the flowers themselves, being at the base of a deep bright crimson colour shaded with purple, which gradually merges into the orange of the upper part. The flowers are of a clear yellow colour, but do not protrude far beyond the bracts, so that they are at no time very conspicuous, while they do not remain long in beauty. The most prominent feature of the inflorescence, viz., the bracts themselves, remains fresh and bright for three months if the atmosphere of the structure is not too heavily charged with moisture. Owing no doubt to the absence of light during the past winter our plants did not flower till February; whereas, they have always before been in bloom by Christmas. For furnishing little vases it is a very useful plant, and one less affected by draughts than most tender subjects. While generally known under the name of *Vriesia brachystachys*, it is also found named *Tillandsia carinata*, the various *Vriesias* being by some authorities included

in the genus *Tillandsia*. The remarkably free-growing habit and showy blossoms of *Vriesia brachystachys* have caused it to be employed by the hybridist on the Continent, where bromeliaceous plants are far more popular than in this country. One of these hybrids is *V. Mariæ*, the result of intercrossing this species with *V. Barilleti*, which is altogether a stronger-growing plant than the other. The progeny is a very showy plant, whose bright coloured blossoms are borne during the autumn and winter months.—H. P.

HOVEA CELSI.

AMONGST the pretty flowering greenhouse plants not common in ordinary gardens is *Hovea Celsi*. This was first brought to Europe by a Captain Baudin, and first flowered in England in 1818 in the nursery of Mr. Allen, King's Road, Chelsea. We ought to be grateful to such trade cultivators as Messrs. Low, of Clapton, who still cultivate a collection of these old favourites, waiting patiently for the time when they will again become popular in gardens. The plant in question produces long slender Willow-like growths closely beset with very pretty deep blue flowers, a colour rather uncommon. Its natural habit is to produce long growths, which will run up to between 5 feet or 6 feet in height, but by frequent stopping the plants may be grown into more beautiful specimens 3 feet high. It is bad taste to tie down or twist the slender growths about on what may be termed the artificial dwarfing system, which is decidedly objectionable. Many gardeners have a notion that all plants, whatever may be their natural habit, must be grown or tortured into dwarfness; whereas it is according to the law of Nature that there should be dissimilarity in the habit of the plants as well as in the colour and form of the flowers. Good gardening consists in developing the natural habit of a plant as well as in the perfect growth of the flowers. Stopping the growths to form a more compact specimen is a necessary part of culture, which must be attended to in all cases. The *Hovea Celsi* (syn., *elliptica*) is propagated by seeds or cuttings, but, like many other hard-wooded plants, cuttings take a long time to form roots. Whichever method of propagation is adopted, the plants in the early stages of their growth must be stopped at the first pair of leaves. Stop the growths again as often as it may be deemed necessary until a bush form has been obtained. After that the plant must be allowed to make a good growth all over its surface, as it is upon this growth the flowers are produced. Cut back the growths at least to half their length after the flowering period is over, which will produce a growth of more slender shoots from below the cut portion, which otherwise would have been quite bare of leaves or growths. The plants produce seeds if allowed to do so, and these may be sown in sandy soil as soon as they are ripe. Cuttings of the young wood may be put into pots of sandy soil and be covered with a bell-glass, but they require a great deal of attention as to shading from the sun, &c. It is much cheaper and preferable in all respects to purchase trained young plants from the nursery in a flowering size, and they will require repotting at the end of the season. The plants succeed well in a compost of three parts good fibrous peat to one of yellow loam. They are purely greenhouse plants, and like to be placed near the roof glass of an airy structure. They require slight shade when in bloom, but do not need any at other times. What this and other hard-wooded plants of a similar character require is cleanliness, a constant free circulation of air in summer when making their growth, and careful attention as regards watering. J. DOUGLAS.

Begonias.—Although but two collections of *Begonias* were staged at the recent Temple show, yet they were very extensive ones and certainly from the best growers in the kingdom. With such superior range for selection, the pick of thousands of plants, no wonder that the brilliantly coloured as well as remarkably fine flowers commanded warm admiration. So attractive in colouring is a collection of *Begonias* now that few other plants can

rival them. Undoubtedly Begonias have given to us many extremely beautiful colours in flowers, some new, others uncommon, and many very soft pleasing tints rarely found in other flowers. We owe very much to the Begonia now, as all who saw the wonderful collections that Messrs. Cannell and Sons and Messrs. J. Laing and Sons staged at the Temple must admit. But it is time a protest was made against the tendency to produce in new varieties such exceedingly large flowers. Relative to the size of the plants, many have flowers already inordinately large, and as there is such a thing in plants as having flowers out of all proportion with them, it is not at all unfair to say that Begonias bid fair to exhibit that fault in an unwonted degree, as we have blooms, both double and single, large enough, even too large. Now raisers will do well to allow their efforts henceforth to be devoted to the production of new colours and finer form in the flowers. It may be said that already we have almost perfect circles, and it is not so much that perfect circumferences give the most desirable form in all cases, but there is almost certain to be found in every fresh batch of seedlings some advance both in colour and in outline which adds new beauty to a strain. There can be no doubt but that the Begonia is the flowering plant of the day. It is easily raised from seed, it is easily grown in a greenhouse; the tubers are readily preserved and occupy practically no space during the winter, so that with a maximum of brilliancy of flowers all is gain.—A. D.

TREES AND SHRUBS.

NOTES ON HARDY RHODODENDRONS.

HARDY Rhododendrons seldom flower profusely in consecutive years, but fine displays biennially are usually made. A very little observation will show that the shoots which are to furnish flowers for the next year begin to grow simultaneously with the expanding of the flowers, or rather before that time. Therefore, it is evident that if a plant has flower-spikes on nearly every branch it will be very thinly flowered the next season, because the growth made after the flowering season is over does not, as a rule, get sufficiently matured to bloom. In the case of small plants this is very noticeable, though less apparent in that of large ones. I have found the following kinds to be in every way worthy of culture by all lovers of this noble-flowering shrub. The Queen bears a fine compact truss of blush-white flowers; Countess Cadogan, in colour a transparent rose, and the well-known *Everestianum* are also very good. James Whitworth, a kind with dark purple flowers, produced in large heads, is invaluable even in a small collection, being not only distinct in colour, but also in habit, and the foliage is excellent. There are a good many varieties that produce crimson flowers and various shades of red, but none is more conspicuous than Mrs. John Waterer, a vigorous-growing and free-blooming variety. Braganum is an old variety, but very showy in a mixed bed, its colour being a vivid crimson. Among rose-coloured flowers Lady Eleanor Cathcart and *concessum roseum* are excellent varieties. Although The Queen has been mentioned as an excellent sort, other white varieties must not be overlooked. Minnie is a particularly valuable sort. In strong loamy soil it produces a fine display of flowers every year. The flowers of *Verschaffelti* are nearly white, but so spotted, that they can always be distinguished from all others. It is also a vigorous grower. There is yet another class of flowers that are desirable in all large collections, viz., those that have the edges of the petals barred and flamed with another colour distinct from that of the body of the petals. These margined flowers are very

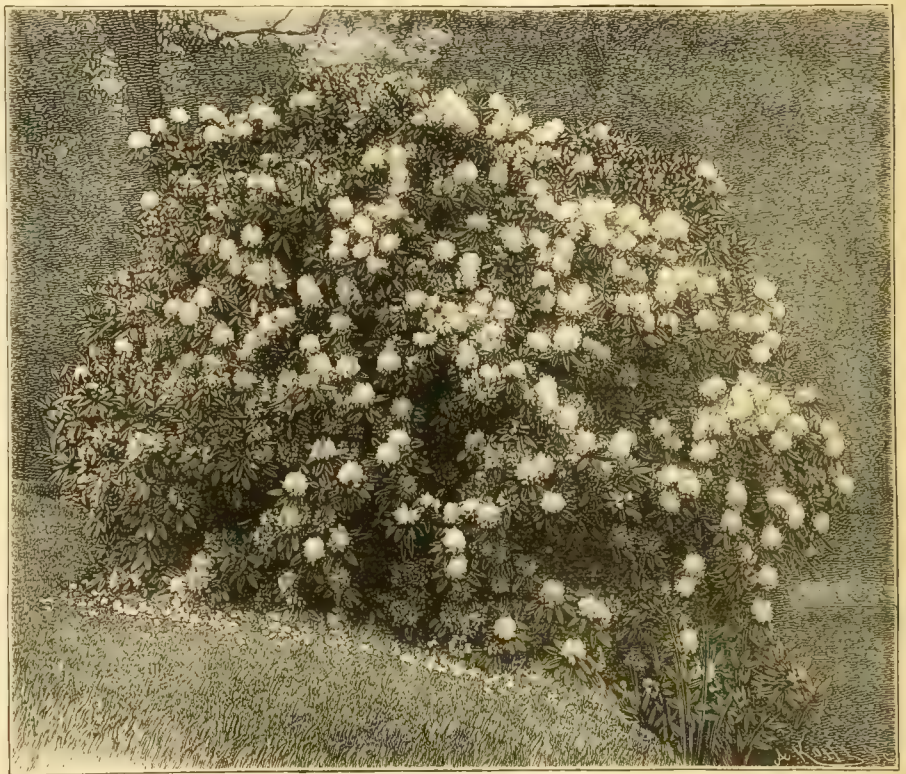
attractive, but perhaps less striking than those that are nearly self-coloured. Nevertheless, they are useful in the way of affording variety.

In making fresh beds of Rhododendrons I could never see the necessity of filling them entirely in the first place with expensive kinds, so thickly placed as to make the bed presentable directly after planting. I do not say that I like to see large open spaces between the plants. It is not necessary to fill up the spaces at once with the best sorts. A sufficient number of the best varieties should be selected, and planted about 6 feet apart every way, the spaces between them being filled up with varieties of *R. ponticum*. As the permanent plants require space, the common sorts are removed. By adopting this plan when a fresh plantation is made, it gives no further trouble beyond taking away the plants used as nurses as space is required. There is no need to rearrange those

safe from over-dryness at the root until the month of August; then, if the weather should be dry, a good soaking of water twice a week and a mulch over the roots of half rotten manure, 3 inches or 4 inches in thickness, will be necessary to maintain the plants in health. Rhododendrons make admirable single specimens dotted here and there on lawns, and have a very fine appearance when shapely and well flowered, as in the one forming the subject of the annexed illustration. P. W.

FLOWERING SHRUBS.

ORNAMENTAL flowering and fruiting shrubs and trees of the *Pyrus* and *Prunus* groups are, in common with their allies of the fruit garden, showing extra well for flower this year. Two years ago our stock of *Prunus triloba*, *P. sinensis* fl.-pl., and the Morello Cherries suffered from a disease before unknown to me. This attacked the stems of the



Hardy Rhododendron in bloom.

intended for a permanency—a great gain, for rearrangement means at least the loss of one season's flowers upon all plants so removed.

In the management of established plants there is not much to be said—they are so well able to take care of themselves. In strong loamy soil artificial waterings are not required. In very dry summers mulching the roots of a few single plants that occupy a rather dry position is often necessary, but where the beds are on level ground the plants succeed without any attention in that way. This is not so in all cases, as drought in the early autumn months often kills many of the large plants. This, however, generally occurs in shallow soils. There are some soils which in their natural state have 10 inches or 12 inches on the surface favourable to the growth of Rhododendrons, but the subsoil is quite unsuitable; consequently, the roots only penetrate as far as the good soil goes, and therefore they suffer from want of moisture in dry seasons. Rhododendrons are, as a rule,

young growth when they were from 6 inches to 10 inches long at about half-way up the shoot, killing the wood completely at that point, and, of course, the growing end of the shoot with it, though the disease itself was confined to 2 inches more or less of the wood. The attack was so severe, that scarcely a plant or shoot escaped, whether growing indoors, as in the case of the plant placed second above, or out of doors, as with the other two mentioned; and I almost feared that the shrubs and trees would have been killed, but last year there was no recurrence of the disease, the result being a clean healthy growth and a good set of buds for the present season's flowering. A small selection, which might be well extended, of the best kinds of *Pyrus* and *Prunus* to grow out of doors is given under.

PYRUS FLORIBUNDA.—A very free-flowering rosy red variety, of a family rich in elegant flowering shrubs and trees.

P. BOTRYAPIUM (syn., *Amelanchier canadensis*).—A shrub or small tree attractive both in spring, from its profusion of white flowers, and in autumn from the richness of its dying leaves.

P. MAULEI.—A very beautiful shrub, smaller in all

its parts than the well-known *P. japonica*, but of similar habit and succeeding best against a wall. Colour bright red. Fruits are bright yellow, highly scented, and borne very freely.

P. JAPONICA.—A very handsome shrub for a sunny spot or grown as a wall plant. The scarlet flowering form is by far the best known, but there are also other varieties, notably a blush-white one which is very beautiful.

P. KAIDO.—A rapid growing small tree; flowers plentiful, somewhat large, red in bud, and blush-white when open.

P. TORINGO.—Not so strong growing as the foregoing, but it will develop into a low spreading tree if allowed to grow naturally. Flowers blush-white and generally freely produced.

PRUNUS TRILoba.—A low-growing bush-shaped shrub, either the rose-coloured or white varieties of which are very striking in spring, when the plants flower freely. The double flowers last well on the plant and are very lovely.

P. DIVARICATA.—A rather large-flowered shrub or tree, very early flowering, and if only for this reason it must be included in this list, but the flowers often succumb to severe frosts.

P. SINENSIS FL.-PL.—A very elegant slender-growing shrub often used for forcing for which it is well adapted, as very little heat suffices to bring it into bloom in a few days after being brought in, but it is also very useful and pretty out of doors and deserves a well-sheltered position.

P. PANICULATA (Bastard Cherry).—Flowers white; a well known free-flowering shrub like the above mentioned, often used for forcing.

P. PISSARDI.—A most beautiful plant not nearly enough known or grown. Ornamental in flower and foliage, the former white and the latter purplish-red, while the twigs are of a shining black.

P. ILICIFOLIA (syn., Cerasus ilicifolia).—It is to be regretted that this handsome plant is not thoroughly hardy, but it well repays some trouble; its dark shining leaves are very handsome and contrast well with the white flowers. Requires a wall and some shelter except in mild climates.

J. C. T.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MAY 28.

A MEETING of the floral committee took place on the occasion of the Temple show, and the following first-class certificates were awarded:—

EREMURUS HIMALAICUS.—A bold and striking hardy herbaceous perennial, bearing long spikes of pure white flowers. Mr. J. J. Smyth, Cork.

DRACENA AUSTRALIS VARIEGATA.—A very elegant plant, with narrow lanceolate leaves margined with yellow at the sides. Valuable for furnishing. Messrs. J. Laing and Sons.

COCOS PYNÆRTII.—A charming diminutive Palm, looking very like a young form of *C. Weddelliana*, but said to be quite distinct. Messrs. F. Sander and Co.

Awards of merit were also given to the following:—

CALADIUM B. S. WILLIAMS.—A fine and attractive variety, the large leaves handsomely reticulated with pink. From Messrs. J. Laing and Sons.

ROSE (H.P.) CRIMSON QUEEN.—A remarkably fine variety and of very vigorous habit, the flowers very large and full and of a rich bright hue of crimson, which does not become pale and dull with age, as in the case of some of the red Roses. Messrs. Wm. Paul and Son.

BEGONIA (SINGLE) MRS. RICHARD DEAN.—A large and striking variety of fine shape and substance, the centre white and broadly edged with deep rose. Messrs. J. Laing and Sons.

BEGONIA (SINGLE) WILLIAM MARSHALL.—Rich bright orange, quite novel in colour, and of fine shape and substance. Messrs. H. Cannell and Sons.

BEGONIA (DOUBLE) LADY ADDINGTON.—A large and very fine variety of a charming shade of soft rosy salmon. Messrs. H. Cannell and Sons.

CLEMATIS SNOW-WHITE JACKMANI.—A pure

white variety, not seen to advantage on this occasion through the plants having been forced into bloom, but said by those who saw it last year at the Worcester Nurseries to be very pure. It is a summer-flowering variety. From Messrs. Richard Smith and Co.

ROSE (H.P.) SOUVENIR DE ROSIERISTE GONOD.—A large and full flower of a clear rosy crimson colour, perhaps a little too flat as exhibition Roses go, but certainly very attractive. It is a free and vigorous grower. Messrs. W. Paul and Son.

ROSE (H.P.) SPENCER.—Clear soft pink, full, and very pleasing, charming in colour and good habit. Messrs. W. Paul and Son.

ROSE (POLYANTHA) CLOTHILDE SOUPERT.—Delicate pink with white on the edges, larger than the type, but attractive and very free. Messrs. Paul and Son.

AZALEA ODORATA FLORE-PLENE.—Apparently a hybrid between one of the American varieties and *A. mollis*, blush coloured, very double, and singularly sweet-scented. Messrs. Paul and Son.

RHODODENDRON ROSALIE SEILDEL.—A very free-blooming hardy form of the catawbiense type, with pure white flowers produced on large trusses. Messrs. James Veitch and Sons.

LILAC MICHAEL BUCHNER.—Clear rosy lilac; flowers large and double, and borne on huge branching spikes.

LILAC MME. LEMOINE.—Large double white; extra fine.

LILAC LEON SIMON.—Rosy lilac; large and very fine. All the three varieties were shown by M. Victor Lemoine, Nancy.

PEONIA (MOUTAN) MRS. WILLIAM KELWAY.—A large, semi-double, white variety of excellent quality. Messrs. Kelway and Son, Langport.

PELAGONIUM (SHOW) ROYAL ASCOT.—A very bright-coloured variety, the lower petals orange-crimson, dark top petals; very free and excellent habit. Mr. Charles Turner, Slough.

STREPTOCARPUS HYBRIDS.—A group of seedlings showing much variety in colour and markings, many of them particularly handsome. Messrs. Veitch and Sons.

ASPLENIUM LANCEOLATUM MICRODON, *Athyrium Filix-fœmina* *Girdlestonei* cristatum, and *Polystichum angulare dentatolobum densum*. From Messrs. W. & J. Birkenhead, Sale.

THE N.C.S. AND THE OCTOBER SHOW. TO THE EDITOR OF THE GARDEN.

SIR,—With your permission I will make two extracts, the first from a communication from your correspondent "M.," which appeared in your issue of the 1st Nov., 1890 (p. 407). Referring to the Chrysanthemum classes of the N.C.S. at the October show of the Royal Aquarium, he thus wrote:—

Those who saw the show on the 15th of the past month could not but be struck with the quality of the blooms. They proved that a successful exhibition of Japanese and pompon varieties can be had as early in the season as the date named. It is questionable if better blooms of some sorts will be seen at any time in November than those staged on the present occasion. . . . Chrysanthemums of first-rate quality are appreciated nearly as much at that period—when outside gaiety has vanished, owing largely to the early autumn frost—as they are during this month (November). The idea of holding an early autumn display is a good one, and the number of classes might be increased.

Few of those who saw the show in question will be inclined to dissent from the remarks of your correspondent "M."

My second quotation is from the "Annual Report," 1890, of the National Chrysanthemum Society, p. 7:—

The prizes offered for October-flowering Chrysanthemums in connection with one of the shows promoted by the Royal Aquarium Society resulted in an exhibition of a surprisingly fine character, and a general desire was expressed that the display should be continued in 1891, and, if practicable, extended.

It will probably come upon most of your readers

as a surprise to learn that, in face of its own report, the committee of the N.C.S. has not only not "extended" the October exhibition, but has abandoned it altogether.

If "not to advance" is, under some circumstances, "to go back," how very retrograde has been the policy which has ignored the recorded admission of the "general desire" that the October show should become one of the permanent events of the N.C.S.

The alteration of the mid-winter show from January to December has been a wise step. It may not be too late for the committee to retrieve its mistake in connection with the October exhibition.

AN EXHIBITOR AND MEMBER OF THE N.C.S.

OBITUARY.

THE REV. A. RAWSON.

THE death of this highly esteemed florist took place at his residence, Fallbarrow, Bowness, Windermere, on the 18th ultimo, at the age of seventy-two years. For thirty-nine years the Rev. A. Rawson was vicar of Holy Trinity, Bromley Common, and took great interest in his garden, growing a choice collection of hardy plants, and also florists' flowers, one of his favourites being the large-flowered *Pelargonium*, of which he raised several new varieties. Among them were *Maid of Kent*, a pretty fringed petalled variety that makes an excellent market plant; *Creole*, a very dark purple; *Darkie*, another dark flower, but small in size; and *Striatum*, very novel and distinct, the lower petals rose, dark blotch on the upper petals, and striped and flaked with crimson. It was exhibited on two or three occasions by Mr. C. Turner, of the Royal Nursery, Slough, but has proved somewhat uncertain in character. Carnations also were favourites with Mr. Rawson, and he took great interest in the yellows; two of his seedlings he named, viz., *Lemon Drop*, a very promising variety, and *Fallbarrow Yellow*, both of good constitution. He also raised in the way of Carnations, *Masterpiece*, a very good crimson self, and *Mary*, pure white; in addition a very free blooming white *Sweet Violet* named *Rawson's White* was raised by him. Of late years he took a great interest in *Auriculas*, fancying the eccentric rather than the correct forms, as the florists term them. Some single yellows were also raised by him, and also one or two striped forms which he hoped to make the progenitors of a distinct section. The coloured *Primroses* and fancy *Polyanthuses* found in him a warm admirer, and in the moist climate of Windermere he produced flowers of large size and great beauty. He had tried for several years to raise a blue *Primrose*, and had made considerable headway in this direction. In Mr. Rawson we lose a very pleasant and interesting correspondent, a writer of cheery letters overflowing with information concerning the flowers he loved so well.

Names of plants.—*P. A. Beck.*—Kindly send flowers.—*J. Jennings.*—*Cyperus laxus.*—*H. Jessop.*—Kindly send matured fronds.—*Mrs. Blackwell.*—5, *Spirea laevigata.*—*Col. Puget.*—*Blechnum brasiliense.*—*H. G. Jones.*—*Helleborus viridis.*—*S. T. M.*—1, *Trillium grandiflorum*; 2, *Medicago arborea*; 3, *Cerastium arvense*; 4, *Tropæolum polyphyllum*; 5, *Alyssum calycinum*; 6, *Anemone apennina.*—*T. J. S.*—1, *Ruscus aculeatus*; 2, *Cyperus segetus*; 3, *Carlina corymbosa*; 4, *Echinops ruthenicus.*—*W. F.*—1, *Odontoglossum triumphans*; 2, *Dendrobium Farmeri*; 3, *D. suavisimum*; 4, *Begonia Dregi.*—*F. A. D.*—1, *Colchicum autumnale*; 2, yes, poisonous.—*Mrs. Woodley.*—*Viola palustris.*—*M. Moody.*—1, *Odontoglossum triumphans*; 2, *Odontoglossum luteo-purpureum*; 3, *Odontoglossum Andersonianum*; 4, *Odontoglossum cirrhosum*; 5, *Stanhopea radiosa*; 6, *Davallia bullata*; 7, send better specimen; 8, *Cereus* species.—*A. Campbell.*—1, *Crinum capense*; 2, please send description of the plant and better specimen of flower.—*T. J.*—*Pimelea decussata.*—*J. Bouby.*—The Bird Cherry (*Prunus padus*).—*T. Tyler.*—*Bignonia australis.*—*E. Hutchinson.*—The Prophet Flower (*Arnebia echioides*).—*Miss Austin.*—1, *Doronicum austriacum*; 2, *Berberis stenophylla*; 3, *Spirea prunifolia fl.-pl.*—*J. T. Barker.*—*Odontoglossum citrosimum*; the finest variety we have seen.

WOODS AND FORESTS.

VALUE OF THE SYCAMORE.

It is not a very pleasing thing when one has cut down a tree, gone to the expense of hauling it to the sawmill, cutting it into planks, and paying the carriage for a hundred miles or so, to find on arrival at its destination that it is of no use for the purpose for which it was intended. Such a thing as this, however, we have known to occur with the Sycamore, not through any inferiority in the wood itself when felled, but on account of improper treatment afterwards. For most purposes for which this tree is used the peculiar whiteness of its wood is the quality of the greatest importance, and in proportion to this delicacy of colour is its liability to stain.

To those who have been accustomed to deal with such woods as the Oak, or even the Ash, it would seem almost incredible that the Sycamore will deteriorate so rapidly as it does. In a very short time after it is felled, if left lying upon the ground it begins to go to the bad. It is essential, therefore, that it should be removed to the saw-mill when freshly cut, but this precaution is not in itself sufficient, as, rapidly as the tree damages before it is sawn into planks, it is nothing to the small space of time it takes to reduce its value by one-half after it has been sawn. It is hard to mention a time in which the wood would be likely to be virtually spoiled, as the conditions under which it was placed would vary; but in many cases it takes but a very few days, if it is cut and stacked in the damp in the open air with the planks closely together, before it will become so stained or tainted, that the use to which it can be put must be entirely changed. We have also known Sycamore planks after they have been carefully attended to before being sent away become almost spoiled in the course of a long railway journey in an uncovered truck. On such, therefore, as have occasion to handle sawn Sycamore wood for a transit of some days by rail or other kind of carriage we would urge the importance of seeing that it either goes in a covered vehicle, or is properly covered to keep off the rain and moisture. We have dwelt rather at length upon this, as the necessity of great care in dealing with this tree cannot be over-rated. The most of our common deciduous trees stand so much neglect in the shape of lying about, that it comes almost as a revelation to some that we have a species growing up round us which really requires care in manipulation.

Planters and cultivators are in the habit of giving their views as to the propagation and growth of a tree, and rightly enough, too, but it must not be overlooked that whatever care may be expended on its growth, if it is not rightly managed when matured and felled, it will only be labour lost. It is more common to find the Sycamore offered with a quantity of other trees than to find it in the market by itself; but when the latter method of selling is adopted it will be well to make sure of a customer before the trees are felled. If an objection exists to negotiating as they stand for a lump sum, then they may be sold at a price per foot, the seller undertaking the responsibility of their falling unsound or inferior. If they fall unsatisfactorily, the bargain would, of course, drop through, but if sound and good the cubic contents are readily found, and the risk of subsequent damage falls on the merchant.

The tree to which we have been referring throughout is, of course, *Acer Pseudo-platanus*,

and not the Plane proper, although the nomenclature amongst dealers sometimes gets mixed, and the Sycamore or great Maple is spoken of as the Plane tree. We have been so much occupied with urging the importance of taking precautions to preserve the colour of the wood of the tree under notice, that we have said nothing of the uses to which it is generally put. These naturally are such where either as a matter of necessity or appearance the colour is a great factor. It is true that for rollers of domestic apparatus, such as washing-machines and mangles, the closeness of its grain, without any considerable degree of hardness, is greatly taken into account, yet its colour and the absence of any quality likely to prove detrimental to the material operated on are quite as much regarded as the other.

Of the proportion of this timber used for these purposes we have no idea, but for the best class of machines, so far as we know, little else is used. Cabinet-makers, for many purposes, affect the Sycamore, and, contrasted with a dark wood, the work is very striking. We have seen panels of the former surrounded with a narrow border of Yew which looked extremely well, as both woods are capable of a high degree of finish. Pianoforte-action makers and manufacturers of other musical instruments are considerable consumers of Sycamore, and of course, for their purposes, require the very best. Unlike some woods, this is one which is at its best as regards colour when comparatively young, as when left standing for too great a length of time it becomes somewhat yellow, or goes dark in spots, and therefore is of less value. Although in cottage homes the willow-pattern plate has superseded the wooden trencher, and in homes higher in the social scale the more pretentious wares dominate, wooden plates and utensils are not entirely a thing of the past, and for such purposes there is scarcely a wood which suits the turner and answers the purpose for which it has to be used better than the Sycamore. Opinions certainly may differ, but to us for a bread-plate there is nothing more appropriate than a nicely turned and carved Sycamore trencher. Another purpose for which this tree is now and again used is the manufacture of the framework or shells of pulley blocks. The pulleys themselves are made of harder material. For boards for leather-cutters this is also a very suitable wood, but on account of its comparative scarceness and high price cheaper woods such as Poplar are often pressed into service. It is also, we believe, used occasionally for gunstocks and cleft for various purposes, but of these uses we cannot speak from personal knowledge. We know, however, that the smaller portions are used for making bobbins, brush backs, and the like, and that a very considerable quantity is cut up into the better class of toys and small ornaments. Indeed, if the wood is really white and sound, scarcely an atom need be wasted. The observant eye can scarcely fail to notice in the innumerable small articles exhibited in shop windows in seaside and other towns that the Sycamore is much used.

Essentially a fancy wood, it is, nevertheless, one of great utility, and the belief has been expressed elsewhere in these columns that when its place and uses are properly reckoned upon, it is a tree which may be grown with very fair chance of profit. Whatever is good, whether large or small, as we have said, can be used in various manufactures, but with the Sycamore, as with the Ash, rough and inferior wood is of very little value. It, however, makes capital firewood, and to this purpose it will pay better to

put it than to keep it lying about for a customer who will never come.

The soundness of timber may be ascertained by placing the ear close to one end of the log, while another person delivers a succession of smart blows with a hammer or mallet upon the opposite end, when the continuance of the vibrations will indicate to an experienced ear the degree of soundness. If only a dull thud meets the ear, the listener may be certain that unsoundness exists.

Beech and Hornbeam hedges.—The Beech makes a tolerably good hedge from the mass of twigs it sends out when it is kept back by pruning, and the Hornbeam is somewhat similar in this respect, and may sometimes be used for hedges with advantage. One recommendation of these is the facility with which they can be grown, the manner in which they bear pruning is another, and their fitness to grow on somewhat poor land is an additional one. If it is desired, Thorns may be mixed with these trees, but as the Beech and Hornbeam are more rapid growers they will sometimes overgrow the Thorns and choke them altogether. Where Hawthorn will not grow, the Alder and Willow may be pressed into service. The pliable nature of their branches admits of their being intertwined.

The hardness of wood depends upon the closeness of its woody structure, while its toughness is due to the strength of the longitudinal fibres and the elasticity of the intermediate cellular matter. Durability of timber exposed to much wear or friction is proportioned to the size, strength, and compactness of its fibre. Most of the hard and durable wood used for manufacturing purposes is the produce of small and comparatively slow-growing trees, such as Yew, Box, and Ebony. It is found that Norwegian Hop poles of small diameter, but the growth of from forty to fifty years, are much more lasting than our native Ash, Sweet Chestnut, Maple, and Oak, which are used for the same purposes, and which—though of larger size—are the growth of from nine to thirteen years only.

The British Oak.—Whatever Brown or Grigor's dictum may be worth in this matter, the facts are that the British forester and nurseryman disregard their advice totally in practice by planting both sorts of Oak described by Mr. Webster, and all the varieties between them, as any Oak wood you go into will testify, and the forester sells the wood of the two indiscriminately, and is unable to tell the one from the other by the quality of its timber. If this is not so, will Mr. Webster clearly state the difference between the timber of the two as a test? Mr. Webster "quite agrees" with Brown, and Brown agrees with me, that the distinguishing characters of the two sorts "are not always to be relied on," and says these will often be found on the same trees, and many varieties between the two, which he calls "hybrids" to escape a difficulty; but hybrids are not fertile, and Brown's hybrids are. Under these circumstances, is it worth any practical forester's while raising doubts on the subject, seeing that we could not, I believe, get either of the kinds of Oak true to plant if we wanted them, the seeds of both sorts being gathered indiscriminately.—J. S. W.

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No. 1020. SATURDAY, June 6, 1891. Vol. XXXIX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

KITCHEN GARDEN.

BRUSSELS SPROUTS.

HERE we have one of the most important crops grown in the kitchen garden, as besides being a most wholesome vegetable it is also very hardy. Even during the past winter in very few gardens was it totally destroyed. We did not lose a single plant, as the plot where they were grown was in an exposed position. Being such an important crop, every care should be taken both in selecting an open or suitable plot of ground, and also in seeing that the plants have due attention from the first. Overcrowding must be carefully guarded against both from the time the seedlings are raised until the plants are planted out. A long period of growth is necessary, and during a season like the present the plants will be very backward indeed if the precaution was not taken to sow early in a cold frame. I never remember to have seen plants so backward as this season where sown in the open, and I am under the impression that where sowing under glass was neglected the penalty will have to be paid later on with plants not nearly so large as they should be. If the seed has been sown in a cold frame and the seedlings duly pricked out on to a sheltered border, good plants will result. It is not wise to plant out whilst in too small a stage, and on strong or heavy soils it is very essential that this should be so. Small plants quickly droop and wither up, and when this is the case much time is lost. The soil must be rich and yet firm. Close planting must be particularly avoided, as this, again, is against the formation of well-formed sprouts. The sun and air must have free access, as the longer the main leaves remain intact the better will it be for the future of the sprouts. Where close planting is adopted the main leaves quickly fall, and towards the autumn months the whole quarter is full of decaying foliage; whereas the leaves should be healthy, and so enabled to form a natural protection later on if severe frosts should ensue. Some people who favour close planting make it a practice to remove the side leaves for the free access of air, and however desirable this may be through the error of close planting, yet were the more rational method adopted, this would be wholly unnecessary, and the plants would be greatly benefited thereby. Three feet between each plant and the same distance between the rows is none too much space, and on strong land another 6 inches could be allowed with advantage, the produce thereby being of a much better quality, while the plants are also better able to withstand severe frost. Too thick planting has more to answer for in the destruction of many of the Brassicæ from frost than any other cause, so means should be taken if possible to lessen this evil early in the season before planting takes place. In small gardens where very close cropping is resorted to, according to the space at disposal, planting between rows of Potatoes is adopted, but with such an important crop it is by far the best system to choose an open position, for unless the rows are very widely disposed the plants get considerably crippled early in the season, and the sprouts do not form so near the bottom as they otherwise should do. Cutting off the tops of the plants during the early winter is

practised by some, but this is very unwise, as after this takes place the after crop is practically spoilt and the plants are more liable to suffer from frost. Plants raised and otherwise managed as I have detailed will give an abundance of fine sprouts far into the winter, but for a spring supply it is advisable to sow in the open during March or early in April, and if these are duly planted out on an open plot 30 inches apart, they will prove very useful during the late winter and early spring months; such late sown plants as these often withstand the frost better than those raised earlier.

A reaction appears to be setting in in favour of the smaller and more delicately flavoured sprouts, as at one time these appeared to be going out of cultivation, the coarser growing and also stronger flavoured varieties being preferred. This is as it should be, as these large sprouts find anything but a favourable reception on the dining-table. A. Y. A.

Watering and mulching Tomatoes under glass.—When the blossoms fall off instead of setting it is generally the result of an insufficient supply of water. Very much depends upon the character of the soil and its drainage, but where it is of that medium character and quality which suit Tomatoes best, unless it is very deep and has been freely stirred and fairly manured, the water-pot should be used once or twice a week, according to the weather after the plants come into bloom. Where the soil is deep the roots will go down for moisture, but even then it will be better to give encouragement to the surface-roots by keeping the soil fairly moist. A mulch of manure over the roots is very beneficial as soon as the blossoms are setting freely. Even street sweepings, which at this season contain a good deal of manure and road grit, are very useful for mulching Tomatoes or any other crop that is affected by drought; and in houses where the fungus is likely to make its appearance, street sweepings form a very useful mulch. Of course it is only near a town where this material can be obtained, but road scrapings mixed with a proportion of manure will make a very fair substitute; and a dressing of this 2 inches thick over the borders after the fruits begin to swell will save much water and tend to keep the atmosphere pure in the house till the crop is gathered. This is important where disease is likely to be troublesome and destructive.—E. H.

Late Peas.—Due provision should be made to ensure a succession of late Peas. Peas both early and second early will be much later than usual this season, and I never remember the main crop varieties to be so backward. This probably will prevent some people sowing, but a change in the weather may alter this state of things considerably. The character of the soil and the situation have a great effect on the late varieties of Peas, and what will succeed in one garden will almost fail in another. Ne Plus Ultra, however, succeeds on most soils, and where space and sticks are not scarce it is a capital variety. Any of the recognised late Marrows may be sown up to the latter end of June, after which and for the next fortnight some of the earliest varieties are the best. Chelsea Gem is a capital variety for this purpose, and being a dwarf grower the rows need not be further apart than 30 inches. The late varieties should be placed in an open position, and each row isolated from the other as much as possible, as the more exposed each individual row is, the more robust the haulm, and so better able to resist attacks of mildew, which on some soils is very destructive. Especially is this the case on light or badly worked soil, or even where the rows are too closely placed together. Coupled with free exposure, a free root-run of fertile soil is the best preventive against attacks. Sowing in prepared trenches must not be neglected on light soils, for if a dry time should follow it is rarely late Peas prove satisfactory, the haulm ripening before the crop can come to maturity. If the weather should happen to be dry at the time of

sowing, the drills should be watered overnight, and by sowing the seeds the following morning, the moisture will be retained, and a more regular and early germination be ensured.—A. S.

ASPARAGUS.

I HAVE succeeded in doing that which the Bordeaux Asparagus growers say is incredible, *i.e.*, I have grown Asparagus fit for market from two-year-old crowns in a little over one year without damage to the bed. A good deal of care is necessary, but I have only found one difficulty, and that is a great one and the true motive of my troubling you with this letter. It is wireworm. Had it not been for this pest I should have had a bed worth a journey to see, for there is stuff on it now which would compare well with the best imported French Asparagus. Last year I trapped and killed every wireworm which came to the bed, and over 1000 must have been slaughtered. I thought I was rid of them, and that henceforth the crowns would remain undisturbed; but I was wrong. No sooner did the crowns begin to shoot than the wireworm re-appeared in enormous numbers, necessitating the disturbance of the soil and consequent interference with the growth of the plant. The slightest bite from a wireworm, or scratch with a stick or finger-nail, means death to the young shoot, and if it heals, only small stuff is thrown from its base, and in some cases the crown will bleed to death. Can any reader of THE GARDEN enlighten me as to the habits of this larva, when and how it travels in search of its favourite food? My Asparagus bed is situated between two walls, an Oak fence with a plantation of Potatoes on each side, and a hard-trodden roadway. Outside the split Oak fence and the Potatoes is an old orchard full of fowls, chickens, and ducks. At this season of the year the wireworm is found near the surface of the soil. Does it travel at a great depth or at night along the surface through Potato land and under fences to reach the Asparagus? It does not travel by day, for it does not like sun or fowls. It is hard to believe that it comes under the foundations of walls and through hard-trodden roads and paths, but come it does some time and somehow. This larva is said to live for five years or more in the soil before it becomes the perfect insect. In the Asparagus bed, which was clear last autumn, I find all sizes and all ages, so I conclude that they come, for were they recently hatched they would all be of the same size. If the wireworms travel in the spring on or very near the surface, which I am inclined to think is the case, one might perhaps prevent their arrival by a trench dug at a certain distance from the beds and filled with gas-lime; but if they are known to work at a great depth, I can see no remedy for the evil but time and patience. J. W. SHAW.

Planting Tomatoes in the open.—The past unseasonable weather has been very much against the hardening off of Tomatoes preparatory to planting in the open air. Although it will depend largely upon the character of the season whether the plants will turn out satisfactorily or not, a good start is half the battle. Those who have taken the precaution to grow the plants on as sturdily as possible, and have not allowed them to become pot-bound will be more likely to succeed than where the plants are yet very small. The plants having been duly hardened off, place them in their respective positions upon the first favourable opportunity. The sunnier the position the better the chances for a crop. In many instances the site will be rich enough, but where the addition of fresh soil is contemplated, see that this is perfectly free from wireworm, or else this destructive pest will soon cause the plants to collapse by burrowing into the centres of the plants. The mistake must not be made of having the sites too rich, or the plants will make a rank, unfruitful growth. See that the balls of soil are thoroughly moistened preparatory to planting. Press the soil firmly about the roots, as the plants delight in a firm root-run. It will be a wise proceeding to protect the plants at night for a few days for fear of a check through cold. As soon as

the plants are in their places secure the main stems firmly to the wall. Keep all side growths pinched out as soon as perceived. Attention to the above with a mulching of littery manure, and watering if needed, will all assist in the production of fruit.—Y.

UNHEATED MUSHROOM HOUSES.

When I write of unheated houses, I do not mean houses exposed or open in any form, but places that are to a certain extent kept up to a temperature of 50° in severe weather, such as cellars or arches, or similar buildings that can often be used for this purpose. I never grew better Mushrooms or a larger quantity than when I had some cellars underneath a large conservatory, and not heated in any way except what warmth came through the arched roof. I used no fires during the summer months and had abundant supplies of Mushrooms, as the cellar was cool and always moist. I have never grown Mushrooms with less trouble and so good in a heated structure, or indeed when the house has been constructed on the best principle. I feel sure many outhouses, sheds, cellars, and out-of-the-way places could be utilised for the growth of this useful vegetable if proper attention to a few details was observed. I have seen a high temperature advocated for winter Mushrooms, but I do not care for it; indeed, I firmly believe Mushrooms grown in a high temperature are not nearly so succulent as those grown in a low one. A high temperature at the start has no doubt been the stumbling-block of many amateurs. I find the low temperature the better one, provided the bed is kept at the proper condition as to moisture, as often the spawn is ruined by premature watering. Having had an opportunity during the winter months of seeing the large quantity and splendid quality of Mushrooms grown at Gunnersbury House in unheated cellars and the even temperature kept up, I can certainly recommend this plan in preference to costly Mushroom houses, in which it is often very difficult to keep up the atmospheric moisture so necessary to the well-doing of the Mushrooms. Mr. Hudson's houses are, I believe, disused wine cellars, and they have been a pleasure to see all through the winter when other vegetation has been so scarce. The heat in these cellars is as near 50° to 55° as possible, and being well underground an even temperature is maintained. In very severe weather the temperature can always be maintained by the fresh manure placed in the house for the beds, as this added in quantity always gives off the extra warmth required.

I never attempt to grow Mushrooms in the Mushroom house through the summer months, preferring, in the absence of a cellar, underground building, or cool shed, to make the beds in the open. In this way plenty of Mushrooms may be had. I usually make a good bed in April, another a few weeks later in the open ground, and by this means the supply is kept up all the year round. I make these beds on a north border under a wall, and they give little trouble if the proper amount of moisture is given them. Old beds when they get exhausted may often be kept in a bearing condition much longer if frequently assisted with liquid manure. As the beds in the open are more exposed and frequently made ridge-shaped, it is advantageous to syringe with liquid manure when in bearing rather than to give too much moisture at the roots, as often in Mushroom houses the manure forming the beds is damp enough and only the surface requires moisture. It is best to get good spawn, remembering the cheapest is not always the best. I also find it goes a long way if a rather heavy loam is used for covering, something for the Mushrooms to hold to, as this greatly assists them and prolongs bearing.

G. WYTHES.

Syon House.

A serviceable Cauliflower.—There being no Broccoli and few or no Cauliflower plants, it behoves gardeners generally to make extra efforts to raise plants of the little forcing Cauliflower—described and offered in most catalogues under various names—and to grow these to their full size as quickly as possible. With the assistance of a

little heat I was enabled to cut serviceable and beautifully white hearts on May 18, and the supply, being well maintained, has been very acceptable indeed. The plants were grown in a moderately deep pit, having a slight hotbed of leaves and a moderately rich root-run in addition under them. They were grown somewhat thickly, being only 12 inches apart each way; but they were given plenty of air and have well repaid for the trouble taken with them.—M. H.

Coleworts.—Coleworts are known more in the London district than in country gardens. The Colewort is comparatively hardy, and during the early months of the past winter it came in very acceptable to those growers who had a supply. It is a far better system to plant such hardy greens as Coleworts than to give up so much space to others of more doubtful hardiness. The first sowing is generally made early in June, another at the end of the month, and for the latest supply the seeds may be sown as late as the middle of July. The best variety is the old Rosette Colewort. This is very hardy and the one usually grown by the London market gardeners. The true stock is hard to beat, being so very even in size, and a large field of this hardy green is a fine sight. Coleworts need not be set out more than 12 inches apart both in the rows and between the rows. The Colewort makes an excellent catch crop, as any vacant piece of ground may be turned to account, for whatever the season, the Rosette Colewort always succeeds. In many gardens during the past winter the dearth of hardy green vegetables would not have been felt nearly so much if this old favourite had been planted more freely. All that is necessary is to sow thinly in an open piece of ground and plant out on ground recently cleared of Potatoes, a forking over of the ground being all that is necessary to ensure a satisfactory return.—A.

MARKET GARDEN NOTES.

GREAT activity still prevails in market gardens, many crops requiring attention in the matter of thinning and keeping free from weeds, the weather having of late been showery. The most pressing work now is in connection with

POTATOES. These have been very largely planted, and the early ones look remarkably well, as the majority of them escaped the destructive frost of May 16 and 17, and have grown very rapidly since that date. Hoeing and earthing up are now in active operation, and those who grow the earliest kinds will soon commence digging.

CABBAGE.—Those who are fortunate enough to have good crops of these fit for market are now making a high price of them, as the severe winter greatly reduced the supply. Very large quantities have been planted and are still being put out from the earliest spring-sown beds. The advantage of growing good, reliable, quick-heating sorts is now fully apparent, as those who have these are pulling them up and selling at a profit, while those with the large spreading leaves, but with no sign of hearts, must be left until the chance of getting a good price will be past.

SPINACH has been very valuable this season, as the scarcity of other green vegetables has caused quite an unusual demand for it, and it is one of the few vegetables that can be got fit for use in the open air in May. The round-leaved summer Spinach, sown rather thickly in drills on good rich soil in February, has yielded splendid crops all through May, cutting it off close to the ground, as every particle of it was edible; in fact, much more tender than the leaves of the prickly-seeded winter Spinach, that had stood through the winter. The value of Spinach as a vegetable is very much under-rated, except in the largest gardens.

VEGETABLE MARROWS have been largely planted, but the cold nights have proved very much against their making any satisfactory growth, and some kind of covering has been absolutely necessary to keep them from being cut off. Those who have a good stock of cloches or hand-glasses have found them of great service for protecting crops like this, but failing these, large inverted flower-pots, boxes,

and baskets have been utilised at night, removing them during the day.

TOMATOES in the open or against walls are much in the same condition as the Marrows, as the cold weather continuing so late has put market growers to their wits' ends, for unless such crops are got out in good time, there is little chance of the crop ripening off before the early autumn frosts are upon us. The prevalence of frosty nights up to the end of May seriously checked the growth of a very remunerative crop.

RADISHES have been in great request during the past few weeks, owing to the scarcity of green vegetables and salads of any other kind. The earliest crops have been cleared, and the land dug up and replanted again. For the first sowings Wood's Scarlet Frame and French Breakfast are the favourites, but after May the Turnip-rooted kinds are the only ones grown until the autumn, when China Rose and the Black Spanish keep up the supply.

LETTUCES are late in coming into use in any quantity, as the autumn-sown plants suffered severely during the winter unless well protected. These have sold well, and now there is abundance coming in from the earliest sown spring crops, and here again the advantage of the protection of glass was fully realised; in fact, glass in some form or other becomes daily more necessary to cultivators.

FRUIT GARDENS.—The present appearance of these, as far as this locality is concerned, is all that could be desired, as the destructive frost of Whitsuntide that did such mischief in more inland places, although quite severe enough to cause grave apprehension at the time, does not appear to have checked the setting of the fruit, as Apples, Pears, Plums, Cherries, and all kinds of bush fruits have set splendidly, and with a continuance of fine weather we may now reasonably look for a good crop. As far as Pears are concerned, the set of fruit is simply wonderful, bunches of a dozen well set fruit already causing the shoots to bend, and the work of thinning must soon be taken in hand. Bush fruits, although late, promise well, and the crop of Gooseberries is being thinned for market, as the bushes are left very full of wood to allow for birds taking some of the buds. As a rule, although the winter was so severe and prolonged, the bushes suffered less from the attacks of birds than usual, possibly owing to a great many having died early in the winter from lack of food. Strawberries, contrary to what was the case with other fruits, were fully as early in flower as in more genial springs, and a good deal of the earliest bloom was spoilt by the severe frosts of the middle of May. There is such a wealth of flowers that most of the gardens around here will have a good crop, but a little later, and probably not so fine. We have lately had some heavy rains, and the conditions are now favourable to the ripening of the crop.

JAMES GROOM.

Gosport.

SEASONABLE FLORAL ARRANGEMENTS.

Now that there is such a wealth of hardy foliage and flowers from which to make a selection, a considerable relief is afforded to plants under glass. Ferns which have probably been cut rather severely can be given a good rest, and other things, many of which have been previously mentioned, should have breathing time, otherwise, with incessant cutting, the plants are considerably weakened. The change, too, from one to the other gives fresh charm and interest to the decorations. Just now shoots of the Beech tree are especially valuable; not only does this refer to the copper and purple shades, but to the pale green also. For white or yellow flowers the former are particularly well suited, such, for instance, as the pale shades of many of the varieties of Azalea mollis and the yellow A. pontica; to these may also be added the light colours of many hardy Rhododendrons, and also the white Lilac, not, however, to the exclusion of its own pale green leafage. The yellow and bronzy red Wallflowers will also associate well with the copper Beech. Of these every advantage should be taken whilst they are in good condition rather

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ROSE GARDEN.

ROSES IN SPAIN.

IN that favoured land of Olives and Almonds, Oranges and Palms, where *Magnoliagrandidiflora* grows to a size that would almost rival an English Oak, one would expect to find beautiful Roses, and a recent visit revealed enough and to spare for the fulfilment of the liveliest anticipations. Not, of course, the newest varieties, nor the symmetrical perfection of form in plant and flower as in a modern English garden, but a luxuriance of growth, a wealth of blossom, and a brilliancy of tint which we seldom see in our less genial clime, but which once seen dwell long and lovingly upon the memory. May is the month of Roses in the sunny south, and I was prepared for the feast in store by the grand masses of Bank-sian Roses, both white and yellow, which I saw early in the month on my way to Spain in the gardens surrounding the old Roman baths in the beautiful city of Nîmes. The plants were growing on the face of a cliff some 20 feet or more from the ground, and the branches laden with blossom were hanging down almost to the ground. I saw these Roses over and over again throughout Spain, always full of flower and always beautiful. Once I came upon the yellow kind used as an edging to a large flower bed, the branches being trained horizontally and tied to short stakes to keep them from touching the ground. This had a very beautiful effect. The most gorgeous of all Roses, however, were the crimson Chinese or Bengal varieties, of which I observed several, the most beautiful being the sanguinea, or old crimson China. In the sunny climate of Andalusia these grow to a great height, especially when afforded the support of a wall or building, or allowed to twine in and out among the branches of the tall Cypress trees, and I saw plants from 12 feet to 20 feet high literally covered with large globular blood-red blooms. The ordinary pink China Rose was also everywhere very beautiful, masses and hedges of it in the public parks being laden with brilliant satin-like blossoms. In the gardens of the old Moorish summer palace, called the *Genera-life*, at Granada, I found plants of the Persian Yellow bearing blooms at least twice as large as those produced with us, and of the richest golden yellow colour, such yellow Roses in fact as I have never before seen even amongst the richest of our yellow Teas. Unfortunately, the peculiar odour of this variety was as pronounced as its splendid hues. In the same gardens some of the exquisite Tea Noisettes, such as *Lamarque* and *Solfaterre*, were growing and blooming with a vigour and profusion which needed to be seen to be realised. Such gardens as these and those belonging to the Alcazar at Seville, which were laid out

by the Emperor Charles V. in the sixteenth century, are a treat to lovers of old Roses, many sorts now lost to cultivation in this country still lingering there in rude health; *Damask* and *Alba* Roses, *Multiflora*, *Scotch*, *Provence* in almost endless variety, and perhaps most beautiful of all, the double *Microphylla* Rose with its rosette-shaped pink flowers shading to deep red in the centres, the petals as crisp in appearance as if modelled in the finest china ware.

The older Hybrid Perpetuals abounded everywhere, in public gardens and squares, at railway stations and in private gardens, growing with a vigour, and diffusing a fragrance, which, alas! are only too conspicuous by their absence in so many of the highly bred favourites of the exhibition stand in England. Having wandered into Portugal, I searched in vain at Cintra for the yellow Moss Rose which is said to haunt its hills, but obtained instead a peep at that earthly paradise, *Montserrat*, with its stately Tree Ferns, its lordly Conifers and magnificent *Daturas* all laden with their trumpet-shaped flowers at the time of my visit. Strangely contrasting with this, but equally beautiful in their way, were the miles of rugged wilderness in Spain covered with Gum Cistus and Thyme in full bloom, enlivened here and there with patches of brilliant yellow Broom and white Asphodel; the balcony gardens of Seville with their Carnations rising tier upon tier until the tall house-front appears garlanded with this beautiful flower; the Orange and Pomegranate groves of Valencia, every tree a picture, and the flower of the Orange making the air heavy with its perfume; the gardens of Philip II. (known in English as well as Spanish history) at the Escorial, the mazy patterns of Box remaining the same to-day as in the time of the august founder; and the modern park at Barcelona, grandly conceived, and by the help of that soft and genial climate as charmingly executed. All these and many other strange and equally beautiful objects of attraction could not fail to delight the lover of horticulture, and to richly supplement the feast of Roses.

Waltham Cross. ARTHUR W. PAUL.

Tea-scented Roses.—These are among the first to bloom and always the last to leave off; in fact, they would be perpetual flowering if it were not for the frost. Many varieties are in full growth and carrying a large quantity of flowers and flower-buds when the first sharp frost checks them and cuts them back. Almost any soil suits these Roses provided it is not wet during frosty weather, and now that almost all shades of colour can be had in this class, they are likely to become even more popular than they are at present. Whether choosing Roses for forcing or climbing, one is naturally drawn to the Teas, as here are found the very best examples for these purposes. When grown as bush or standard specimens, Teas are, as a class, far superior to all others, being longer lived and producing much healthier shoots from old and sere wood. Now that there are several really good red Teas, one can have any colour found among Roses with the exception of the very dark velvety hues of such varieties as *Reynolds Hole* and *Prince Camille de Rohan*. For a pretty cherry-red climber, *Brunert Fridolin*, a comparatively new variety, has greatly taken my fancy. *Joseph Metral*, *Mme. Lam-*

bard, *Reine Marie Henriette*, and *Cheshunt Hybrid* are all very good red Teas, while the different shades of pink, yellow, and bronze up to the purest white are far too numerous to mention here. The general impression among gardeners seems to be that these Roses are tender, and consequently not so suited for extensive planting except in a few very favoured localities. I can assure them that there are far fewer really tender varieties among the Teas than in any other section of Roses. This they will soon discover for themselves if they can be induced to plant and treat them in the same manner as they do any of the strong growing Hybrid Perpetuals. The excessive freeness with which most Tea Roses flower, combined with the beautiful red tints of their young growth, all help very much towards their great popularity.—A.

JUNE IN THE ROSE GARDEN.

JUNE is the proverbial month of Roses, but in a season like the present it will be July before we reap the richest harvests of blossom. This, however, is mainly because we only grow to any extent one or two sections of the great Rose family—a fact to be regretted, because when we are merely growing Roses for pleasure there are many lovely kinds that should find a place, some early, others late. Rose shows have done much to popularise and extend the culture of the flower, but in one great essential they miss the mark. They all come close upon one another, and the Roses we see at them are only those which come up to what is at present considered the exhibition standard. It is a well-known fact that there are many most excellent garden Roses that are never seen upon the exhibition table, and it is equally true that there are many ardent cultivators that know little or nothing about Roses beyond what they see and learn at exhibitions. From the winning boxes they select the kinds that they most admire, or if they apply to a Rose grower and leave the selection in his hands he invariably supplies the kinds that are most exhibited. The "rosery" as it existed in days gone by, often a formal, hideous thing, is fast disappearing. The queen of flowers was once doomed to dwell in some obscure corner of the garden with the worst of associations and the harshest formality. Now we bring the flower into the most prominent situations, and find special uses for the varied sections. We may go into many gardens where Roses have the reputation of being popular and they are well grown, but we find nothing but Hybrid Perpetuals, and it is well into July before these are at their best. In a few places we may find that the importance of the Tea Roses has been recognised, and the extended culture of these is the most pleasing part of modern Rose growing, as some situations are so eminently adapted to them. Tea Roses where they do well must ever be the most important section of the family, and they come fairly early—at least we get a few blooms of such kinds as *Rubens*, *Niphetos*, *Souvenir d'un Ami*, *Marie Van Houtte*, and others. Yet in an ideal Rose garden these are not enough, when we might as easily have other Roses that would be in the height of their blooming season in bed or border, upon wall or pillar. It is more than probable that June came to be called the month of Roses in days gone by because the Roses of that time were mainly free and early, but now we have come to subordinate these to the fuller flowered kinds that take more time to perfect their blooms, and with the elevation of these to the position of first importance the zenith of Rose beauty is not reached till July. We want to see more of the finer species which late in May or early in

June greet us with their first flowers. But for the check experienced by many late frosts, the single Japan Roses would long ere now have been in full flower. They have flowers upon them already in advance of any double Roses even upon walls. What can be more beautiful than the various forms of the Japan Rose? They do not want the best beds or borders, as they will thrive in light sandy soil, and in scores of gardens, though treated as shrubby plants, they would associate well with the choicer Roses that require far better cultivation. *Rosa kamschatkana*, a similar, but not so showy species, is invaluable for its earliness; whilst a little gem is one named *pulverulenta alba*, with single white blossoms. How lovely in early June are those familiarly designated Scotch Roses, whilst Stanwell Perpetual, rambling upon a sunny bank, has shoots several feet in length covered with bluish rosette-like blooms, double and deliciously fragrant, whilst autumn will see another crop almost as profuse. Again, throughout the whole Rose season have we anything to compare with a mass of several bushes of *Rosa punicea*, otherwise known as the Austrian Brier? It is simply a blaze of colour, brilliant crimson internally and golden externally. Then we have no yellow Rose to compare with *R. lutea* if we exclude *Maréchal Niel*, and it is very strange that the freest, hardiest, and deepest of yellow Roses should be so rarely seen as this, both in the single type and its double variety, commonly called *Harrisoni*. From the middle of the month onwards other species come and go, but they are far too rare. If these single Roses should have a revival and become popular, they will brighten many gardens. The plea for them put forth by "Ridgewood" in *THE GARDEN* of June 6 (p. 517) is opportune, and there is only one fault to find with the list, namely, that it is far too meagre. For example, the Apple-fruited *Rosa pomifera* is not there, and a score of others might be added without difficulty, every one distinct, striking, and worthy of a place.

Then there are Monthly Roses, which should be the glory of the gardens in June, and we ought to have them in great masses. Some might be pruned, but others should be left unpruned in order to come early. It is well to bear in mind when we grow Roses for pleasure that pruning is not a necessary detail of cultivation. We often find it advantageous. The exhibitor is bound to practise it, but if we want flowers early and are not particular as to size, then we should preserve some bushes from the knife and earlier Roses will certainly be obtained. These wilder masses of Monthly Roses would associate with the shrubs. Upon the walls June brings forth many Roses, but none earlier nor equalling in loveliness the glorious and gorgeous *Fortune's Yellow*. How rare to see this Rose in good form in the open garden, yet those who have once seen it in full blossom on a sunny day in early June never forget the sight. The mingled shades of red and yellow and the beautiful buds make up a Rose which, if fleeting, is so beautiful, that we have nothing to compare with it and nothing to take its place. Its greatest outdoor drawback is late frosts, as it starts so early that the shoots get cut, and no bloom is the result. However, one of the warmest and most sheltered corners would be well filled if adorned with this Rose, and there are many favoured spots where it would thrive and usher in the Rose season with one of the most magnificent displays ever beheld. Another old Rose that can be relied on for early June is *Jaune Desprez*. It is not ideal in form, but it has great clusters of

yellow and buff flowers produced in abundance, and a sweet and powerful fragrance. A Rose with such good qualities will be sure to find and retain the regard of many admirers.

The Banksian Roses cannot be omitted from a notice of early Roses, these, of course, requiring walls and warm situations. *Maréchal Niel*, too, can be relied upon, whilst as the month advances, such Roses as *Lamarque*, *Rêve d'Or*, *W. A. Richardson*, *Gloire de Dijon*, *Bouquet d'Or*, *Mme. Berard*, *Emilie Dupuy*, and *Mme. Chauvry* will be in evidence with abundance of bloom. There is no lack of variety here, and a garden that contained all would have plenty of Roses in June. Further trials and observations, however, might help to augment the present list. It does not follow that because a Rose fails to come up to the exhibition standard of merit that it has no value. Such a Rose is much more likely to possess some characteristic peculiarly valuable and to become a good garden Rose. There are many such already, and they will be sought after in the near future. A. H.

Roses Souvenir de S. A. Prince and The Queen.—These two Roses are identical with me, and I am certain I have them true, as they were procured from the introducer in each case. *Souvenir de S. A. Prince* was raised by Mr. George Prince, of Oxford, and is a fixed sport from *Souvenir d'un Ami*. Like its parent, *Souvenir de S. A. Prince* is one of the grandest of all Tea-scented Roses; in colour it is pure white, very sweetly scented, producing a quantity of flowers all the time the plant can be induced to grow. For forcing this is one of the very best, while it has a splendid habit and really handsome foliage. The Queen is also a sport from *Souvenir d'un Ami*, and was sent out in the same year. In this case the Rose sported in America, and was sent out by Messrs. Dingee and Conard, Messrs. William Paul and Son distributing it in this country. It will be seen from the above that this is simply another instance of a Rose sporting in two widely different places at the same time and with the same result. Doubtless these Roses will be bracketed as synonymous by the National Rose Society after another season's trial.—RIDGEWOOD.

Rose Souvenir d'Elise Vardon.—Replying to Mr. B. R. Cant's kind note on the above, I may say that I also purchased *Duc de Magenta* as *Souvenir d'Elise Vardon*, and from a remark that Mr. Cant once made to me respecting this Rose I am quite certain it was from the same firm. But what I call the Devonshire variety of *Souvenir d'Elise* is quite distinct from *Duc de Magenta*, being of a deeper colour, not so large and full, and of much stronger growth. I have more than once had it spoken of as the variety known under the name of *Souvenir d'Elise*, not *Souvenir d'Elise Vardon*. I am glad to hear from such an unquestionable authority as Mr. B. R. Cant that there is no such variety, and I will send him a bloom or two, also some growth of the Rose, as soon as it is in flower, when if Mr. Cant would kindly name it for me I would feel much obliged. I cannot call to mind any variety similar to mine, unless, as I before remarked, it is the Devonshire variety of *Souvenir d'Elise*.—RIDGEWOOD.

— I must thank "Ridgewood" for his note on the above in *THE GARDEN* of May 30 (p. 510), for I was not aware of the existence of the two varieties, and have been unfortunate enough to have obtained the inferior kind first. In the autumn of 1889 a dozen plants upon their own roots and named *Souvenir d'Elise* were sent me. I naturally thought I had got *Souvenir d'Elise Vardon*, because the name is often shortened. I was pleased to see the vigorous growth, but, as "Ridgewood" will understand, quite dissatisfied when flowers appeared, as, although they were good in the bud state and abundantly produced, I knew they were not those of the kind I supposed it to be, nor, although knowing most of what is good among Tea

Roses, could I satisfy myself as to the identity, although it seemed to come near in resemblance to *Mme. Welch*; in fact I named it such provisionally. I obtained the true kind last autumn. Anyone who knows the one and has seen the other cannot fail to notice their distinctiveness, and there ought not to be this misleading similarity in name. "Ridgewood" speaks of the inferior kind as the Devonshire variety. Does he know anything of its origin, or how it came to be put into commerce with a name so calculated to mislead? From what I observed of it last year, having regard to the many first-rate Roses, this kind is one that might be rejected and would never be missed. Now when selections can be made from plenty of first merit only we do not want second-rate kinds, especially those with names that confuse and tend to bring into disrepute one of the finest Tea Roses, such as is the true *Souvenir d'Elise Vardon* of Marest.—A. H.

P.S.—Since writing the above I have read Mr. B. R. Cant's note on p. 517 in *THE GARDEN* of June 6, and it occurs to me that three years ago I planted a small group of *Duc de Magenta*, and I was so dissatisfied with it, that the following season I rooted it out and gave the plants away, as I wanted the place for a choicer kind. I remember, however, quite well what it was like, and can now plainly see that this was the kind which got into our select collection under a name that it was totally unworthy of.

Reine Marie Henriette as a stock for Maréchal Niel.—I am sorry I misunderstood the meaning of D. T. Fish's note on the above (page 435), but upon referring to it again, I do not see how I could have taken it in any other way. The words are, "leave a few branches here and there to bring up a full tide of sap, mayhap to master warts and mildew." It would indeed be a great thing if we could discover the cause and remedy for the wartiness of *Maréchal Niel*. I have tried several stocks for it, among them being *Reine Marie Henriette*, *Gloire de Dijon*, *Mme. Berard*, *Aimée Vibert*, and *Cheshunt Hybrid*. None of these had the desired effect, but I may mention that, as far as my plants were concerned, I found more warts when grown upon the *De la Grefferaie* stock than when upon any of the Roses named. I do not imagine that it is altogether in the blood of this Rose, as one can see some plants that grow for a great number of years, and up to the time of their death do not show any signs of these warts. I am indeed sorry that I cannot help "D. T. F." with any suggestion in this matter, and quite agree with him that it is a point well worthy of receiving a close inquiry.—RIDGEWOOD.

SHORT NOTES.—ROSES.

Gloire de Dijon is now flowering splendidly on sunny walls, and I question if any other Rose can equal it out of doors, as it has passed the ordeal of the severe and prolonged winter exceedingly well, and with far less blight than usual thus far.—J. G., *Hants*.

Wm. Allen Richardson increases in popularity every year, the demand this season being very great. It is certainly a very lovely Rose, and great variety is produced by the same plants, some of the blooms being nearly white, while others are of a rich cinnamon colour. The variation in size is also very great, some of the blooms being quite as large as a lady cares to have in a spray, while others are fit for the very smallest button-holes.—J. G.

Sulphide of potassium for mildew.—"A. H." recommends syringing with sulphide of potassium for mildew. Would he kindly say at what strength it should be used? I have some old established plants of *Gloire de Dijon* on a south-west and south-east wall just as he describes, and they are very badly mildewed.—BEGINNER, *Dublin*.

*** One quarter to half an ounce to the gallon of water will be sufficient. The weaker solution is strong enough for young shoots, but as the season advances and growth becomes stronger, the half-ounce solution will be required. A 1s. bottle is sufficient to make 32 gallons at quarter-ounce strength, so that it is a comparatively cheap remedy, whilst as to its effectiveness there can be no doubt.—A. H.

STOVE AND GREENHOUSE.

HÆMANTHUS.

(BLOOD FLOWERS.)

THE genus *Hæmanthus*, belonging to the natural order Amaryllideæ, contains about three dozen distinct species of greenhouse or cool stove plants, and is indigenous to Africa, the greater part being found in the southern parts of this large continent. From a horticultural point of view they may be divided into two classes, one embracing the species with long petioles or which produce their leaves on a special stem, and the other section containing the numerous forms with generally compressed bulbs composed of a few thick scales and spreading, oblong, leathery leaves, which spring direct from the bulbs. The first section undoubtedly contains the finest species and varieties, and to this class also belongs the *Hæmanthus natalensis*, the subject of the accompanying engraving. This *Hæmanthus* is one of the most easily accommodated and one of the readiest to flower; it has a nearly globose bulb of about 3 inches in diameter, and attains a height of 3 feet and more, the leaves numbering six to nine; these are oblong and of a bright green. The peduncle is produced at the same time as the leaves and bears a very dense umbel composed of hundreds of flowers with pale orange-coloured stamens and styles; it is not very showy flowered, but the habit of the plant is decidedly ornamental. Very fine specimens may be obtained by growing the bulbs in large pots in a well-enriched leaf-soil which has not been too much pressed; repotting is only needed every two or three years. During the resting period any dry place from which frost can be excluded will do for the bulbs, and in summer an airy greenhouse where the pots can be plunged into some moisture-retaining material will suit the plants. Under the same treatment will also thrive such fine species as the old *H. puniceus* and the bright-coloured *H. magnificus* with its two or three garden varieties. A little more warmth is required where the brilliant *H. multiflorus* is grown, this being a native of the tropical African regions. It appears that this species has a very wide range, for it has come in collections of botanical travellers who visited the remotest parts of Africa, and was named *H. abyssinicus* by Herbert from specimens gathered in Abyssinia, while the same or a similar plant has of late years been introduced from Sierra Leone under the name of *H. Kalbreyeri*, a coloured plate of which was given in *THE GARDEN*, Nov. 15, 1879. In point of gorgeous beauty it finds a strong rival in the more recently introduced *H. Katherinæ* which came from Natal in 1877, and was named by Mr. Baker after Mrs. Katherine Saunders, the wife of the late famous patron of horticulture. This truly magnificent species has a stem of about half a foot high with four to six oblong leaves; the flowering stem is very stout, and bears a magnificent, very dense umbel of bright red flowers. It seems that this *Hæmanthus*

does not require a special resting period, as it generally retains its foliage throughout the winter; at that time a temperature of about 45° to 50° Fahr. will be sufficient.

The species belonging to the second section are rather numerous, and the greater part of these are summer-flowering, the strong, leathery leaves generally being produced after the blooms have faded. They can be wintered in a cool house, and are best placed outside in summer. Some of the most usually grown species are *H. albiflos*, *H. sanguineus*, *H. coccineus*, *H. tigrinus*, and a few others, but it seems that a century ago more of these last were grown than now-a-days, as no fewer than twelve belonging to this section are depicted full size in the "*Hortus Schönbrunnensis*" of Jacquin.

C. G. VAN TUBERGEN, JUNR.



Hæmanthus natalensis. Engraved for *THE GARDEN* from a photograph sent by C. G. Van Tubergen, jr., Haarlem.

Bulbous plants.—Of these the *Liliums* constitute in themselves most valuable accessories for conservatory and greenhouse decoration. The Bermuda Lily (*L. Harrisii*) where started in fairly good time will now be in good flower; forced plants can of course be had much earlier. The latter, however, unless required for cutting, are not generally so useful as those brought on gradually. Other kinds to follow these should be looked after to give a succession at a season when such plants are most valuable. *L. auratum*, if started early, can be had in flower from now onwards. *L. umbellatum* and *L. Thunbergianum* in their varieties are useful in pots and quite distinct from other things. These will soon make a good display. The later kinds, as *L. lancifolium* in variety, if not

already out of doors should be now placed there in a light position. These if not turned frequently are disposed to draw on one side. In all cases where there is room for a little fresh soil upon the surface, some assistance can be afforded to the roots which push forth from the base of the stem. In many cases these roots perish for want of a little soil to root into just at this time. When staking is required see that the sticks are not thrust into the bulb; this is easily done if due care is not exercised. Watering in the case of all *Liliums* should be performed in a careful manner; an excess either one way or the other is injurious. *L. auratum*, if watered (for instance) too freely, is often disposed to die off without flowering if the bulbs are newly imported ones.—H.

Amaryllis formosissima and A. Cybester.

—Mr. Tallack's note on the above was valuable, as this old favourite certainly should not be overlooked in the race for flowers of a large size. There are few hybrids that can be compared in colour to this old form, and when the spikes are set up in a vase with light feathery foliage they are very effective. Mr. Tallack has described its culture so thoroughly, that I need not enter into any details. I find it best not to repot every year, as I do not get so many spikes when this is done. I also grow the plants on a shelf in an early vinery thoroughly exposed to the sun, the vines not shading them in any way, as if shaded, long straggling leaves are produced with little bloom; the bulk are well ripened by being left in the house, thus getting the same treatment as the vines, the result being a lot of spikes yearly. In the autumn the pots are laid on their sides in a cold house free from frost and drip. A good rest is the most important matter, as pointed out at p. 464, so that if required for early bloom this should be considered, and the plants kept near the light. There is also another form of this useful *Amaryllis* seldom seen, but very distinct, and though not so highly coloured as the Mexican variety, it is worth a place in all collections of bulbous-rooted plants. *A. Cybester* requires similar treatment. It was introduced from Bolivia, and when treated like *A. formosissima* it blooms earlier, the flowers being of a reddish colour with green markings.—G. WYTHES.

Aphelexis macrantha rosea var. Brucei.

At the recent show of the Royal Horticultural Society in the Temple Gardens I was very pleased to see this superior variety shown amongst Messrs. Hugh Low and Co.'s exhibit of small hard-wooded and other greenhouse plants. It is without doubt the finest of all the pink forms of *Aphelexis* in cultivation, and one that should be included in all collections of these Cape plants which can easily be cultivated with ordinary care in a cool house. In growth it is more sturdy and compact than most other kinds, and when well grown it invariably flowers very profusely. The appearance of a specimen in full bloom is most effective with its large star-like flowers. The size, too, of a plant at such times is considerably increased, for what would appear only a moderately-sized plant before the flowering stems push forth, develops into a large one by the time the blossoms are expanded, by reason of the length of stem and the superior size of its flowers. A specimen of this variety when in full flower is one of the most attractive sights amongst cool house plants. The flowers themselves are most valuable as everlastings, being unsurpassed in this respect by any of the order of Compositæ to which it belongs, many of which are well known for their lasting properties. In order to preserve them in good condition they should be cut before the central portion of the flowers loses its bright golden-yellow colour. This cannot really be retained, but when cut in good time it never fades away to so dark a shade as if left until faded upon the plant. The flowers should, whilst upon the plant, be carefully guarded against injury from moisture, either from drip, a moist atmosphere, or the syringe. Damp in any form is injurious to them and soon causes them to lose colour. Large exhibition specimens of this excellent variety are now seldom seen; they used, however, to be staged at metropolitan and other shows some few years

back by Mr. Chilman, then of Epsom, and the late Mr. Thomas Gilbert, of Hastings. I trust this plant will not be lost sight of by our plant cultivators; it is one of those really good things which for a time have been somewhat in the background, but with young stock now obtainable it should again be brought into more prominent notice in a similar way to the lovely blue *Leschenaultia biloba* major, which to many who were unacquainted with plant culture of twenty-five years ago is now regarded as a novelty. The purple variety (*Aphelexis purpurea grandiflora*) is a worthy companion to Bruce's pink form alluded to above; these two of their respective colours are the best of the whole family. *A. ericoides*, a much smaller variety, has white flowers, but this is more of a botanical curiosity than either of the foregoing, and cannot be recommended as being of particular value.—PLANTSMAN.

ERIOSTEMONS.

AMONGST the New Holland plants that for some years after their introduction were often met with in greenhouses may be named the *Eriostemons*. These shrubs even when not in flower are always effective, their dense clothing of leaves, somewhat larger than those of a good many of the species that come from the same region, rendering the plants attractive. When well managed they come literally smothered with bloom, their star-shaped flowers being produced at the base of almost every leaf of the preceding season's growth. They naturally take a more erect, somewhat rounded conical form than the majority of hard-wooded kinds. Hence they afford an agreeable contrast to the lower growing, more spreading species. They are moderately quick growers, making 6 inches or 8 inches of new wood annually, and as little or no cutting back is necessary, they soon attain a handsome size. The flowers are mostly white, tinted with pink in some of the species on the outside of the petals; this much increases the appearance of the plants when half the bloom is expanded, the pure white inner surface of the petals contrasting nicely with the external colouring of the partially developed buds.

Eriostemons used to be favourite subjects with the growers of hard-wooded exhibition plants, for though not carrying the weight with many judges that is attached to some of the smaller kinds of hard-wooded subjects on account of their being much more easily grown, still when well done and they have attained something like their normal size, they are always able to hold their own in a representative group. The fact of their being easily managed, long-lived, and much less liable to get out of condition than many hard-wooded kinds is an advantage rather than otherwise at the present day when the majority of gardeners seem to confine their practice to little beyond the most common-place things, that do not resent neglect or indifferent treatment in the way that the best of the hard-wooded section do. An additional advantage in the cultivation of *Eriostemons* is that the leaves are not liable to the attacks of mildew, and suffer little from the smaller insect pests, such as thrips and red spider, so that with anything like fair treatment the specimens may be grown for a score of years without their showing about the base any of the bare, naked branches which are so objectionable in the eyes not alone of plant growers, but of everyone who can appreciate plants that are vigorous and well furnished from bottom to top. In selecting young stock to begin with, plants should be chosen that have in their infancy been stopped within 6 inches of the collar, so as to be furnished with a sufficient number of side branches. *Eriostemons* are strong rooters, and to get them on

they require more pot room than weaker-habited kinds. On no account should they be allowed to get pot-bound whilst the plants are young, as this checks the growth to an extent that has an injurious effect on the free development of the specimens afterwards. Wintered in an ordinary greenhouse temperature they flower in April or May, according to the more or less solar heat of the spring. They may be potted whilst young before blooming without its interfering with the flowering, provided the injurious, though common practice of loosening the roots round the outside of the balls is not followed. In the case of large specimens it is better to pot after the blooming. It may be well here to state that *Eriostemons* produce seeds at almost every flower, and if allowed to form it severely taxes the energies of the plants and greatly interferes with the season's growth. This being the case, directly the bloom has fallen all the flower-stalks should be picked off before the seed vessels have time to develop. After potting, a little shade for two or three weeks in the middle of the day is an advantage; at other times they should be fully exposed to the sun. *Eriostemons* branch so freely of their own accord that after being stopped once or twice in the way already mentioned, little further in this direction is required, unless an over-vigorous shoot happens to take an undue lead; in such case it should be cut far enough back to give a fair balance to the shape of the plant.

After the first potting when the plants have reached the ordinary trade size, the lower branches should be tied well out and each secured to a stick inserted just within the rims of the pots; at the same time a stronger stick ought to be put to the leading stem. Beyond the limited amount of support mentioned, not much further in the shape of sticks and ties is either desirable or necessary, unless when the specimens get large they are required for exhibition. In this case, like most other plants that have to be subjected to the shaking unavoidable in conveyance, the shoots must be secured to prevent chafing. Without this, the unlucky grower will find when he gets to the place of exhibition that the greater portion of the flowers will be bruised and blackened. As time goes on, all that is necessary is to repot the plants annually, which will be needful for a time; as they get larger they will do for two years without any increase of root room. When the specimens arrive at something approaching their full size, and are in pots say 18 inches in diameter, they can be maintained in a full, healthy, vigorous condition or a number of years by the help of manurial stimulants either in the shape of ordinary manure water or surface dressings of concentrated manure, of which Standen's is much the safest and most effective. This manure should be used from the first potting after the plants are received from the nursery, as with its assistance they will make as much growth in one year as they would in two with no further stimulant than that naturally contained in the soil they are potted in.

Eriostemons do better in peat than in loam; not only do they grow better in it, but it gives the foliage a deeper hue, which, independent of the more healthy character it imparts to the plants at all times, shows up the white flowers to better advantage. Sufficient sand should be mixed with the peat to ensure its permanent porosity. The drainage must also be sufficient, and be secured so that the water will not carry the soil down into it. During the growing season the soil may be kept a little more moist than would be safe with the finer-rooted,

more delicate kinds. Whilst the plants are making their growth, they should be freely syringed once a day at the time the air is taken off. This should be done early enough in the afternoon to secure that humid genial condition of the atmosphere which tends so much to promote healthy growth. As already said, *Eriostemons* are such free bloomers, that they will flower whilst quite small, but in most cases it is better to push on the growth rather than to encourage flowering till the plants are something like 15 inches or 18 inches through. When they have reached this size they should be stood out of doors in the open air from the middle of July until the end of September. For two or three weeks after turning out they should either be shaded in the ordinary way or placed at the north side of a tree, wall, or tall hedge that will shield them from the sun in the middle of the day, so as to gradually inure the young leaves to bear the solar rays. After this the more sun they get the better, as it tends to mature and ripen the wood, the effect of which is to greatly increase the amount of bloom. Before the time for housing, the flowers will be set, and may then be seen about the size of pin heads at the base of the leaves made during the season. *Eriostemons* will bear a moderate amount of forcing, by which means they can be had in flower about the end of winter. Used in this way they are effective objects for greenhouse and conservatory decoration. The stronger shoots may also be cut, in which way they have a pretty appearance. For blooming early with a moderate amount of heat in the way named, they answer quite as well as many of the hardy shrubs that are so used to the exclusion of these and a good many other greenhouse plants in a way that would lead to the supposition that there was a dearth of the latter; whereas the reverse is the case.

Of the different kinds in cultivation, the Oleander-leaved species (*E. neriiifolius*) and the Box-leaved species are the largest and freest growers; the former also has much the larger flowers, and is the most effective generally. *E. intermedius* has large flowers, but the plant does not become nearly so large and branches more sparingly than the two other kinds named. *E. linearifolius*, as its name implies, has narrow linear leaves; it is a free, dense-habited plant that forms a close compact bush, and, like the others, it is a profuse bloomer. These four are the most desirable kinds. If only one species is grown, I should take *E. neriiifolius* where the houses it is to decorate are roomy, and *E. intermedius* for small greenhouses. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Francoa ramosa.—Seedlings raised this spring should now be fit for pricking off into pans or boxes, earlier ones being possibly fit for 3-inch pots. Old plants are now showing their flower-spikes, but these have been kept warmer than is at all necessary, simply for want of a more convenient place to grow them. A cold frame will now suit all of these plants well, whilst in a few weeks the established stock may be safely stood out of doors.

Medinilla magnifica.—This fine plant, which was grown in every garden and highly thought of at one time, was in splendid condition during the Whit-week show at Manchester in one of the houses in the gardens. It was of enormous size, as this plant will become where it has space, and was laden with large pendulous racemes of rosy-pink flowers, to which its dark green shining leaves afford a pleasing contrast. For a large stove this *Medinilla* is unequalled at this season of the year. By judicious pruning it may always be kept within bounds.—W.

Azalea Baron Nathaniel de Rothschild.—In the long lists of garden varieties of *Azalea indica*

that are issued at the present day, it follows, as a matter of course, that in the case of some of them the name forms by far the principal point of difference between the so-called varieties; therefore, making a selection, unless the plants are seen in flower, is a work of considerable difficulty. A very pretty *Azalea*, and, as far as my knowledge extends, a most distinct one, is Baron Nathaniel de Rothschild. The flowers of this are large, double, and of a kind of violet-purple colour, difficult indeed to describe, but very noticeable when associated with other varieties.—H. P.

Sarracenias.—These were well shown at the Manchester show in Whit-week by Mr. Bruce, nurseryman, of Chorlton-cum-Hardy. I believe that many of the fine hybrids of these *Sarracenias* sent out by other firms were raised by Mr. Bruce, and he certainly showed them well. I observed all, saving one species (the old *S. purpurea*), were hybrids. They were beautiful examples of culture, and I was sorry to see the class so inadequately represented. The kinds shown by Mr. Bruce were *S. Stevensi*, *S. Flambeau*, *S. Courti*, *S. Williamsi*, *S. Tolleana*, *S. Chelsoni*, *S. purpurea*, *S. Wisoni*, *S. Mitchelliana*, and *S. Atkinsoni*.—W.

Goodia latifolia.—The order to which this belongs, viz., Leguminosae, is largely represented in Australia among plants of a shrubby character, examples of which are to be found in the *Chorozemas*, *Acacias*, *Bossiasas*, *Aotus*, *Hardenbergias*, *Kennedias*, and others. Among them flowers of a yellow or yellowish hue predominate, and this *Goodia* is no exception to the rule, as the blooms are of a clear bright yellow colour, with a small reddish blotch at the base of the upper petals. It forms a free-growing bush, clothed with trifoliate leaves, whose oblong-shaped leaflets are of a pale glaucous-green colour. The entire plant bears a certain amount of resemblance to the old-fashioned South European *Coronilla glauca*, which is a valuable plant in most gardens. The *Goodia* will succeed in any ordinary compost of an open nature, or it may be planted out in the conservatory, under which conditions it grows quickly. Cuttings root readily enough, or seeds are often ripened, by means of which the plant can be propagated in quantity.—T.

Propagating decorative Pelargoniums.—The system of propagation usually employed in gardens is the old method from the ripened shoots after flowering, and after the plants have been dried and hardened in the sun by exposure. Though this plan has much to recommend it, I think it less satisfactory than by propagating cuttings at this date, or earlier in the spring, by taking off the small side shoots and striking them in a sandy compost in a close pit, and getting strong plants before the winter. Another objection is that when potted up late in the autumn they require careful management, being short of roots, and often damp off in the winter unless they have filled their pots with roots. The method adopted by large growers for market has much to recommend it, as the plants grow more rapidly and make nice stuff by the following spring; indeed, they may be had for late decorative work the same season if the shoots are struck early in the spring and potted on into $4\frac{1}{2}$ -inch pots for late bloom. Good cuttings or shoots strike readily. I generally place three small shoots, taken off the old plants with a heel attached, in a small pot. The small side shoots where thickly placed are taken, and no trimming is necessary. These will be struck in three or four weeks, and should get potted on and stopped once or twice to make a good foundation for the next season. By this system much time is saved, better plants are secured, and less anxiety as to their welfare through the winter is required. I have for years struck my plants in this way, and find it in every way satisfactory.—G. WYTHES.

Asparagus retrofractus arboreus.—Among the more uncommon plants noted at the recent Temple show were a few of this *Asparagus*, which is not only very pretty, but quite distinct from the forms now so generally cultivated. In this the stems are very hard and light in colour, while, as a rule, the plant is not furnished with foliage at the base, for the shoots run up in an erect manner and branch out towards the upper part, so that the plant naturally forms a twiggy head. The leaves, which are

from $1\frac{1}{2}$ inches to 2 inches in length, are very slender and curiously arranged in little tufts along the branches. This fact combined with its thread-like nature gives to a specimen of it a remarkably light and elegant appearance. The colour of the foliage is a very pleasing shade of clear bright green. This *Asparagus* cannot, as far as I know, be propagated from cuttings; indeed, from its hard woody nature I had not much hopes of success in trying the experiment. With increased strength this *Asparagus* may develop a climbing habit of growth, but in any case it is not likely to be grown to anything like the same extent as some of the others, owing to the difficulty attending its propagation, as division is too slow for wholesale purposes. This distinct *Asparagus* was put into commerce last year by M. Lemoine, of Nancy.—H. P.

FLOWER GARDEN.

JACOB'S LADDER.

It is remarked on page 523 by "A. D." that the genus *Polemonium* is hardly worth a place in a flower garden. It is true that it is not quite first-class, but when it is proposed to expel so respectable and ancient an inhabitant, which we all recollect in the gardens of our grandfathers, I must say a word on its behalf. "A. D." speaks of the *Polemonium* as if the varieties of it were limited to the common type—the variety generally, but wrongly called *P. Richardsoni*, and the form with variegated leaves sometimes used for edging. On looking round my garden I find no fewer than fourteen distinct species or varieties of *Polemonium*, several of them quite worth retaining apart from the sentiment of old associations. First, there is the blue type—not a good blue, but much better in some soils and atmospheres than in others; the flowers, too, are much more robust and more freely produced in some individuals out of a batch of seedlings than in others, the petals varying from a thin linear form to full round. The anthers, too, differ greatly in size and colour, being sometimes golden-yellow, sometimes nearly white. I say this because it is worth while to make a good selection to begin with, and if more plants are wanted to increase the best. As for the way in which the scattered seed comes up round the parent, a few minutes with a Dutch hoe will easily remedy this. Then there is the white variety which varies in flower as much as the bloom. Thirdly, there is the form with bipinnate leaves figured in Sweet's "British Flower Garden" (tab. 182) under the name of *P. sibiricum*. It is a more luxuriant variety, often produced in my garden, but I do not recollect having seen it except with white flowers.

Then there is the giant Himalayan form with much larger flowers and leaves, and without the characteristic smell, though said by botanists to belong to the same species, but to gardeners quite distinct. I have not yet seen a white-flowered plant of this. Next we have the dwarf variety of *P. coeruleum*, commonly mis-called *P. Richardsoni*, which was introduced ten years ago by Sir E. Loder from seed collected in the Rocky Mountains. This has now been raised with white flowers, and is offered by Mr. Wood, of Kirkstall. The seven forms enumerated (if we count that with variegated leaves) all belong to the species *P. coeruleum*. *P. reptans* is a distinct species of excellent habit and blooming early and freely, but the slate-coloured flowers are somewhat deficient in brightness. A still dwarfer species is *P. humile*, to which Asa Gray refers *P. Richardsoni* of the *Botanical Magazine*, tab. 2800. It trails on the ground, and its dense and elegant foliage make it a neat plant for the northern slope of a rockery. The

flowers are not conspicuous, and are of the same grey colour as those of *P. reptans*. The prettiest and scarcest of the genus is *P. confertum* with finely-divided leaves, almost like those of *Milfoil*, flowering in March in beautiful dwarf umbels of large violet-purple flowers. Its cultivation is not very easy; it wants a sandy, well-drained soil, which does not dry up, so that a north aspect suits it, and it is worth some trouble. My present stock came from Mr. Wood, of Kirkstall, who grows it well. *P. flavum*, growing 18 inches high with dull yellow flowers, is distinct, but of less merit. Three self-produced hybrids which have come by accident in my garden make up the number fourteen. They are *P. flavum* × *coeruleum*, having the divaricate habit of the seed parent with white flowers; *P. humile* × *reptans*, a slender plant; and *P. reptans* × *coeruleum*, having all its characters intermediate. I have little doubt, as all the species (except *confertum*) are very abundant seeders and pollen-bearers, that any species of *Polemonium* would readily form hybrids with any other, but the habit most of us had of scuffling up the seedlings round the parent makes the recognition of hybrid forms less frequent. C. WOLLEY DOD.

Edge Hall, Malpas.

CARNATION SOUVENIR DE LA MALMAISON.

PLANTS of this have been sent me from the Spark Hill Nursery, Birmingham, in order to prove that it is harder than I and others who have lately written on this subject in THE GARDEN consider it to be. I must admit that, taking into consideration the nature of last winter, the plants sent are in good condition, although not so fresh and green as my own stock which has been wintered in frames, but they look quite as healthy as other kinds that have passed the winter in the open ground. I am, therefore, bound to admit that this *Carnation* is capable of enduring a larger amount of frost than I should have thought possible, and I am less able to understand why my plants should have been killed. It was decidedly frost and not spot that killed them, there being no appearance of that disease on the foliage, and, strange to say, although even the hardiest border kinds are with me almost always attacked by it, I have during a period of about seven years never had either the typical form or the pink variety of *Souvenir* show any signs of spot even during the foggy winter months. Before the last hard frost they were quite fresh and green, and when the thaw came the whole of the plants became soft and eventually withered up. I had a number of plants in pots in a frame that was covered with a mat only, and a few of them went off in the same way, and it may be remembered that a correspondent wrote some time since in THE GARDEN to the effect that the whole of his plants in frames were destroyed in the same manner. It is difficult to account for such discrepancies in the behaviour of this *Carnation* under the influence of severe frost.

It is possible that there may be less powers of resistance to cold in layers taken from plants that have been pushed on into bloom in warmth than when the stock plants are grown in the open air all through the spring months. When I take my plants out at the end of June the shoots are strong and well formed, in just the right condition for layering. They are layered by the end of July, being well rooted and ready to take off with abundance of good roots early in September. It was not, therefore, for want of fibrous roots that my plants perished, for they had in the autumn three times as many as those sent me from the north a short time ago. There is one point in connection with this matter that may have some influence on the ability of this and other *Carnations* to withstand extreme cold. I have often remarked that old plants have been totally destroyed, whilst layers of the same kind have escaped almost without injury. It is not on the foliage, but on the stems that severe frost appears to act with evil effect. Wet weather or melting snow being imme-

diately followed by hard frost, the bark cracks, and as soon as drying winds come the whole plant withers up. I think that it is safer in planting the rooted layers at the close of the autumn not to allow any portion of bare stem to be above ground, but to set them so that the lower leaves touch the soil. I have so frequently noticed that such deeply set plants come through an inclement winter best, that I shall now make a practice of planting them in that way. This will not, of course, guard them from spot, for which, in the open ground at least, I fear we shall find no certain remedy.

J. C. B.

Columbines.—I have a hybrid known in the German trade as *Aquilegia chrysantha alba* in bloom, and I regret to find that it is, in common with so much of the German stuff, a poor thing. It has the merit of blooming very early, and is probably the product of a cross between *chrysantha* and some one of the early garden varieties. It is far from being a pure white; indeed some flowers show the corolla rather yellow and the spurs bluish. Its merit seems to lie chiefly in its undoubted earliness, but in respect of quality the flowers are inferior to those of the lightest coloured found in the hybrids from *chrysantha* and *cœrulea*. Undoubtedly a fine pure white form of *chrysantha* would be indeed a beautiful one, but except in the garden forms really pure whites seem to be scarce in the *Aquilegia*. The chief drawbacks in the garden varieties are found first in a tendency to doubling, which is destructive of the particular beauty of the flower, and second, in too many dull or uninteresting hues of colour. Pale slaty purples, bronzes, reds, and similar poor colours are undesirable. We rather need more really decided or pronounced colours, such as white, mauve, carmine, red, purple, and crimson, in the common *Columbine*. Some forms of stout single flowers are very handsome. Had they but the long graceful spurs of the stronger species they would be really beautiful. There can be no doubt but that the long spur adds charm and grace to the flowers. Those of *cœrulea*, the blue and white hues being so distinctive in the flowers, are perhaps the most becoming of any. I think them preferable to those of *glandulosa*, and especially that they are produced by plants that are more robust, although the strongest habits are always found in the hybrids, and some are finer or more attractive than are the blue and white ones from a *cœrulea chrysantha* cross. There is really no reason why, in the endeavour to obtain more effective colours and stouter habits of growth, we should not intercross the various species and garden varieties independently. The doubles, however, I dislike, as being so heavy and ungraceful. We can well afford to dispense with all these because of the wealth of beautiful single flowers produced.—A. D.

The Fritillary at home.—Six acres of nodding Fritillaries is a glorious sight, such as no words can adequately describe. One can only realise their full effect when among them, as from a short distance all that is observed is a faint shimmer of purple above the green Grass such as might be produced by the purple Orchis, a much commoner and more generally distributed plant. It is interesting to note that, unlike the Daffodils or any other bulbs in meadows and gardens, Fritillaries do not form tufts or clusters, or anywhere occur more than two together. They are as if they had been thinned out to the distance at which each bloom could best display its individual grace. They increase and spread, but always appear separated by a few inches. The common chequered kind predominates in countless thousands, but here and there over the entire meadow white blooms stand out conspicuous, whilst occasionally pale yellow ones appear and disappear also, for they are neither constant nor as profuse as the white. The meadow in which the Fritillaries referred to above are growing is a low-lying one, a small flat vale between two hills, and intersected by a little water-course. Slowly, but surely, the Fritillaries are spreading through a similarly situated adjoining meadow, but in the one under particular notice, and which, by the way, is often flooded in winter,

they seemed to have reached the crowning point of perfection. It is satisfactory to be able to say that they are cared for in the sense that none who ask permission to see them are refused, and visitors are permitted to gather a few flowers or even to take up a few bulbs, but anything like wanton destruction or ruthless gathering of quantities of bloom, to be thrown down again before the field is left, things which have occurred in the past, are now as far as can be prevented. It is to be hoped that this feature may long remain, and whether seen by few or many all will cherish a most grateful regard for Mr. Edward Page, upon whose farm it occurs, and who so kindly concedes all moderate requests in regard to it.—A. H.

PRIMULA SIEBOLDI.

To the lovers of hardy flowers one of the features of peculiar interest at the Temple show was the collection of varieties of *Primula Sieboldi* staged by Messrs. Ryder and Sons, of Sale. They were shown in bunches in water, and were staged well, beautifully fresh and bright, and some of the most pleasing were Ruby Queen, ruby-red; Miss M. Barnard, rosy pink; L. H. Grindon, pale purple; Miss M. Sandbach, bluish lilac; Distinction, bright rose; alba magnifica, Queen of Whites, and Bruce Findlay, mauve, of quite a novel shade of colour. These, with laciniata, the old type of Sieboldi, purpurea, and Mauve Beauty, make up a dozen varieties well worthy a place in any garden. *P. Sieboldi* is a plant for cool greenhouses, and as such I specially commend it to the attention of the readers of THE GARDEN. Whatever may be said to the contrary, it is decidedly risky to plant it out in the open; and notwithstanding that perfect hardihood can be claimed for the species, cold and wet result in rot and loss. In well-drained, dryish soils, and especially on rockwork, the rhizomes might exist unharmed through the winter, and it is only in places where their safety may be fairly assured they should be planted. But in the cold greenhouse and frame they succeed well. Anyone purchasing a collection from a nursery in early spring would no doubt receive them in small pots just putting forth growth. The plants are propagated by breaking up the rhizomes in winter and placing a piece in a small pot, the smaller the better. A gentle bottom heat helps growth, and when roots are made and have filled the small pots they should be placed in pots 4 inches in diameter, and stood in a cold frame. But little water will be required and plenty of air. They put forth their leaves in February and begin to bloom in March and during April. If they are required to be in flower early the plants can be placed in a gentle heat, but it is always done at the risk of having the foliage somewhat drawn. Foliage and flowers alike are always best when the plants can come on gradually and in their own way. Probably the most satisfactory head of bloom is obtained when the plants are grown on in a cold frame, well ventilated until the flower-stems rise above the foliage, and then be taken into the cold greenhouse to flower.

Many plants are ruined by placing them out of doors as soon as they have gone out of bloom and neglecting them. They suffer from drought, become attacked by red spider and aphids, the soil is riddled by worms, and the rhizomes decay. Instead of this, the plants require, deserve, and should have, proper attention. They should be kept in a cold frame, or the pots can be plunged out of doors up to their rims in soil, and be well looked after in the matter of water, and if there is lack of convenience in which to house them during the autumn, let them be covered over with 2 inches of cocoa-fibre and remain there until divided and repotted. It is best to repot annually, breaking up the creeping roots and placing them in fresh soil. By putting several pieces in a pot a specimen can be made up to any size.

Messrs. Ryder and Son frequently make a very attractive exhibition with the varieties of *Primula Sieboldi* by exhibiting them in pans in the months of April and May. Their method of making up these pans is as follows: They pot single crowns

about Christmas in small pots, and flower them in these pots. They are then plunged in boxes of cocoa-fibre to keep them moist, and there they remain until wanted for exhibition. Then they select the plants with the most perfect blooms, and put a dozen or so of them of one variety into a pan to form a specimen. Should the plants come into flower a little earlier than is required, they are placed in an ordinary greenhouse where they can have plenty of air. They are shaded from the sun, kept as cool as possible, and then they will remain in a fresh condition for a long time. R. D.

NOTES ON HARDY PLANTS.

Trollius giganteus—Under this name I grow a Globe Flower, which, whether there is good authority for the name or not, truly answers to the name borne. The large floral globes are true Globe Flowers in the way of *T. europæus*, that is, the petal-like sepals are incurved and not open, as in *T. asiaticus*. I have measured a bloom to-day 2½ inches in diameter, although, as I have just said, the flowers are not fully expanded. The colour, too, is distinct; I should describe it as a citron-yellow. The plant attains the height of 2 feet with a denser habit than *T. napellifolius*. It is a grand companion to the dark asiaticus and the noble *napellifolius*. I do not see this variety in many gardens, and I have been wondering whether it can be generally known. I do not think that it can be considered a scarce plant; I am open to be told that it is but a variety of *europæus*, and if it should be such it is a gigantic form. Though the type grows well here its flowers rarely attain more than half the size of those of this variety.

T. europæus humilis (De C.) and T. minimus (Wendl.)—This had been sent to me some time ago by a friend, and somehow had got placed in an out-of-the-way corner where, though looked after, it was thought to be making indifferent growth and not flowering owing to its unsuitable situation. Some time ago it was given better quarters, and now it proves to be the beautifully dwarf and one-flowered *humilis*. It is the only Globe Flower I know that could with propriety perhaps be placed among rock plants.

Ranunculus Gouani (Willd.)—I can strongly commend this for planting in wild gardens, or even in cultivated ones where there is moist land or water. Perhaps the simplest description that I could give it would be to term it an enormous and stately Buttercup with very bright yellow flowers, almost resembling *Geum pyrenaicum* in size. It has none of the habit of *Ranunculus repens*, but is more in the style of bullatus, so that the running habit may not be dreaded. Though I have described it as a large Buttercup, I venture to say that its size and habit would render it conspicuous among a rood of ordinary Buttercups.

Alyssum alpestre is one of the very best of alpine for the immediate front of a ledge; in such a position its rich and brilliant yellow corymbs of blossoms adapt themselves in a most effective manner. But how is it this neat and very dwarf distinct species is not more seen, for I have good reasons for believing that it is not by any means a familiar plant even to many growers of choice collections of alpine? I am aware that the genus *Alyssum*, like several other genera that could be named, does not commend itself to many people, and so possibly the whole of the species are but indifferently looked after. Many of the kinds are not the most suitable for select rockeries, but this is not one of that class.

Lilium auratum—The most useful thing that can be done by way of helping late-planted bulbs is to screen the young growths from powerful sunshine. You have only to try this plan on some and leave others exposed in late May and June and the results will be most convincing, and reasonably so. I am, of course, speaking of those planted in land otherwise clear and exposed to the midday sun, as contrasted with those bulbs set in, say, a shrubbery. Bulbs set late are stimulated beyond the sustaining root power, and as the tops enlarge the

evaporation outgrows the supply of moisture, and the results are "scorch," a deformed stem, often so badly as to resemble the bent head of a walking-stick, the leaves prematurely turn yellow, the first symptoms being browned tips, or sometimes a discoloured midrib. It is also a bad sign when the lower rudimentary leaves fall off very early. This may not end in blind or flowerless stems, but they surely indicate a degree of abnormal waste by evaporation. The shading by means of twiggy stuff like short Pea sticks not only breaks the strong heat of the sun, but keeps the ground moist and cool, and so renders the top-growth more steady until the bulb roots have a chance to develop. Of course the stems soon send out their own roots above the bulbs, but this is not satisfactory in the end if they have not had co-workers in the bulb roots. If you get plenty of stem roots you may have a good crop of flowers, but where these upper roots have been carrying on, as in numerous cases, the whole life of the plant, the results on the bulb will be rot that may be largely developed even whilst the flowers are being borne. I would like to be understood that these remarks apply to late-planted bulbs, say after the middle of March. The better way would be to plant as soon as well ripened bulbs could be had; these would slowly send down their base roots before sprouting. The best and in the end the cheapest way of all to establish groups of *Lilium auratum* in the open would be to secure English-grown bulbs with all their base roots complete in the months of October and November, and plant them straightway in the intended quarters of well and deeply prepared loam of medium texture, scrupulously avoiding all manure at any rate in contact with the bulbs. This kind of planting could hardly fail either in flowers or in regard to the after state of the bulbs; if it did I should be inclined to blame some unfavourable local conditions of an out-of-the-way character.

Mitraria coccinea.—If we could reasonably class and cultivate this charming dwarf shrub with hardy plants, it would prove a pleasing addition. Having in mind the very severe winter we have just experienced, the one fact I am able to adduce may be suggestive, and it is this: In an old frame with air on constantly, owing to the broken glass which did not even protect the plants from wet and fogs, small plants in pots are unharmed; whereas, plants of similar size of the reputed hardy *Ononis rotundifolia* have been largely killed under the same conditions.

Mossy Saxifrages.—Never but in one garden have I seen these grown in what I may term a characteristic or natural way. Usually one sees the mossy species in neat, flat, or rounded cushions, and well they look. I do not wish to say that it is not the best way, but I think it may interest many to know that these plants can be had in hillocks 2 feet high, so that without the aid of stones, undulating (yet dense and rigid) masses of herbage verdant all the year round can be had. The effect is that of short Moss overgrowing big stones of various heights when different kinds are employed. These join up to each other in a pleasing and natural way, and their respective tints are a feature of beauty. The facts on which I ground these notes are, that eight years ago beds of Saxifrages were planted according to their sections. The mossy species and varieties have never been touched in several places, and for a year or two they have presented the appearance described above. Beneath the verdant crust, so to speak, there is a dense structure of brittle stems erect and oblique compacted with dead and dying leaves of past years, and these are all knit together with delicate silky rootlets from the ground to the dense setting of green surface leaves. The depth of vegetable matter is 18 inches to 2 feet. These facts show how curiously some plants live on their own remains, at least so far as the rooting medium is concerned.

Linaria alpina and **L. linifolia** are two exquisite hardy annuals which, owing to their hardness and abundant seeding, are practically perennial from the manner in which they sow themselves. Those who care to possess them may yet sow seed.

These *Linarias* are gay, though humble flowers, but they are always best when raised from seed.

Woodville, Kirkstall.

J. WOOD.

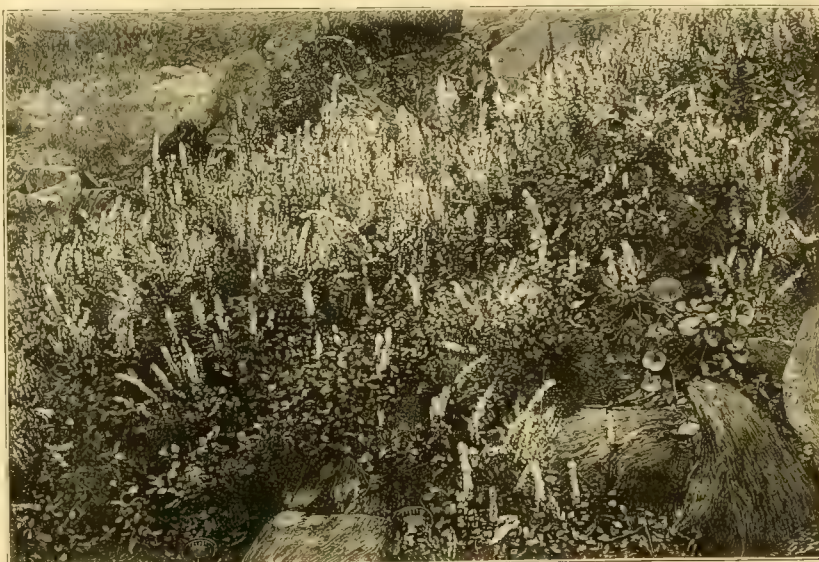
PERENNIAL KNOTWEEDS.

ALTHOUGH these *Polygonums* have been, and are still, by many designated the weeds of the garden, they are at last beginning to be appreciated. Some few of the species, as we have noted below of recent introduction, take a high place as rock plants, where their bright long-lasting flowers carry on the interest and beauty of our rock gardens until the frost comes in late autumn. The tall growing forms, among which are *sachalinense*, *Weyrichi*, and others, are far too coarse for the ordinary flower border, and even in very large or broad borders they require so much space, where variety rather than one-sided effect is required, that they have to be discarded on account of the trouble to keep them in proper bounds. *Polygonums* are in every way suitable for the wild garden, and to see a large healthy group of one of these graceful Knotweeds without stake or tie is to see just such an effect as Nature herself

vegetation, forming long stretches, rosy red when in flower, and the brightest of bronze-purple when the autumn tints appear in the leaves. Travellers tell us that it affects damp places, forming curtains from the wet rocks. But with us, in the south at any rate, it thrives best on dry, sunny slopes, where it forms the most charming of carpets. It begins to flower early in August, the bright pink of the newly opened flowers and the red of the older ones intermixed on the same spike being very attractive. *P. Brunonis*, which many people consider a variety, does not appear to differ in the slightest from *P. affine*, at any rate not enough to distinguish them in gardens. It is easily increased either by seeds or division.

P. ALPINUM, a native of Southern Europe and long cultivated in our gardens, grows from 3 feet to 4 feet high, and produces numerous snowy white panicles of flowers. It is rather coarse for the flower border, but makes effective groups on the margins of ponds, &c. The flowers, which are somewhat fragrant, are found very useful when required for cutting; they last a long time in water, and stand a heated room very well.

P. BISTORTUM.—A native of our own country and a common plant in gardens, but as seen growing in a Swiss meadow, it is a sight never to be forgotten



Polygonum vaccinifolium.

produces. These coarse growing species, however, need not be all relegated to the wild garden; some of them will be found very desirable in mixed shrubberies, where their profusion of feathery flowers and elegant foliage will greatly enhance the beauty of the border. As isolated specimens on lawns these *Polygonums* are perfect. Their abundant arching stems are very attractive, and all they require to keep them within bounds is to cut back the underground stems every spring. They are all propagated with ease by division and seeds, and with few exceptions grow best in damp situations in ordinary garden soil. Among the species not mentioned in detail, but which are equally desirable, are *P. Weyrichi*, *molle*, *chinense*, *multiflorum*, *amplexicaule* (red and white), *angustifolium*, *filiforme*, *lanigerum*, *polymorphum* (scented), &c.

P. AFFINE.—This is a well-known and very popular species, and one of the most useful plants I know for dry sunny banks, where in late autumn the charming purple-tinted leaves are very effective. It is a native of the Himalayas, where it is said to form one of the features of the alpine

At semi-alpine elevations in damp meadows *P. bistortum* forms the greater part of the vegetation, and, together with *Campanula rhomboidalis*, *Phyteuma spicatum*, *Geraniums*, &c., makes a picture which for effect and brilliancy of tint I have never seen equalled. A garden of this description in England would, perhaps, be a novelty, but it would be natural and considerably more effective than we are able to make our rockeries and borders in the conventional style we now adopt. The flowers, of a bright reddish pink, are borne in dense spikes; the leaves broad, oval, and somewhat pointed. It flowers from June to September, and may be increased by division.

P. CAPITATUM.—This species, which is a native of Nepal, is more tender than most of the others and requires the protection of a warm greenhouse during winter. In general habit it comes nearest to *P. vaccinifolium*, but the leaves are larger, soft, and hairy, and with a dark blotch on each, giving the whole a very curious appearance. The flowers are pink and produced in abundance from all the upper joints in the form of small balls. An excellent plant for a hanging basket, requiring little attention and always looking attractive.

P. CUSPIDATUM, a native of China and Japan

is known in many gardens under the name of *P. Sieboldi*. For small gardens this species is superior to any of its allies; its compact habit and gracefully arching branches fit it admirably for confined positions. *P. cuspidatum* has a luxuriance of foliage unequalled by any of the others; the young stems, speckled purple, and the creamy white, feathery flowers, borne in bunches at every joint, give it a quaint and interesting appearance. It will be found best to grow it as an isolated specimen. It varies very much in habit and height. *Crispum* and *compactum* are two of the most distinct and useful varieties of this.

P. SACHALINENSE.—As a specimen ornamental-foliaged plant, this species is not easily surpassed where it can be allowed plenty of room. It is an excellent subject for shady woods. The damper the soil the more robust and luxuriant will be the growth, and in favourable situations the leaves are each rarely less than a foot long and half as broad, of a bright pleasing green. The flowers are small and inconspicuous, of a greenish white. It is one of the plants that can be utilised for naturalising in woods without giving trouble. It forms splendid cover, and may also be used with effect in mixed shrubberies. A native of the Sachalin Islands.

P. SPHÆROSTACHYUM.—Introduced a few years ago under the erroneous name of *P. affine* var. *Brunonis*, and figured in the *Botanical Magazine*, tab. 6847. This is one of the brightest flowered species in the whole genus, and though as yet rare, on account of its being so slow of increase from offsets, it will soon, we hope, become everybody's plant. It flowers all through late summer and autumn, the individual spikes lasting many weeks in full beauty. With a little attention and care I have been able to make a small colony of this *Polygonum* from self-sown seeds. These seeds often fall just when beginning to turn brown, and if taken indoors and dried before sowing, they rarely germinate. The simplest plan, and one I have found succeed is to let the seeds lie where they have dropped, covering them over with half an inch of loose soil, and leaving them undisturbed. The seedlings will soon be seen peeping above ground, and at the end of a year may be transferred to other parts of the garden. The dense, round spikes of flowers, which are freely produced, are very striking indeed, and never fail to attract attention. The flowers are blood-red or crimson-purple, the leaves narrow and hairy or glaucous underneath. It is a native of the alpine and subalpine Himalayas.

P. VACCINIFOLIUM, a native of the Himalayan Mountains, was introduced to cultivation nearly fifty years ago, and figured in the *Botanical Magazine*, 4622. It has proved one of the most charming and useful of our hardy trailing rock plants, and is always interesting even when out of flower. Although by no means fastidious in its requirements, it may always be seen at its best in damp or swampy places, forming close tufty masses, carpeting the ground in late summer and autumn with its spikes of pretty rose-coloured flowers. It may be used with great effect in the drier portions of the bog garden, where I have seen it grow freely and flower in profusion. On the rockery proper, however, and in damp positions just such an effect may be obtained as that represented in the accompanying cut. Trailing gracefully and naturally over the projecting rocks, and filling up the interstices with its wiry stems and fresh green leaves, it forms a picture at once beautiful and picturesque. It may be used very effectively, too, in draping old walls, tree-stumps, and such-like with just sufficient soil for the stems to root in as they run along. Individual plants form dense mats or cushions, which may be trimmed in without the slightest injury to the plant. It succeeds best in a soil made up largely of rotten leaves, the trailing shoots being either cut off or pegged as close as possible to the crown. The stems which root freely at almost every joint enable it to be propagated with the greatest ease.

D. K.

Arnica montana.—This, when doing well, is one of the best of dwarf early-flowering Composites

either for rockery or flower border. So far as we are concerned, this species is by far the best in this genus, and although said to be difficult to grow we have never found it so. On the contrary, it grows with great vigour and flowers freely in a light sandy loam in a fully exposed position. The *Arnica* is always interesting from the time the young shoots appear above ground until in full flower. The flowers are each from 2 inches to 3 inches across, of a deep orange and produced in succession. It is plentiful in dry places in Switzerland, and when in flower always showier than either *Senecio Doronicum* or *Aronicum glaciale*. The two latter are moisture-loving plants and are always to be met with on the higher moist meadows.

CHOICE HARDY TRAILING PLANTS.

ONE of the loveliest of the many hardy trailing plants now in bloom is *Daphne cneorum*, which is a perfect mass of bloom, the ends of every shoot being terminated by dense clusters. With me this *Daphne* does well anywhere, whether in borders on the level, or on raised banks or rockwork, the last being the most suitable position, as when it covers a good space and gets to a large size it is very striking, and shows off to the greatest advantage. The soil it does best in is that which is moderately sharp and sandy, turfy parings from roadsides or paths being very good for it, as also gritty peat and loam mixed. This answers well for layering the side shoots in, as in it they root freely and may thus be increased more readily than by cuttings, which do not strike very easily. The *Cisti* or *Rock Roses*, too, are remarkably showy and valuable, and should be much more largely grown than they are, as they bloom so early and are so well adapted for rockwork or other elevated positions that are sunny and dry. In these situations plants are annually masses of flowers, some of them being of dazzling brightness, as they range from scarlet to creamy white and various shades of warm colour. As the *Rock Roses* seed freely they may be increased quickly to any extent, the time for sowing being as soon as the seed is ripe, when if put under hand-lights on a border and there kept close and moist it will germinate readily, and the plants should then be exposed to the open. *Phlox Nelsoni* and *P. setacea* are likewise adapted for raised banks or rockwork, the former being very free in its habit of bloom, which it sends forth in such abundance that plants are masses or mounds of white at this season. *Phlox setacea* roots as it runs, but *Phlox Nelsoni* requires layering or must be struck from cuttings, the way to propagate it, if by the last-named mode, being under hand-lights or bell-glasses stood in some cool shady place. Another gem and a fit companion for any above mentioned is the *Lithospermum*, which in its rich depth of blue almost rivals the *Gentian*, and it is very free-flowering, as the long, wiry trailing shoots bloom freely and last long in perfection. *Omphalodes verna* is one of the earliest trailing plants to bloom, and a beautiful thing it is, it being after the manner of the *Forget-me-nots*, but of a choicer shade or hue, the plant only rising a few inches high and sending its flowers just clear of its foliage. The *Aubrietias*, white *Arabis*, *Alyssum saxatile*, and *Iberis gibraltarica* must not be forgotten, and anyone starting with these and those named above will find that he has a goodly array of things that are well deserving of all care and attention.

S. D.

Helonias bullata, or *latifolia* as it is also called, is one of the most charming bog plants we have seen for some time. It seems to like plenty of moisture, but it also likes plenty of sunlight, and in a peaty soil grows vigorously and flowers with the greatest freedom. It grows about 2 feet high and forms a rosette or a series of rosettes of broad grass-like leaves 6 inches long. The individual flowers are small, but they are borne in dense cylindrical heads, bright rose-purple, and when many are seen together very effective. It may be easily increased by division, and is a native of North America. A good companion to the above is the

Chinese *Heloniopsis umbellata*, a native of China with much the same habit, but having larger and brighter-coloured flowers.

THE SAXIFRAGES.

(Continued from p. 524.)

SECTION DIPTERA (Bork.).

This section comprises sarmentose species from Eastern Asia, which in their habit are very distinct from the species of any other section.

S. SARMENTOSA (L.).—A native of China and Japan. A highly sarmentose species, with thick roundish leaves, which are spotted on the upper side and brown underneath, and are produced in small tufts from which issue long filaments or runners, each of which on attaining a certain length produces at the extremity a fresh tuft of leaves, which in its turn sends out a runner, and so on *de novo*. Flowers white, dotted with purple, the two lower petals being much longer than the rest, borne in a broad panicle. This plant is grown everywhere with the greatest ease. It appears to like a light soil and a rather shady position, and is able to withstand the winters of Central Europe. One variety of this species (*S. s. tricolor*) has leaves variegated with pink, white, and grey, and another variety (*S. japonica*) has dark-coloured leaves without any variegation. Both these varieties are in cultivation.

S. CUSCUTEFORMIS (Lodd.).—A minute Japanese form of the preceding species, which is cultivated in the same manner, but is not so hardy, and requires the shelter of a glasshouse in our climate.

S. FORTUNEI (Hook.).—A Japanese species, which is also closely related to *S. sarmentosa*, but is distinguished from that species by its much stronger habit, its thicker leaves with glistening upper sides, by its non-sarmentose character, and by having its flowers much more closely and firmly set in the panicle. This species, which is scarcely hardy at Geneva, requires peaty soil and a warm shady position.

S. CORTUSÆFOLIA (Sieb. and Zucc.).—A Japanese species closely resembling *S. Fortunei* and, like that species, non-sarmentose. Leaves erect, thick, of a very dark brown colour underneath, and deep green on the upper surface. Flowers large, white, in a handsome panicle. Culture the same as for *S. Fortunei*.

SECTION DACTYLOIDES (Tausch.).

This section comprises a pretty considerable number of species which have, more or less, the appearance of Mosses, and several of which are so polymorphous that it is very difficult to distinguish one from another. They are generally alpine plants, natives of the Pyrenean and Caucasus Mountains, but several species of them occur in the arctic regions.

S. AQUATICA, Lap. (syn., *S. adscendens*, L.).—A handsome species from the Upper Pyrenees and Corsica, which is seldom found true to name in cultivation. Leaves large, incised-trilobed, forming large and vigorous tufts of a fine light green colour, bearing handsome clusters of flowers of a pleasing white colour with purple anthers. This is the finest species of the whole section, but at the same time the most difficult to grow. We find it very hard to keep it alive in our alpine garden at Geneva, where the air appears to be too dry for it. It requires a peaty, spongy soil, always moist, mixed with stony debris. It grows naturally by the sides of the channels in which the melted snow flows down from the highest elevations in the Pyrenees. I have never seen the true *S. aquatica* grown in gardens, and the seeds which I have received under this name from many botanical gardens have invariably produced entirely different plants.

S. AFRICA (Gren. and God.).—This is a variety of *S. aquatica*, of smaller dimensions than the type.

S. AJUGÆFOLIA (L.).—A native of the Pyrenees. A caespitose species, with divided leaves of a handsome light green colour disposed around the branching stems, which spread on the surface of the

ground. Flowers white, not very numerous, but comparatively large, and growing in a small paniced umbel. We grow this plant easily in a shady position in moist, spongy soil. It is multiplied by division of the tufts and by sowing the seed.

S. PEDDURANS (Kit.).—A native of the Carpathian Mountains, at an altitude of 1500 to 2000 mètres. This species resembles the preceding one, but is of much denser growth and smaller in all its parts. It is grown in the same way, but requires calcareous soil. The variety named *S. Gregorceki* (Tank.) is found in herbariums.

S. PEDEMONTANA, All. (syns., *S. Allioni*, Baumg.; *S. cæspitosa*, Wulf.; *S. cymosa*, W. K.).—A native of the Maritime, Piedmontese, and Savoy Alps, the Carpathian and the Banat Mountains. A handsome caespitose species, with large triangular slightly divided leaves of a light green colour, and forming large rosettes terminating in short branches, from which are produced short clusters of large white flowers. Culture, the same as for *S. ajugæfolia*.

S. CERVICORNIS (Viv.).—This is a variety of *S. pedemontana*, which has been in cultivation for some years, and which is much smaller and of denser growth than the type.

S. PAVONI (Don.).—A native of the Andes of S. America. Another caespitose species, with trifid, slightly-divided leaves, which are covered with a down of glandular-pubescent hairs. Flowers white, with yellow anthers. Grown in the same manner as *S. ajugæfolia*.

S. GERANIODES, L. (syns., *S. quinquesida*, Lem.; *S. palmata*, Lap.).—A native of the Pyrenees and the mountains of Auvergne. A caespitose species, with much-divided leaves, which are closely set around the erect and dense-growing branching stems, on which are produced many-flowered corymbs of white flowers. This is one of the few species of this section which are able to endure full exposure to the sun, but it prefers a half-sunny position and requires a light soil. The variety *ladanifera* (Lap.) is not in cultivation.

S. MADEIRENSIS (Don.).—A native of the islands of Madeira and Porto Santo. A very handsome caespitose species with rigid, glabrous, triangular, toothed leaves of a deep green colour. Flowers white, comparatively large, and disposed in a handsome panicle. Not in cultivation.

S. CUNEATA (Willd.).—A native of the mountains of Navarre and Old Castile. A very fine and interesting species which is seldom found true to name in cultivation. The plant is caespitose, forming dense tufts of deep green, glistening, thick, hard, triangular leaves. Flowers white in small erect panicles. In order to succeed in growing this species, it should be planted on a wall or between the perpendicular stones of a steep part of a rockery, which may face either east, west, or full south. It is easy enough to grow it if planted in this way, but it is not easy to propagate it either by sowing the seed or by dividing the tufts, the divided parts of which must be furnished with roots to have any chance of succeeding.

S. PORTOSANTANA (Boiss.).—A native of the island of Porto Santo. This species resembles the preceding one, but its leaves are still more leathery, harder and thicker, and of a deeper green colour, approaching to black. Flowers white. Not in cultivation.

S. CAMPOSI (Boiss. and Reut.).—A native of the Sierras of Southern Spain. A very handsome caespitose species with glistening, trilobed, incised leaves of a deep green colour. Flowers white. The true *S. Camposi* of Boissier is very seldom met with in cultivation, and I question whether it can be found growing in any garden except that of M. Boissier himself, or of some one to whom he may have given a specimen of the plant. Culture, the same as for *S. cuneata*.

S. OBSCURA (Gren. and Godr.).—A native of the Eastern Pyrenees. A caespitose species with finely-divided leaves, forming strong tufts of foliage, which in the flowering season are covered with

numerous corymbs of white flowers—ten to fifteen in a corymb. Not in cultivation.

S. CANALICULATA (Boiss. and Reut.).—A native of the mountains of Central Spain. A very caespitose species, forming strong tufts of deep green, glistening foliage. Leaves rigid, highly divided and deeply incised, encircling the erect, dense-growing, branching stems, which in the season of bloom bear handsome clusters of white flowers. The plant likes a half-sunny position and a friable and rather light soil.

S. TRIFURCATA, Schrad. (syns., *S. ceratophylla*, Dryaud; *S. pedatifida*, Smith).—A native of the mountains of Spain. This species resembles the preceding one, like which it forms large tufts of deep green, glistening foliage which covers the numerous, erect, dense-growing branching stems, but is distinguished from it by its leaves which are viscoso, less divided, tridentate and borne on longer footstalks. The flowers, which are white, are also larger and have longer pedicels. Culture, the same as for *S. canaliculata*. In many gardens *S. trifurcata* is used as an edging plant.

S. PENTADACTYLIS (Lap.).—A native of the Eastern Pyrenees. This is a dwarf species which runs and spreads over the ground. Leaves pedatifid and trifid, small, of a deep green colour, forming handsome tufts which bear panicles 4 inches to 6 inches high of white flowers—six to nine flowers in a panicle. Only cultivated in botanic gardens.

S. BOUSSINGAULTI (Brong.).—A native of the snow-clad declivities of Mount Chimborazo, at an altitude of 5000 mètres to 5500 mètres. A minute species of dense growth, forming small, pincushion-like tufts close to the ground. Leaves cuneiform, trifid. Flowers small, solitary, borne on short flower-stalks. Not in cultivation.

S. SILENEFLORA (Sternb.).—A native of the arctic districts of America. A small caespitose species with thick leaves and short stems bearing solitary white flowers. Not in cultivation.

S. TEREKTENSIS (Bunge).—A native of Asia Minor and of Western Asia. A small caespitose species, with trifid leaves of a cheerful green colour and yellowish white flowers. Not in cultivation.

S. MAWIANA (Baker).—A native of the Atlas Mountains. A pretty caespitose species, with very finely divided leaves, forming handsome tufts, which spread over the ground. Flowers small, white, in handsome panicles. Culture, the same as for *S. geranioides*.

S. MOSCHATA, Wulf. (syn., *S. cæspitosa*, L.).—A native of the mountains of Europe. A small, dwarf species, forming dense pincushion-like tufts of foliage. Leaves generally entire, smooth, sometimes trifid. Flowers small, greenish yellow, growing in twos and threes on the same stem. This species likes exposure to the sun, but requires to be planted in a moist position in light soil rich in humus, and, if possible, between stones. Multiplied by sowing the seed and by division of the tufts. The following varieties are found in herbariums: *S. m. compacta* (Mert. and Koch), *glandulosa* (Engl.), *pygmaea* (Haw.), *crocea* (Gaud.), *pontica* (Engl.), all of which possess merely a botanical interest. In addition to these, we find in cultivation *S. laxa*, Sternb. (syn., *S. Rhei*, Schott.), *S. Allioni* (Schott.), and *S. atropurpurea* (Sternb.). The last named variety might very well pass for a species, and deserves to be specially mentioned on account of its very brilliant purplish red flowers.

S. EXARATA (Vill.).—A native of the mountains of Southern Europe. A very caespitose species, with divided, hairy, glandular leaves. Flowers white, borne in panicles, ten to twelve in a panicle. Leaves deep green, strongly nerved. Culture, the same as for the preceding species. The following varieties are found in herbariums: *S. e. pyrenaica* (Engl.), *leucantha* (Thom.), *orientalis* (Engl.), *maculata* (Reich.), and *laxa* (Koch). In addition to these there are two Pyrenean or Spanish varieties, viz., *S. intricata* (Lap.) and *S. nervosa* (Lap.), which are successfully grown in gardens. The first named of these is distinguished by its roundish brilliant white petals, and the latter variety by the

more prominent nerves or veins of its leaves. We find it easy to propagate them from in our alpine garden, where we also grow the varieties *compacta* (Koch) and *aromatica* (Winkl.).

S. MIXTA, Lap. (syn., *S. pubescens*, De C.).—A native of the Eastern Pyrenees. This species is distinguished from the preceding one by its very densely crowded foliage, the leaves of which are of a lighter green, much less hairy, more pliable, and having very few nerves or veins. Culture, the same as for *S. moschata*. The variety *S. m. Iratiana* (not *Tratiana*), F. Schultz, from the Eastern and Central Pyrenees, differs from the type in having imbricated foliage, the leaves being of a deep green, broad, very much divided, and deeply incised; also in having its white flowers veined with purple. We grow it in the same manner as *S. moschata*.

S. CORDILLERARUM (Presl).—A native of the Cordillera Mountains, from Peru to the Straits of Magellan, at an altitude of 4000 mètres to 5000 mètres. The plant forms tufts of closely-set, glandular, trilobed, nerved leaves. Flowers white, in a few-flowered corymb. Not in cultivation. This is a very polymorphous species, and the following varieties of it are recorded: *S. c. magellanica* (Poir.), *S. c. stellata* (Pavon), *S. c. Bonplandi* (Don.), *S. c. angustiloba* (Sternb.), *S. c. peruviana* (Sternb.), *S. c. laxa* (Presl), and *S. c. trigyna* (Rémy).

(To be continued.)

ORCHIDS.

AERIDES WILLIAMSII.

THIS species, or rather variety, for such I suspect it to be, was exhibited at the Temple show the other day. The only plant known is, I believe, in the famous collection of Baron Schroeder. It was brought into the sale rooms of Messrs. Protheroe and Morris some two or three years ago by the late Mr. Stuart Low, he having imported it with some *Aerides* Fieldingi. Many years ago the same thing occurred to the Messrs. Veitch and Sons, who imported it in a similar manner through their collector Lobb. This plant passed into the collection of Mr. Charles Warner, then of Hoddesden, afterwards of Stratford Green, and I well remember seeing it exhibited at the Regent's Park shows. After the death of Mr. C. Warner I lost sight of the plant, and do not know what became of it. Now we have another in the possession of Baron Schroeder, whom, I hope, it will stimulate to still more largely encourage the growth of this section of the family. These distichous-leaved plants are largely grown in the collection at The Dell, and they just now are in splendid condition. These species require more heat and moisture in the atmosphere than the *Odontoglossums* and such like plants. The hot-houses which these plants require are now very different to those used for this purpose some years ago, inasmuch as they are now well ventilated and the atmosphere is purer and less oppressive. In the winter season the temperature may fall as low as 60° at night without fear of harm, rising some 5° in the day, or by sun heat 10° will not have any ill effects. In sunny weather advantage should be taken to give a little water, for *Aerides* never cease to grow more or less, and consequently should never be allowed to get quite dry, or the leaves will be very apt to turn yellow and decay. *Aerides Williamsii* when strong has dark green leaves, each sometimes over a foot in length. The spike is dense-flowered and pendulous; the raceme is double the length of the leaves. The flowers, of the same shape as those of *A. Fieldingi*, are white, with a stain of rosy pink at the base of the lip. I have imported *A. Fieldingi* from Assam, and it is also found in Sikkim, and from one of these localities I should ima-

gine *A. Williamsi* originally came. I am not aware if it has also been found in Upper Burmah; if so probably the Messrs. Low and Sons may have imported it from that part of India. W. HUGH GOWER.

ORCHIDS AT EXHIBITIONS.

THAT there is a considerable falling off both in the numbers of specimens exhibited and, what is more to be regretted, in the quality of the plants as now more frequently seen no one who frequents the shows of the present day will, I think, venture to deny. There are numbers of small plants shown at most of the metropolitan and other exhibitions, but this does not altogether make amends for the deficiency of well-grown and equally well-flowered specimens such as were to be seen from twenty to thirty years ago. These used then to occupy the foremost rank in all our important gatherings. On looking back one calls to mind the splendid plants of *Saccolabiums*, as *S. retusum*, *S. guttatum*, *S. curvifolium*, *S. præmorsum* and *S. Blumei majus*; also of the *Aerides*, as *A. Fieldingi* (the Foxbrush), *A. crispum*, *A. virens*, *A. Lobbianum*, and last, but not least, the varieties of *A. odoratum*. The *Vandas* are being appreciated rather more than a few years ago, but still there is a lack of well-grown plants of *V. tricolor* and *V. suavis*. *Phalænopsis grandiflora*, *P. amabilis*, and *P. Schilleriana* used to be seen much larger and finer than at the present time. *Dendrobiums*, like the *Phalænopsids*, are represented in greater variety, it is true, but of these also there is a scarcity of specimen plants. *Cattleyas* and *Lælias* have, generally speaking, been kept up to a better standard, notably so in respect of *C. Mossiæ* and *L. purpurata* in their various forms. *Cypripediums* have vastly increased in numbers by hybridisation chiefly, but of these, plants of reasonable size cannot be grown in a year or two; of the older kinds specimens are not so frequently met with. Well-grown specimens of *Oncidiums* and *Odontoglossums* of the older kinds are no mean objects when well flowered, but they are few and far between. These are instances of plants which used to be the glory of the great shows at the Botanic Gardens, Regent's Park, at Kensington and the Crystal Palace, plants that reflected the greatest credit upon the growers of them, the result in most instances of years of patient and persevering labour. There must be some cause for the falling off, as alluded to at the commencement of this article, in the numbers of specimens now seen. With the vast increase in the numbers of Orchids now grown, the stimulus to which has been caused undoubtedly by the immense importations and the consequent lowering of prices, there has, of course, had to be a corresponding increase in the numbers of growers. Many collections are now chiefly made up by a majority of imported plants, these often take years to grow into specimen size. The energies of the cultivator have been directed more towards these smaller plants than to the larger ones; hence the latter have, no doubt, in many instances not received that attention peculiar to retaining them in good condition. I do not infer that this has been brought about by actual neglect. I think it is more to be attributed to the large increase in numbers than to any other cause.

The paucity of numbers upon exhibition stages at the present time is abundantly manifest. Probably this may in some degree have been brought about by that pernicious plan of showing made-up examples (specimens would be a wrong word to use) which has by previous writers—and very justly too—been designated bedding out. I have been a strong opponent to this system, and still utterly condemn it as both unfair and unjust to the exhibitor who does not adopt it. It simply means that those who have the largest numbers must win, totally irrespective of the actual quality of a *bona-fide* plant as compared with a huge mass. This making up should no more be allowed in the case of Orchids than in that of stove and greenhouse or other plants. It may be urged that the prizes are not what they once were. This is true in a sense, but if the actual standards of the exhibits were

raised, probably this would not be any source of complaint. Seeing, therefore, what the present conditions of affairs are in regard to the competition in the Orchid classes, it is high time that the managers of shows all over the country adopted a different course, and thereby endeavour to make their schedules, as they pertain in particular to Orchids, amenable to the times. This is an easy matter, I think, wherever prizes are offered for Orchids. With the great increase in numbers and varieties, there has sprung up a preference for given genera with many growers. These and others can have their cases met by offering prizes for Orchids in groups, shown as grown, not bedded out, but confined to a limited space and arranged with such foliage accessories as Maiden-hair Ferns and slender Palms. Where only one or two classes are provided, let the groups be of a mixed character. Where, however, more are possible, then individualise the grouping by having say a class for *Odontoglossums* and *Oncidiums*, one for *Masdevallias*, another for *Cattleyas* and *Lælias*, one for *Cypripediums*, another for *Dendrobies*, and one for *Phalænopsids*. These classes could, if desirable, be limited to numbers, or as an alternative have a large class and a small one. If a course like this were adopted, I think there are many growers who could be induced to exhibit those plants in which they take peculiar interest. Such exhibits would not only be interesting and effective as viewed by the public in general, but they would also be instructive to the growers themselves, as comparisons could then be made as to variety and modes of cultivation. These latter are both essential points too often lost sight of in the exhibitions of the present day. By this system the unjustifiable "bedding-out" plan would be entirely thrust aside, and none too soon. If small plants are to be encouraged, then let us have classes for such, with a limit put upon the size of the pots. I think if either of these suggestions were to be carried out by managers we should see Orchids again come to the front in a creditable manner to the small grower as well as to the large. PLANTSMAN.

Orchids at Mr. Young's, Linnet Lane, Liverpool.—Being in this district on Whit-Monday, I took the opportunity of calling to see the Orchids at Fringilla and one or two other places close to Princess Park, and I certainly was much interested in the collection of Mr. Young. Some two or three examples were exceptionally fine; one of these I may mention, viz., *Vanda Sanderiana* with six growths. This plant is rooting and thriving in a remarkable manner. It is all one piece, and some day it may take a leading rank at one of our horticultural meetings as a single specimen. It was not growing in such strong heat as I have been told this plant requires, and I shall be glad to know how it continues to thrive in this temperature. Another remarkable plant was a fine specimen of *Lycaste Skinneri alba* hanging in a basket in the *Cattleya* house. It is a very handsome variety and was just passing out of bloom. In the year 1890 it bore thirty-one flowers, but this season it only had twenty-seven. In the same house is a very fine variety of *Lælia purpurata Goweriana*, a remarkably fine flower with white sepals and petals, and a large and very deep-coloured lip, the throat being white striped with maroon. This plant was named by Mr. Sander, and was shown by him in Manchester a year or two ago. Mr. Young says he does not think its lip is quite so dark as it has been, and one fault which I have to find with it is that the sepals appeared to curl somewhat. *Cypripedium Wallisi* was another plant flowering well here with petals 22 inches in length; the sepals inside white lined with yellow, the exterior wholly yellow; the long petals are white veined with yellow at the base, which soon passes into a fawn-coloured drab; the pouch-like lip white, but heavily veined and dotted with puce on the inside, and as this shows through to the exterior, it is robbed of its whiteness; the enfolded portions are pure white, having a row of magenta-purple spots and a marginal border of yellow; this is a beautiful species allied to *C. caudatum*. Growing with this were the fine *C. Sanderianum*, bearing a spike of three blooms

upon a home-made growth, and a very nice form of *C. niveum*, the flowers measuring each upwards of 3 inches across, the petals and dorsal sepal round, and the lip much speckled with purple. Fine examples of *Cattleya Mossiæ*, *C. Skinneri*, and *C. Skinneri alba* were also in flower. *Epidendrum vitellinum majus* was another remarkably handsome plant, bearing seventeen spikes of its bright yolk-of-egg-coloured flowers. *Odontoglossum crispum*, *O. Rossi majus*, good forms of *O. polyxanthum*, and *O. hystrix* were amongst the most noticeable, whilst *Masdevallias* in variety supplied bright colours.—W. H. GOWER.

Moth Orchids at M. D. de Yvarrondes.—The residence of this gentleman is near Princess Park, Liverpool, and here, to my surprise, I found quite an unexpected treat in the shape of a large collection of Moth Orchids (*Phalænopsis*), comprising about 150 specimens or more, almost equalling the famous plants grown by Mr. Searing when gardener to Mr. Partington at Cheshunt. The kinds included *P. grandiflora*, *leucorrhoda*, *Schilleriana*, *amabilis*, *Stuarti*, *violacea* and others; they are grown in a similar manner to Mr. Hardy's at Timperley, on erect cylinders of good height. Here, too, I found the plan I have so often advised of not over-burdening the roots with soil carried out. The roots were creeping between and on rough pieces of sandstone without any soil. The foliage was large, thick and fleshy in texture, and each plant carried several pairs of leaves.—W. H. G.

GARDEN FLORA.

PLATE 809.

THE WITCH HAZELS.

(HAMAMELIS.)

(WITH A COLOURED PLATE OF *H. ARBOREA*.)

THE genus *Hamamelis* is but a small one, by far the oldest member of it being the North American Witch Hazel (*H. virginica*), which though both interesting and curious can scarcely be regarded as of high ornamental value, while its Japanese relative, *H. arborea*, so well shown on the accompanying plate, is one of the most beautiful of our hardy flowering shrubs or small trees during the early part of the year, when the still leafless branches are clothed with the peculiarly shaped blossoms. *H. arborea* is the largest growing of the family, but, like the others, it will flower freely in a comparatively small state. Its usual habit is to form a much-branched head, which, viewed during the sunshine of a bright winter's day when every twig is studded with its peculiarly shaped blossoms, glows like a golden cloud. The leaves, as implied by the popular name, are very much like those of the Hazel, though there is really no affinity between the two. *H. arborea* is said to have been introduced into this country in 1862, but it was certainly for some years almost unknown till Messrs. Veitch took it in hand, and soon demonstrated that in this *Hamamelis* we possessed a flowering shrub of great beauty. I well remember the attention this Witch Hazel attracted ten years ago last February when exhibited at one of the Horticultural Society's meetings, and at that time a first-class certificate was awarded it. Of these Japanese Witch Hazels there are three forms, viz., *H. arborea*, here illustrated, which is the earliest to bloom, as well as the richest coloured variety; *H.*

* Drawn for THE GARDEN in the Coombe Wood nursery by H. G. Moon, February 21, 1891. Lithographed and printed by Guillaume Severeys.



japonica, whose long petals are of a paler shade of yellow, and *H. Zuccariniana*, much like the last, except that the calyces are darker. These two resemble each other so closely that, unless carefully examined, the difference between them is not noticed. The best of the three is undoubtedly *H. arborea*, and where there is only room for one this should be planted in preference to the others. Besides the colour of its blossoms, *H. japonica* differs from *H. arborea* in being a smaller-growing plant, and also a month later, or nearly so, in coming into flower. Though a very sharp frost will completely destroy the blooms of these Witch Hazels when fully expanded, the unopened buds are not affected by it, and a few days' sunshine will generally suffice to restore the tree to its original beauty. The nomenclature of these Japanese species of *Hamamelis* is certainly in a somewhat confused state, as the deep-coloured form now known as *H. arborea* was figured in the *Botanical Magazine* under



The American Witch Hazel (*Hamamelis virginica*).

the name of *H. japonica*, which latter specific title is generally applied to the lighter tinted one, and that not only in gardens and nurseries, but even at Kew; while in the "Dictionary of Gardening," to the description of *H. arborea* is appended a small footnote—"Botanical Magazine, 6659, under the name of *H. japonica*"—while later on *H. japonica* is described as "A form with paler flowers and of a much dwarfer habit than *H. arborea*." These Witch Hazels are perfectly hardy, so that in planting them no special care is needed in selecting a spot suitable for the purpose, provided the soil is fairly good and not waterlogged. If the sprays are cut just as the earliest flowers are on the point of expanding, they will open beautifully in water, and form a pretty and lasting feature indoors. In planting them they should if possible be so situated as to admit of close inspection, which will reveal additional charms to those that can be discerned at a distance. Where associated with other shrubs and just overtopping them, *H. arborea*

is seen to very great advantage. The fact that these Witch Hazels are by no means generally found in gardens is to be accounted for by the fact that their rate of progress, especially when young, is far from rapid. However, when commoner we shall probably see them so employed that their free and early-flowering quality will stand them in good stead, and that is for flowering under glass, in which way I once saw them very beautiful. Blooming as they do naturally at that time of the year, no forcing is necessary, and where protected from frosts and heavy rains the flowers remain fresh a long time.

The American member of the genus (*H. virginica*), introduced into this country as long ago as 1736, forms a somewhat open bush, seldom more than 6 feet or thereabouts in height. The flowers of this are smaller and less brightly coloured than those of their Japanese allies; still they form a very prominent feature, and being produced during the latter part of the autumn and early in the winter, outdoor flowers of any kind are, from their scarcity, especially noticeable. T.

KITCHEN GARDEN.

THE WINTER VEGETABLE SUPPLY.

DURING the past winter and early spring months good vegetables in many gardens were very scarce. Certainly the inclemency of the weather was to a certain extent the cause of the dearth of green vegetables, as even in many gardens where due provision had been made whole breadths were killed outright. I always make due provision by planting all the hardiest green vegetables in quantity. Our elevated position no doubt is much in favour of the plants making a very hardy growth, as being well exposed, the growth, if not very luxuriant at first, is certainly well matured. The soil is a very cold clay and thought by some people to be against successful vegetable culture. When the want of green vegetables is felt, that excellent catch crop, French Beans, is often fallen back on, but they are a poor makeshift for depending on at midwinter. Those who have to keep up even a small supply know the work entailed, and often the results hardly pay for the labour. During the winter months French Beans must be looked upon only as a luxury. It is all very well advising the growing of French Beans on hotbeds, but these are not made up under both a considerable amount of material and labour. Leeks, no doubt, will be grown in much larger quantities than formerly on account of their being able to withstand almost any amount of frost that we are at all likely to have. Except for ordinary kitchen use, once, or at the most twice a week is about as often as Leeks will be asked for. The palate soon tires of such things. Those who may have the ground at disposal will have themselves to blame if they have not provided for a good supply of Seakale during the coming winter. This may be grown in one season large enough for forcing. Sufficient sets at the first onset must be obtained, and under the annual system of culture these are forthcoming in quantity every season. Asparagus takes time to lay a foundation so as to become suitable for forcing. Good roots may be provided for this purpose in two or three years under a generous system of culture. Independently of any of the above mentioned vegetables, it is the hardier green kinds that I

wish to draw attention to, and from which under a generous system of culture good results should be obtained. The plants must be encouraged to grow as sturdy as possible, and where thin sowing of the seeds has been practised good plants should be forthcoming. The season so far has been very backward, and this will prevent the plants becoming too large. Where the plants are raised and planted out early the growth made is very luxuriant, this militating against their standing severe weather. Planting again on ground too richly manured is very hurtful. A dressing of fresh slaked lime pointed in previous to planting would in many instances be of far greater benefit than any addition of solid manure. This has special reference to those soils which have a superabundance of humus.

Commencing with Kales, the green curled is the first ready for cutting, and an extra breadth of the very hardy Cottager's Kale should certainly be planted. The newer Read's Improved Hearting I can speak well of as being very hardy, the quality also being excellent. This is destined to become largely grown in the future. Asparagus Kale again is very hardy and useful, and those who may not have previously grown it, should certainly give it a trial. This season may certainly be an exception, but I have it still in use, the first week in June, and the quantity of side sprouts which are being continually thrown out is amazing. Coleworts should certainly find a place, as these are appreciated by many. Not being very close headed, they withstand damp remarkably well. Winnigstadt Cabbage is an excellent hardy variety, this withstanding frost wonderfully well. Large breadths of early Savoys are seldom required in private gardens, the heads, especially of the large growing varieties, quickly succumbing to damp and severe frosts. A planting of a late sowing of Tom Thumb would, however, prove very acceptable, as being later in turning in the plants come in at a time when other green vegetables are not so plentiful. Brussels Sprouts having been recently referred to need no recommendation here. According to reports from different parts of the country, the crops of winter Spinach have been very good. Certainly whilst the snow was on the ground pickings were impossible, but as soon as this cleared away and with the return of more genial weather, the plants started into growth with a bound, and in many gardens it has been the principal green vegetable at command during the spring months. As stated by Mr. Wythes recently, a sowing made during the latter part of September can be highly recommended, this affording good pickings at a time when the winter Spinach is past its best and before the early sowings come in. Our late September sowing has been a wonderful success, and seldom have I seen leaves so large or the plants so vigorous. Celery, and also that useful vegetable Celeriac, should be largely grown. Seldom with us has late-sown and planted Celery kept so well. It certainly is a mistake to have Celery, which has to be kept until the spring months, fully grown during the early winter. When fully grown, decay soon sets in, and this evil is often laid to the effects of frost. Celery which is not matured before winter keeps on growing throughout the winter, and when such is the case decay seldom sets in. By being planted almost on the level, damp does not affect it, and if the precaution is taken of well earthing up, there will be no injury from frost. Late-sown Turnips also keep remarkably well; in fact, we have only just finished up the last of Orange Jelly sown the third week in August, and these remained out

the whole of the winter. Certainly the roots were not large, but this was much in favour of their keeping well. Broccoli has been the worst failure throughout the country, and it shows the advisability of not giving up too much space to the so-called winter varieties. Late sown and planted Model and Latest of All have weathered the storm well with us. The well-known sprouting Broccoli, which is considered capable of withstanding a severe amount of frost, almost succumbed this season with us. But, considering its merits during ordinary seasons, this excellent variety is well worthy of attention. Still, it may be many years before there is such a dearth again of winter vegetables, especially of Broccoli. Many have hitherto made the Broccoli crop, as it were, their sheet anchor, but whatever the season, this is not a wise proceeding, and if the precaution is taken of providing a good supply of the hardier green vegetables, the winter supply of these will be much more satisfactory. It must not be inferred that I am against the Broccoli being planted, but the so-called winter varieties should be a secondary consideration, and too much space should not be given up to those vegetables of doubtful hardiness. The list of varieties of vegetables that may be grown for the winter and spring is a tolerably long one, and however well adapted are the various root crops, the palate soon tires unless varied with green vegetables, including those which may be forced for top growth, such as Seakale and Asparagus. I had almost omitted that excellent winter vegetable Chou de Burghley. The mistake generally made with this useful Brassica is in sowing too early, consequently the heads grow too large, and are not in condition to withstand severe frosts.

A. Y. A.

SEAKALE.

FROM various inquiries received in other directions as to methods of Seakale culture, I am not at all surprised to learn that the comparatively general destruction of the winter greens by the severe frosts has forced this fine old and too much neglected vegetable to the front. The severe winter has so little affected it, that no one now doubts its hardiness, and those who have grown even but a few roots as it were tentatively, have found that practically a maximum of good blanched produce of the tenderest and most delicious kind may be obtained at moderate trouble and cost. There is, of course, no doubt but that Seakale is largely grown in some favoured districts as a market commodity. It is also almost universally grown in private gardens, but seldom in too great abundance. There are few private gardeners who this year probably have found that they have had too much Seakale, and doubtless will take care to provide more largely for next season. It is rather in small private gardens and in those of cottagers we find Seakale to be so severely tabooed. This arises more perhaps from ignorance as to method of culture than from any other cause, as there can be no doubt but that from its particular nature as much really profitable vegetable food can be obtained from a patch of well-grown Seakale as from any other kind. Apart from the fact that Seakale, grown in rows of a proper width and having the soil between them deeply pulverised, can readily and easily be earthed up, and thus, as it were, naturally blanched. It is very easy to find simple appliances for blanching roots in cellars, sheds, or other places, which enable growth to be made somewhat more certain than can be the case outdoors. I once saw Seakale roots planted in a deep stout box in soil and stood in a dark shed. A couple of sticks laid along the top of the box held up a sack and over this was thrown some straw rubbish. One good soaking of water when the roots were planted in the box served to suffice for the time required, and certainly some capital blanched Kale heads resulted. The grower

was abundantly satisfied. This trifling fact shows how easy it is for amateur gardeners and cottage gardeners to blanch crowns of Seakale with little trouble. Those who have provided themselves with a good breadth of Seakale roots will find little difficulty in providing shifts or methods for blanching, so as to secure a fair succession through the winter, and it is also equally certain that a profitable sale will not be difficult to find. What seems, however, to be of most consequence in relation to Seakale culture is that many market growers who have hitherto limited their labours, so far to the production of ordinary or common field crops are now asking how Seakale may be grown, and what is the probable amount of labour involved in the growth. These may well be invited, first to select the best soil they have at disposal, and either have some of it, if but an acre or two, either deeply ploughed and subsoiled, or bastard trenched during the winter. The ground should also be heavily manured. It is one of the great defects of ordinary field vegetable culture that the soil is not sufficiently deeply worked. Market growers of the rougher type would hardly realise the deep trenching which is given to really good cultured garden soil. Did those who wish to embark in Seakale culture but have a few acres of their best soil deeply trenched for the purpose annually, they would find the cost well repaid by the crop produced, and the immense benefit which would be conferred on succession crops, as it would be unwise to crop the same ground with Seakale in successive years. What Peas, Cauliflowers, Onions, or runner Beans would come after a crop of Seakale had been taken off. It is not even now too late to sow seed, although it certainly would have been better were the seedling plants now well through the soil. It is best, on the whole, for the beginner to start with seed, as the following year he can then command a good stock of root cuttings, and once a stock is obtained it is easily retained. It is perhaps too much to expect that as a rule plants from seed will give the first year good forcing crowns; only in deeply trenched and manured soil can such success be looked for. Root cuttings, if good and planted early, will give in suitable soil plenty of fine forcing roots in one season, and thus it happens that cuttings form the best material to work stock from. Root cuttings by no means signify a waste of good roots. Those suitable for forcing always, when carefully lifted, give plenty of side roots, usually of the size of a man's finger, and these may be cut close off from the main or tap root and into lengths of about 4 inches. It is a good plan to cut the small end a little tapering, whilst the large and upper end when planted should be cut flat across. It is thus easy for the inexperienced labourer to see which is the proper way to place the cutting in the soil. Cuttings need rather more room than do seedlings, and for facility of using the horse hoe before the leafage has become gross, the rows may well be 2 feet apart. As the leafage is very strong and spreading, it is found that with the plants in the rows at 12 inches apart the width is not at all excessive. New crowns are formed on the cuttings (which should be buried an inch or two below the surface of the soil) slowly, but the after growth is strong and late, the leaves usually keeping green up to the end of November. So soon as the foliage decays and falls the crowns may be said to be ripened or ready for lifting. Where it is proposed to do so in succession through the winter, it is well to be prepared for hard frosts by having a breadth of the roots covered with long manure to keep the soil from freezing. A. D.

SHORT NOTES.—KITCHEN.

Ellam's spring Cabbage.—I must again say a good word in favour of the above, for in this exceptionally late season I am now cutting quantities of it, not large, but with solid hearts and no waste, and of such superior flavour that I consider it so far the A 1 of early Cabbages.—J. R.

Early Cabbages.—These are now turning in quickly, the late rains having improved them considerably. Unless, however, there are relays of young plants coming on, the old stumps should be allowed to remain, these furnishing a succession of sprouts or small heads later on in the season. If the soil is of a poor

or gravelly description, better after results will be obtained by either applying a mulching of rotten manure or even by giving a good soaking of liquid manure or sewage.

Tomatoes in Teneriffe.—In mentioning Teneriffe, it may be of interest to some of your readers to hear that Tomato cultivation there has attained remarkable proportions; in fact, according to my informant, the whole island seems to have been turned into a Tomato plantation. A single individual in Santa Cruz received on one day no less than 30,000 boxes of this fruit for packing and shipment. My friend also informs me that an English seed company is trying the experiment of growing prize roots for the English market. "It is astonishing," he adds, "what can be done in horticulture in the winter months."—E. M. W.

SCARCITY OF VEGETABLES.

IT is worthy of note that fresh green vegetables are scarcer and dearer in small towns and villages now than they were six weeks or more ago. Then there was a moderately good supply of Turnip-tops and other greens, but all that are now available are a few very poor Cabbages and a short supply of imported Cauliflowers. Spinach is abundant enough, but this does not find favour with the working classes, and greengrocers sell but little of it. What new Potatoes are sold at a comparatively cheap rate, or say at 2½d. per lb., are wretchedly bad and evidently very inferior imported samples. Those who are willing to pay 5d. per lb. for house-grown Potatoes from Guernsey cannot find much fault with the quality; but this is a somewhat prohibitive price for our provincial townspeople to pay. Luckily there appears to be a good supply of old Potatoes, Magnum Bonum keeping remarkably well. Of late years country towns have been very well supplied with Asparagus, the price for it being by no means high; but what last year was selling at the rate of 4d. per bundle this season fetched 1s. and even more, while quite recently none at all could be had owing to the effects of the May frosts. At the present time (June 3) it is very plentiful again, but there is little likelihood of low prices prevailing. Even the salad sold has been wretchedly poor, most of it being imported; but now the windows are well furnished with locally grown Lettuces, Radishes, Cucumbers, and Tomatoes, accompanied by imported Onions.

Owners of private gardens have fared fairly well this spring, but there has been no great abundance of anything other than Spinach. Asparagus started well, and there will again be a good supply of strong succulent shoots. Seakale never proved more serviceable than it has done this spring and quite up to the present time. Too much importance is attached to the necessity for blanching Seakale, but as far as the late supplies are concerned, it is better not to blanch it all. A few hours' exposure serves to change blanched tops to a greenish white colour, and it is really more succulent and quite as mildly flavoured when cut in a green state, say when about 6 inches long. If it can be had with a flower-head so much the better, and so much is it liked on the dining-table, that we are growing an extra number of roots to furnish tops next May. In any case, it is better to grow more of this hardy vegetable rather than to depend upon Broccoli and Cabbage for cutting from, late in the spring. Asparagus Kale, again, is a very reliable late green vegetable. Our breadths stood the severe winter better than at first sight appeared, and we gather tender, succulent, and mildly-flavoured greens daily. If kept closely gathered, flowering being thereby prevented, the supply of greens will frequently last till the middle of June. Cabbages have behaved strangely, some varieties standing well through the winter only to run to seed this spring, while others have been badly thinned out by the frosts. We are fortunate in having a fairly good supply of Ellam's Early Cabbage, or enough to keep us going till the spring-raised plants heart in. Spring-raised Lettuces did remarkably well, and were not in the least injured by the May frosts. The Cabbage varieties, notably Early Paris Market, Golden Queen, and Perfect Gem, are particularly good, the two former forcing well and hearting in well in advance of Cos varieties simi-

larly raised and treated. In all probability a considerable number of gardeners have forced Cauliflowers for the first time this season, and if they have not tried to bring them along too fast will have found the small forcing variety introduced of late years and distributed by most seedsmen of the greatest value for the purpose recommended. The hearts I am cutting from rough pits will be more appreciated than any that will be used during the rest of the season, and have already well repaid for the little trouble taken in their production. As far as I am concerned, the scarcity is now past, thanks to our conveniences for forwarding Peas, Beans, Potatoes, Carrots, Turnips, and such like.

W. IGGULDEN.

CROWDED VEGETABLES.

UNDULY crowding the vegetable crops is of very frequent occurrence. In very many instances nothing is gained by growing kitchen garden crops too closely together, but on the contrary the results are more often than not most unsatisfactory. Not unfrequently the vegetable quarters are much screened by a variety of shrubs and trees, fruit trees and bushes also being scattered all over the garden, these conditions having a weakening effect upon the vegetables which thick planting or sowing further intensifies. Thus treated they are neither so productive nor nearly so hardy as other plants of the same species or varieties more intelligently treated. These facts should not be lost sight of at the present time.

Commencing with Potatoes, it will be found that by far the heaviest crops are obtained by planting moderately strong tubers from 10 inches to 12 inches apart, in rows 2 feet to 3 feet apart, the more vigorous growers naturally receiving the greater distance. It is somewhat late to advise upon planting, but there is nothing to prevent the hoe being put through every other set in a row, and the least that can be done is to thin out the shoots where they are at all thick, one or two strong growths producing more serviceable crops of tubers than three times their number will do. To make matters worse it is often thought the right thing to plant Brussels Sprouts, Broccoli, and Cauliflowers between the somewhat closely arranged rows of Potatoes, one crop simply spoiling the other. Broccoli that is to stand hard weather ought never to be planted on loose ground or among Potatoes. Broccoli ought to have fairly rich, very firm open ground, and if arranged 30 inches apart in rows 3 feet asunder the plants will grow sturdily and stand through an ordinary winter. Brussels Sprouts put out early on rich ground may well be disposed nearly or quite as far apart each way. Crowded, they grow very spindly and produce poor thin crops. Given an early start and good room, they will make fine stout stems, strong foliage, and yield a heavy crop of close Sprouts. On poor light ground the rows may be 30 inches apart and the plants 20 inches apart in the rows. The smaller or earlier Cauliflowers may be grown rather more thickly. Curiously enough, Savoys very frequently get more room than they need. Very large heads of these are not the best, and if all but the Drumhead and Tom Thumb varieties are 15 inches apart in rows 18 inches apart, that will be ample space. The Drumheads may be 18 inches apart each way and the little early varieties 12 inches apart in rows 15 inches apart.

It is not the winter vegetables only that require plenty of room, but it is equally unwise to crowd Beans of all kinds, Peas, Asparagus, Artichokes, Vegetable Marrows, salading and root crops generally. If either the rows or plants in the rows of runner Beans are crowded the crops are certain to be light, and in a dry summer of short duration. Single rows ought to be 6 feet and double rows 8 feet apart, the plants in either case being thinned to 12 inches apart, one going to each stake. To convince anyone of the wisdom of giving runner Beans good room, he has only to try what can be done with a few isolated clumps. If dwarf or kidney Beans are crowded they quickly smother each other. When raised very early they do not

grow to their full size, but the successional and later rows should be 2 feet apart, and the plants singled out to 12 inches asunder, an additional width of 6 inches between the rows being given to Canadian Wonder. Thus treated and lightly staked up the plants grow and branch strongly, heavy crops of fine straight pods resulting. Advice has frequently been given in these pages concerning the folly of crowding Peas, and I need not enlarge on this beyond remarking that well isolated rows, the plants if need be being freely thinned out so as to admit of their branching strongly, are invariably the most productive. Crowded Asparagus cannot be made to produce other than moderately large shoots, and grown on raised beds the plants may well be put out 18 inches apart each way. When planted nearly double that distance apart each way on good open or level ground extra strong clumps are soon developed, these yielding surprising quantities of extra strong succulent shoots for cutting. Globe Artichokes grown thickly quickly impoverish each other, and produce a short crop of small heads with thin scales. The clumps ought to be fully 3 feet apart each way, some growers allowing even more space, and the crowns being early thinned out to about three in number, a long succession of large succulent heads is produced. Jerusalem Artichokes are even worse used, and yet this is a crop that well repays for better treatment than it usually receives. The rows (in many instances there are no rows, but a perfect thicket of plants) ought to be not less than 3 feet apart, a distance of 12 inches dividing them in the rows. If the plan, if such it can be termed, of allowing them to plant themselves is adopted, then thinning out should be resorted to, wide spaces being cut between them with a hoe, this letting in a little daylight and air. If Vegetable Marrows must be grown on large heaps of decaying matter, be content with two or three plants instead of six or more, which only over-run each other and check productiveness. Let them have plenty of rambling space and they will bear well in due course, though plants in an over rich root-run rarely produce such heavy crops as those grown well in the open ground with only a foot or less of manure under them. Mustard and Cress can and ought to be grown thickly, but no other salading will attain anything approaching perfection if crowded. Arrange the rows of Cos Lettuces 12 inches apart, and thin or plant to a distance of 10 inches asunder, the Cabbage varieties succeeding well with 2 inches less each way. Plants of Batavian Endive may well be put out 12 inches apart each way, a rather less distance apart in the rows sufficing for the rest. It is not often Celery is grown too closely together, but if single rows are put out in trenches the plants will be less trouble to blanch properly than when two or more lines are planted. Disposed 8 inches apart the plants will grow quite large enough for ordinary purposes, and not many more can be grown in double rows, as the plants must be put out further apart.

Too much room allowed to Beet, Carrots, Onions, Turnips and Parsnips may lead to their becoming coarse, but, on the other hand, if unduly crowded they may altogether fail to bulb. Thin the Beet to about 8 inches apart in the rows, the larger Carrots to the same distance, and the smaller or stump-rooted section to about 4 inches apart, much of the thinning in this case being done piecemeal or as the young roots can be used. If large Onions are required, and supposing the rows are nearly or quite 12 inches apart, single out the plants to 6 inches apart, but for ordinary purposes they may be left 3 inches apart so as to press against each other in the rows. Turnips bulb quickly and well if the rows are 15 inches apart, and the plants thinned out from 6 inches to 8 inches apart, according to the vigour of the variety. If Parsnips are in rows 15 inches apart, they may be thinned out to 9 inches apart, allowing more space being the cause of the roots becoming coarse and keeping badly.

PRACTICAL.

Early Peas.—Early Peas are naturally very late this season, the prolonged cold having kept them back considerably, but as regards healthiness

they are all that can be desired, the past sharp spell of wintry weather not having hurt them in the least. Any, however, of the taller growing varieties should have the points pinched out as soon as showing for flower, or even where the pods are formed, this assisting considerably in the quick filling up of the pods. Where the rows are on raised south borders the produce would be greatly benefited by a soaking of liquid manure, especially if the weather should prove dry.

THE WEEK'S WORK.

FRUIT HOUSES.

RIPE AND RIPENING PEACHES.—Peaches and Nectarines will soon be plentiful, and promise to be good both as regards size and colour. Those fast ripening ought to have more air both by night and day than formerly and less atmospheric moisture, overhead syringing being discontinued, but the fire heat should still be turned on. Keep the leaves well tucked back from the fruit, and in some instances the removal of a few overhanging leaves is advisable, but sudden exposure to a strong sunshine is somewhat risky, this being liable to scald the fruit. The safer plan is to expose the fruit much earlier or before the final swelling off, the best coloured samples usually being those that are never shaded. Fish nets are frequently suspended under the trees when the fruit is ripening to catch any that fall, but there ought to be no necessity for these, the right plan being to gather the fruit before they have reached the dropping stage. Left on the trees till they are dead ripe the quality is impaired, and the fruit keeps and travels badly. The trees should be gone over every morning, if not oftener, and all samples that are somewhat soft at the base when carefully pressed with the thumb are fit for gathering. This is the only part of a fruit that should be pressed or squeezed however lightly, or bruises and premature decay will be the consequence. Do not, therefore, attempt to drag off the fruit, but take a pad of cotton wool in one hand for laying hold of the fruit, and with a strong pair of Grape scissors carefully cut through the footstalk. Fruit thus gathered will keep for several days, improving rather than otherwise in quality, and will travel well. Any that drop off prematurely are sour, being fit only for pies, and to this use they ought to be put.

MELONS.—Sudden changes from bright weather to a dull showery time are very trying to Melons, and are very liable to cause them to canker badly. It is in dull weather also when Melons are most given to cracking. Both evils ought to be anticipated as much as possible. In muggy, sunless weather evaporation of moisture is naturally arrested, and too much of this in the stems may cause either canker or fruit-splitting. To counteract such ill effects turn on rather more fire heat, keep the atmosphere as well as the soil drier, and open both front and top ventilators a little way early in the morning. Above all things keep the soil about the stems perfectly dry, this being one of the best preventives of canker. Frequently examine the stems and also the haulm, and on the least signs of canker or decay, carefully scrape the affected parts and dry the wounds with newly slaked lime, cement being the next best thing for the purpose. Sand and flowers of sulphur are ineffective; in fact, a mound of the latter about the stems is liable to do far more harm than good. Thin-skinned Melons, including Victory of Bath, Eastnor Castle, Longleaf Perfection, and Hybrid Cashmere, are the most addicted to cracking, and if the adoption of the measures already recommended fails to prevent it, cut them soon after colouring commences and ripen them on a dry shelf in the same house they were grown in. Ripe Melons keep best in a cool dry room.

MELONS AND CUCUMBERS IN PITS.—Capital crops of both may frequently be had without the aid of much bottom-heat or fire-heat, but the earlier in June the start is made the greater the likelihood of success. A gentle bottom-heat given off

either by a partially exhausted hotbed or else by a slight bed made with a mixture of old and a little nearly fresh manure and leaves will give the plants a strong start. Melons thrive best in a rather strong loam, but Cucumbers require a lighter and more fibrous compost. Form a good-sized mound in the centre of each light and well up to the glass, keep the pits or frames quite close till the soil is well warmed through, and then put out one or two healthy clean young plants in each. Plant the Melons very firmly, well ramming the soil, but the Cucumbers should not be more than lightly fixed. Give air somewhat sparingly at first, though enough must be admitted to prevent roasting, closing early in the afternoon, and well syringing the beds at the same time. Lightly shade the Melons only and top the plants.

PRACTICAL.

THE KITCHEN GARDEN.

ENDIVE.—The present time is early enough for the first sowing in the generality of gardens, another sowing being made a month hence to ensure a lengthened supply. To produce good Endive it is very essential that the soil, both for the reception of the seeds and the future growth of the plants, be in a fertile condition and free from stagnant moisture. On our heavy clay soil it is necessary to plant on raised borders well exposed to the sun, for if this precaution were not taken the plants would rot off wholesale upon the approach of autumn. The seeds should be sown in the open in rows 15 inches apart, as the more exposed to the sun and air the better the condition of the plants for future transplanting. The round-leaved Batavian is the best variety for general use, this suffering less from damp than the curled forms. Sowing broadcast in small beds is not a good plan, as the small plants are greatly weakened by becoming overcrowded. As the plants become large enough they may be planted on south borders recently cleared of early Potatoes. The site having previously been manured for the Potatoes should be rich enough without any additional support.

BROAD BEANS.—The earliest crops will soon be advancing to maturity, and as soon as the haulm shows well for bloom each stem must be topped, this both assisting the filling of the pods and also preventing black-fly.

THINNING BEET.—The recent beneficial rains have greatly assisted the free germination of Beet seed, and the young plants are now growing away freely. Early thinning out must not be neglected, for if the seedlings are allowed to become crowded the roots are liable to be deformed. The plants must be carefully thinned out by the hand. Thin out by degrees, eventually leaving each root from 6 inches to 9 inches apart. Careful hoeing will now assist a free growth and also keep down weeds. However undesirable is the transplanting of Beet, as the least injury to the tap root will result in a deformed growth, yet where the rows are very irregular the seedlings may be transplanted with safety during showery weather.

PARSLEY.—The early sowings of Parsley have come up very regularly, and the young plants are now growing away freely. Being such an important crop, every means should be taken to guard against a failure in the supply in the future. An overcrowded growth is very injurious. Failures during the winter are more general where only one early sowing is practised and the plants allowed to grow into a tangled mass. Parsley does not take up a deal of space, so even in the smallest gardens advantage should be taken of any odd place where it is likely to succeed to either make additional sowings or transplant the thinnings where this course is decided upon. It is either from Parsley which has been transplanted or from seed sown three weeks or a month hence that we must look for our winter supplies. The young seedlings should be thinned out to about 2 inches apart. This will enable those remaining to make sturdy plants capable of withstanding the check of transplanting. Those that are to be permanent should be left at 6 inches apart. Advantage should

also be taken to plant some in positions where they may be easily protected during severe weather.

A. Y.

ORCHIDS.

A SPELL of hot sunshine by day and warm nights have thinned out the flowers of *Cattleya Mendeli*, *C. Mossiæ*, &c., while the bulk of the blooms of *Lælia purpurata* has also passed away. Those, however, who possess a full collection of Orchids will have plenty of beautiful species and varieties to succeed them. Amongst *Cattleyas* that may be obtained at a cheap rate to continue the flowering period from the middle of June to August the most useful is *C. Gaskelliana*, a handsome variety of the *C. labiata* group. *C. gigas* is a gorgeous species, which flowers with it, but it does not bloom quite so freely unless care is taken to place the plants when making their growth in a position near the roof-glass. *C. eldorado* continues the succession into September and October. In our treatment of this distinct and charming variety of *C. labiata* we must consider its geographical distribution; it is found near the junction of the Rio Negro River with that of the Amazon, in South America, a very hot district indeed, where during the dry season the thermometer registers 95° in the shade every afternoon and does not fall below 75° during the night. This is a guide to us as to the temperature required for this *Cattleya*. Many cultivators read of the high temperatures required for the healthy development of some Orchids, and ask the question whether they cannot obtain plants that may be grown in the greenhouse or in cold frames. Certainly there are, and those who will give their attention to the culture of these Orchids and carefully attend to their cultural requirements will not be disappointed with the result. Many may be grown without artificial heat; others are better kept in a greenhouse from which frost is excluded. One of the most useful of these hardy Orchids is *Orchis foliosa*. It was a favourite Orchid for exhibition with the late Mr. B. S. Williams, and I have several times exhibited it in London in first prize collections. When grown with twenty to thirty spikes in a large pot or pan it is very effective, and the spikes with care last a month in good condition. This is a native of Madeira, but we have now in flower a native species almost as beautiful—*Orchis maculata superba*. Mr. Parker, of Tooting, used to exhibit this in capital condition as a pot plant about fifteen years ago; this, of course, succeeds capitally in frames, but it may also be established in the garden in damp loam. When grown in pots both the above succeed well in loam and peat. Another beautiful Orchid which has just passed out of bloom with us is *Bletia hyacinthina*; it was brought into prominence a few years ago, and a coloured plate of it appeared in *THE GARDEN* of November 8, 1879. It is rather curious that the same plant was introduced so long ago as 1803, and grown in gardens at that time as a stove plant. It is figured in the *Botanical Magazine*, plate 1492, as *Cymbidium hyacinthinum*. The plant was not a strong one, two flowers only being open on the spike. This might have been expected, as it is almost impossible to keep the leaves free from insect pests when the plants are grown in heat. In a greenhouse freely ventilated the plants produce robust spikes and healthy green leaves. I grow it in peat with a little yellow loam. *Disa grandiflora* is the queen of greenhouse Orchids. I cannot say I have been successful with it myself, but I have seen it in many gardens growing and flowering freely as a greenhouse plant. The late Mr. C. Leach, of Clapham Park, grew this plant well in cold pits, and it flowered freely every year. I saw plants of it recently which had been frozen during the past winter, and they were growing freely and promising to flower well. The plants may be syringed twice daily at the present time to keep the leaves free from red spider and green fly. Dr. Lindley figured it in the *Botanical Register* in 1825 from a plant flowered in the garden of a Mr. Griffin at South Lambeth, by whom it was received from the Cape of Good Hope, and it is stated that this was probably the first plant of it flowered in

Europe. There are many more species of *Disas* which should be grown if they can be obtained.

Amongst the *Cypripediums* there are many distinct and lovely hardy species, easily grown in pots for the greenhouse. Probably the best is *C. spectabile*, an old inhabitant of our gardens, but when well grown its beautiful white and rose-tinted flowers are most lovely. *C. pubescens* with yellow and purplish flowers is easily grown, and is of graceful habit. *C. Irapeanum* seems to baffle the skill of cultivators to grow it into an established flowering plant, but some few people have flowered it, and shown us what a grand plant it must be in its native bogs; its rich yellow flowers are each 4 inches or 5 inches across. *C. macranthum*, *C. Calceolus*, *C. candidum*, and a few others are worth all the care bestowed upon them. *Satyrion aureum* I had sent from South Africa twenty years ago, and cultivated it for years as a greenhouse plant; it does not increase very freely, but continues to throw up flowering spikes annually. All the above plants when they have flowered and made their growths gradually pass into the resting period, the leaves decay, and the plants die down entirely, leaving only the tuberous roots in a dormant state, as is supposed, but they are never entirely dormant, for as soon as the old flower-stems and leaves are removed, the bulbs or tubers begin to grow again, so that the best time to repot them is very soon after the leaves and flower-stems have passed away. The *Cypripediums* would be the most likely plants to suffer injury from injudicious treatment or from over-dryness at the roots, because the roots are strictly fibrous, and have no tubers in which to store up the material to form leaf and flower for next season's growth. The underground crowns are formed even before the leaves and stems die off, and this happens in July and August. September and October are good months in which to repot them again, and I fancy it is best to do this annually. Very little artificial heat will be needed in any of the houses now that the nights are warm, but the minimum should be cool house about 50°, *Cattleya* house 60°, and the warmest house about 70°.

J. DOUGLAS.

FLOWER GARDEN NOTES.

WALL PLANTS.—Flowering with great profusion many of the tenants of our old walls have together with Daffodils helped to make the garden gay and bright. The *Cydonias* were quite at their best this year, alba, rosea, and the old japonica flowering in succession in the order named. *Spiræa prunifolia* fl.-pl. followed close on their heels. This is a lovely wall plant, and I find the long sprays of flower very useful in a cut state. The *Forsythias* are very little behind this *Spiræa*, and the *Judas* tree is bright with flower. The state of many wall plants bears witness to the severity of the winter. *Lonicera flexuosa* is all but dead, and the *Escallonias*, *Buckthorns* and *Ceanothuses* present a sorry appearance. They are, however, now breaking away and will in time again furnish their respective spaces on the wall. I often wonder that a choice and varied collection of wall or climbing plants is not more frequently seen in gardens. The beauty of many of these plants is undeniable, whilst a judicious selection would give an attraction either of flower or foliage for every month of the year. Roses on walls have come fairly well through the winter with the exception of *Maréchal Niel*; this is cut up very much.

THE HERBACEOUS BORDER.—Borders filled with hardy herbaceous perennials form such a prominent feature in the majority of gardens, that any notes on the flower garden seem incomplete without reference to some of the many good things to be found in them. I asked a friend the other day (a keen hardy plantsman) to name the three best things for the herbaceous border to combine natural beauty as border plants and service in providing cut flowers in succession commencing with early spring, and he promptly responded, Daffodils, *Spiræas*, and *Starworts*. I do not think he was far wrong, for beautiful as are the members of other families, *Irises* and *Funkias*, for example, there is not such a wealth of flower to be obtained from clumps of a given size

as from the three first named. It may be urged that Daffodils are more adapted for natural planting, but whilst planting these I would say that unless for this purpose the soil is naturally high class, much finer blooms are to be obtained from a well done herbaceous border. It is not necessary to grow a great number of varieties; the Tenby, princeps, incomparabilis Figaro, and the two doubles, the Trumpet and Butter and Eggs, are sure to give satisfaction. A collection of the best Spiræas is indispensable to every border, and if these are planted in variety so as to harmonise with, for instance, the scarlet and pink shades of the double Pyrethrums, the effect will be very pleasing. I find digitata and astilboides two of the earliest we have. Palmata alba is a lovely thing, and should be in all collections with filipendula and Ulmaria fl.-pl. A striking plant at the present time is Ulmaria aurea picta; the golden markings of the foliage are deep and rich in colour. Aruncus is a taller variety and should have a place towards the back of the border. I would recommend any reader fond of a light and pleasing contrast to try a block of this as a background to a good clump of Statice latifolia. An exhaustive article on the many Starworts and their respective merits appeared recently in THE GARDEN, and it is hardly necessary to refer to them except to remind those who intend extending the cultivation of herbaceous things that a collection of these perennial Asters will in themselves give a succession of flower from July until November; indeed a light covering of tiffany enabled us to continue ericoides and grandiflorus last year until December was well advanced. I may also remind intending planters that if these are planted on a comparatively narrow border, anything, for instance, under 10 feet in width, particular attention should be paid to the different heights of the several varieties, as they range from the 12 inches of alpinus and fragilis carneus to the 5 feet of Novæ-Angliæ and its varieties.

BORDER CARNATIONS.—The present season has again demonstrated the advantage of making an annual sowing of these, selecting the best each year, and weeding out all but those of strong constitution. This last characteristic should be specially considered before new varieties are sent out, as I find many named sorts are by no means so robust as one would wish them to be, and there are few that have come through the winter so successfully as a batch of sturdy layers from selected seedlings. I notice as an instance of the cold, cheerless weather that many inmates of the flower garden in the shape of exotic deciduous shrubs are very late, and at the date of writing (May 29) two at least, Asimina triloba and Chionanthus virginica, are only just showing the green bud. This is worthy of note in connection with planting operations, for however beautiful a shrub may be, it is hardly advisable to plant it largely if one is only to enjoy its beauty for about three months in the year.

Claremont.

E. BURRELL.

PLANT HOUSES.

BOUVARDIAS.—I have always obtained the best results with these useful winter-flowering subjects when planted out during the summer season. Our stock consists chiefly of old plants which have done us good service for several years in succession. By following the advice previously given with respect to such plants, there is no difficulty in keeping them compact and bushy as well as healthy. Those who possess such a stock will do well to pinch them, if not recently done; at the same time they should be gradually hardened off so as not to feel the removal out of doors in a few days' time. If all goes well I hope our plants will be planted out by the time these lines are in print, or at most a few days afterwards. The position accorded to them is not so open and free from shade as I would desire, yet they do well on the whole. At one time I planted out in soil which had been deeply dug, but I find that the growth thereafter made was rather too free and sappy. Now I plant in shallow soil of good quality, hence the roots are closer at home, and the plants can be lifted all the better in the autumn. The place I select is some old frames

which have been emptied of bedding plants. The entire depth of soil in all does not exceed 9 inches, underneath which is a solid bed of gravel. Thus grown the plants require more watering, but this I prefer to the opposite extreme. The lights of these frames are stacked away for the summer. In planting out, the drainage should all be removed and the outer portions of the ball broken up, so that roots issue forth and retain a better hold of the soil for repotting at the proper time. After planting a good watering should be given, and use made of the syringe two or three times daily in bright warm weather. Thus treated fresh root action will soon recommence, and the plants start into a sturdy growth. In the case of all old plants I consider this system far preferable to retaining them in pots; there is no comparison in the growth made of one as against the other. Young stock struck this spring can be more successfully grown in pots for this year and planted out another, but I would not hesitate to plant these out too if I greatly wanted plants of extra size; the chance, however, is that these young plants would grow away rather too freely, hence, having a good stock of old plants, I prefer to keep this year's cuttings in pots the first season. If any omission is made in the case of old plants it might be allowed in the case of B. Humboldtii corymbiflora and its varieties for early flowering and for conservatory use before the others are in any way fit. This variety when planted out is disposed to grow too strongly even when precautions are taken. When in pots this can be controlled, but at the same time give the plants all the light possible and free ventilation whilst under glass.

SOLANUMS.—Old plants of these of the berry-bearing section, which have been cut back and are now breaking freely, will in all probability be already out of doors, being hardier than many things. If these plants are free from green-fly, they should be planted out as soon as possible; if otherwise, either a fumigation or a cleansing with an insecticide should be previously given. These Solanums I prefer to plant out in deeper soil than the Bouvardias, so that more assistance can be afforded the plants when swelling off a heavy crop of berries. My plan is to shake the plants out of the soil entirely in which they have been growing, and if needful prune the roots also. Thus treated I can always secure plenty of roots close at home; even if a few are lost at the time of lifting which have got away to a greater distance, it does not so much matter. The plants will receive a slight check under this plan, but in a few weeks they will pull themselves round, make a medium growth, and then show for flower. In choosing a place for Solanums, avoid as much as possible the shade of trees; all the light and air possible are needful for their proper culture and freedom from insects. If the ground is not level, the plants should have a shallow basin hollowed out around the stems at the time of planting, so that they receive their due proportion of water; otherwise, if left and allowed to become dry, they will most likely be attacked with red spider, losing their foliage to some extent. Syringing freely will greatly assist them and make amends for the temporary check caused by losing their fibrous roots at the time of planting out in the ground. Cuttings or seedling plants of Solanums of this season had better be kept growing in pots for the same reasons as given in the case of Bouvardias.

CALLAS (Richardia æthiopica).—These may be successfully grown both in pots the year round or planted out, but I think the balance is in favour of planting out. Less labour is caused during the summer months in regard to watering, and the position given to the plants during that time will in most instances be a better one when planted out than if left in pots. The best place for these plants is one where they receive a little shade for a part of the day; ours get this from about 3 o'clock onwards; a syringing then will greatly refreshen them. A shallow trench is preferable, or at least the ground should be quite level; the former is the better plan. A trench not so deep as usually provided for Celery will suit them well; in

this some good soil or leaf mould should be placed; either is better than manures, which induce too strong a growth. If the plants have not been divided the previous season, it had better now be done, and then after assorting them plant accordingly. In such cases most of the leaves should be cut off; one left to each plant will be quite enough. Plants that were divided last season for increase, now consisting mainly of one strong crown, may be planted out as they are by considerably reducing the ball; or, in the case of a short stock, these can also be divided up for further increase. A fairly good distance between each plant should be allowed, so that room is provided for lifting later on with a good ball of roots.

J. HUDSON.

TREES AND SHRUBS.

DAPHNE CNEORUM VARIETIES.

WITH reference to this universal favourite shrub so justly admired and much sought for, one or two facts may not be out of place with regard to the varieties or supposed varieties. The facts are: Of late we have heard of a D. c. major and a D. c. hybrida. The points of difference from the type have been claimed to be larger parts in all respects and an improvement in flower colour. In my experience of the Daphne, of which I have seen hundreds *in situ*, the plant is not only variable from local conditions, especially in habit and flower colour, but wherever it is found to do well without the care essential in perhaps most gardens, it is vastly improved when divided every two or three years by splitting the stronger base wood, which will carry its complement of both fibre and young underground stems. In course of time plants so treated become as erect and shapely, be that desirable or otherwise, as Leiophyllums. In cases that have come under my notice, the so-called major with its very large leaves and flowers has been worked, and that but recently, on the common Mezereon. After a year or two and when planted deep enough, these worked plants not only get upon their own roots, but there can be observed a corresponding reduction in the size of foliage and flower. I consider this an important fact in relation to the point under notice. What would happen if the point of union of stock and scion were kept above the ground I do not know, but when covered in the ground, roots quickly issue above the union with results such as the above. I think it, therefore, has been proved that the previous form of large foliage, &c., has been caused by the extra vigour of the false stock. I do not in any way wish to imply that the grafting is either desirable or undesirable. Doubtless it is useful under some circumstances, whilst many would not care for specimens so prepared. I may usefully add here, however, that worked plants are not likely to prove annoying, like Roses, by sending up false growth, as the working is done low and the scions are ready to make root and dense growth so soon as they get under ground. The more deeply coloured flowers are always to be seen on plants reared in damp land, and my opinion is that the supposed varieties are merely plants showing the results of special treatment or local conditions.

J. WOOD.

The Almonds (Amygdalus).—These are flowering with great freedom this year, and this is especially the case with A. communis, the fine masses of flower making striking colour effects earlier than almost any other tree. The Bitter Almond, too (A. c. amara), though not so free-flowering as the common kind, makes up for this by the increased size of the flowers, which are white with a bright rose blotch at the base of the petals, and is a better form of tree, the habit being less straggling, though

quite as free in growth. Both the above kinds are setting fruit freely. Another variety of good robust habit with large whitish-rose flowers opening earlier than the others is *A. c. macrocarpa*; this rarely sets fruit in this country except it be in especially favoured places, the early flowers being much more liable to be cut by frost. These three are the best of the large-growing kinds, and are equally worth planting freely. All are good town trees, and appear to benefit by the close proximity of bricks and mortar.—J. C. T.

Elæagnus longipes.—This is one of the deciduous species of *Elæagnus*, and just as the young foliage is on the point of bursting every part of the plant becomes thickly studded with bunches of sweet-scented flowers, in shape somewhat like those of a miniature *Fuchsia*. They are of a greenish white colour, and, in common with the rest of the plant, sprinkled over with small brownish scales. Certainly the blooms are not remarkably showy, but from their number they impart quite a distinct appearance to the specimen, added to which the fruits later on are also attractive. They are oblong in shape, and when ripe of a bright red colour, about the size of small Cherries. These berries are edible, being of a rather acid flavour. The shrub itself is of a good freely branched habit of growth, and will flourish even in sandy soils, while it is perfectly hardy. It is a native of Japan.—T.

Pyrus sinensis.—Though of no value from a fruit-bearing point of view, this Chinese species of *Pyrus* (known as the Sand Pear) forms both a distinct and ornamental specimen, and one that is especially noticeable in the spring just as the young leaves are unfolding. This is owing to both the foliage and shoots being of a bronzy-red colour, which hue they retain for some little time, though when mature the leaves are of a dark glossy green. It forms quite a tree from 15 feet to 20 feet high, with a rather spreading head, amply furnished with leaves, which are large and somewhat heart-shaped. The flowers are white, sometimes slightly tinged with pink, while the fruit is hard and gritty, and of no value. This is also one of the earliest of our hardy trees to put forth its leaves in the spring. While this species is remarkable for the ruddy hue of its foliage, there is another—the Willow-leaved Pear (*Pyrus salicifolia*)—which is of quite a silvery-grey tint; indeed, it is one of the best hardy trees we have of that colour. This tree, which is a native of the Caucasus and Siberia, derives its silvery character from the white woolly hairs with which the leaves are thickly covered.

New double Lilacs.—M. Victor Lemoine is to be commended for embracing every opportunity of exhibiting his new double Lilacs at horticultural exhibitions held in this country. At the Temple show he staged a collection, and though Orchids, Begonias, and other things of superb quality overshadowed less pretentious contributions, yet these Lilacs found many admirers. The new double Lilacs certainly engaged a good deal of attention, and considering the distance the flowers had been sent they were staged in very good condition. The double varieties form massive spikes of blossom, the individual flowers are large, and in the case of Leon Simon, and Michael Buchner in particular, very full, and being double are much more enduring than the single types. The varieties staged on this occasion were Belle de Nancy, pale pinkish lilac; Michael Buchner, pale rosy lilac, extra fine; M. Maxime Cornu, lilac-rose, semi-double; Alphonse Lavallée, blue-lilac, a very pleasing shade of colour; Mme. Lemoine, large, pure white, very fine; and Leon Simon, pink, large double, and a really grand variety. These by no means exhaust the list, for M. Victor Lemoine has raised a large number, and he has also been instrumental in improving the single varieties. All the double forms appear to be vigorous growers and free bloomers, and that they are likely to replace the old single forms there can be no doubt. While on the subject of Lilacs I must call attention to *S. rothomagensis*, a variety of *S. dubia*, or the Siberian Lilac. This has been flowering finely in the Chiswick Gardens of the Royal Hor-

ticultural Society, and like its paler coloured type produces long branching panicles of dark pinkish lilac flowers. This should find a place in shrubberies on account of its freeness of flowering. I take *S. dubia* and its varieties to be the most free-blooming of the genus, and, like the Guelder Rose, they will bear any amount of rough treatment. *S. persica* is frequently confounded with *S. dubia*, and the latter termed the Persian Lilac. There are no more delightful spring-blooming shrubs than the Lilacs, and it is pleasant to find how much they are planted in forecourt gardens, though it is to be hoped the time is not far distant when the fine new double and single varieties will take the place of the common forms of *S. vulgaris* in shrubberies and elsewhere.—R. D.

GARDEN CONIFERS.

How often, particularly in the vicinity of towns, do we find trees growing in places that are the opposite of suitable both as regards their individual characters and the dimensions to which they ultimately attain. The Cedars, the Wellingtonia, the *Araucaria*, and such like giants of the forest are those usually chosen for such generally cramped situations as are to be found in nine out of every ten of the town and suburban gardens, and where as many moderately-sized shrubs would hardly be provided with room for their perfect development. No doubt a great deal of this improper planting arises from ignorance on the part of the owner whose knowledge of coniferous trees is limited perhaps to the words Fir and Pine, and who is also without any knowledge whatever as to the size to which trees attain. It may be well, therefore, to point out that there are scores of highly ornamental coniferous trees suitable for planting where space is confined either in garden or lawn, and that by a careful selection from such, almost any kind of ornamental planting may be taken in hand. This if properly performed will ultimately turn out a success, and greatly minimise the existing evil of indiscriminate and unwise planting of trees, be they coniferous or hard-wooded, in positions that are the opposite of suitable for their requirements.

Amongst the *Retinosporas* will be found quite a number of small and neat-growing Conifers, the typical plant *R. plumosa* being one of the finest, though perhaps not the showiest, for the two variegated varieties are peculiarly effective and pleasing, particularly *R. plumosa aurea*. This pretty Conifer seems pre-eminently adapted for planting where ground space is limited and other larger-growing trees would be out of place. Then it is of the simplest culture, readily propagated, and perfectly hardy. *R. obtusa*, another average-sized species, is valuable for its depth of foliage tint, easy habit of growth, and simple requirements when brought under culture. *R. pisifera* succeeds well in peaty soil, and when seen at its best is certainly a most distinct and handsome small-growing Conifer. Amongst the Junipers might be picked out quite a number of handsome trees of small or medium size, and peculiarly suitable for the small lawn or ordinary garden. I know of no other Conifer that when suitably grown can equal *Juniperus chinensis*, but it must have a cool soil, and will not succeed at all where sand or gravel is present in quantity. Then the *Frankincense Cedar* (*J. thurifera*) is a very ornamental tree of rarely more than 30 feet in height, and one that is readily enough managed in any garden soil of ordinary quality. There are many others that could be named, such as the *Savin* (*J. sabina*) and its *Tamarix-leaved variety* (*J. sabina tamariscifolia*), the *Indian Juniper* (*J. recurva*), the prettiest of its tribe when grown under humid conditions as to soil and atmosphere; *J. excelsa*, and the well-known prickly Cedar (*J. Oxycedrus*).

The *American Arbor-vitæ* (*Thuja occidentalis*) being of slow growth, and rarely more than 20 feet high, as well as of somewhat upright habit, is a suitable Conifer for situations where ground space is confined. *T. Vervaeana* is of neater habit than *T. occidentalis*, with brighter foliage and seldom exceeding 10 feet or 12 feet in height. It is of remarkably neat and pleasing appearance, and in

consequence of the greatest value for the villa garden or lawn. *Thuja borealis* is another excellent small growing and bright-foliaged tree. It may exceed a score of feet in height, but only with us under very exceptional circumstances. *T. dolabrata* is by far the best Conifer for confined grounds, it being of unusually distinct appearance and neat of growth, silvery on the under sides and deeply green above. There is a variegated form, and it, too, for small spaces is a first-class evergreen tree. *T. Standishi* grows to about the same size as the above, but is hardly so ornamental, although of great value for the purpose under consideration. The *White Cedar* (*Cupressus thyoides*) and its well marked varieties are all adapted for garden planting. They are of neat growth, bright of foliage, and succeed well in any rich vegetable or peaty soil. Generally *C. sempervirens* and its variety *fastigiata* can be kept within sufficient bounds, so as to allow of them being used for almost any class of planting even where space is a matter of first consideration. *Cryptomeria elegans* has few equals as a hardy ornamental tree of small or medium growth. The bright foliage tint, augmented as it is by the wintry weather, renders it most conspicuous, while as it is of free growth and less particular about soil than most of its fellows, it can in reality be called the amateur's Conifer. Pruning it bears with impunity, while it is readily propagated. The pendulous variety of the deciduous Cypress (*Taxodium distichum pendulum*) can be recommended as one of the very best deciduous Conifers for planting in small grounds. It rarely exceeds 30 feet in height, while the branch-spread is comparatively speaking narrow in proportion to the height. *Fitzroya patagonica* with its long cord-like spray is peculiarly suitable for planting in a sheltered and confined corner, but as it is somewhat tender, it should not be used in fully exposed situations.

Nearly all the Yews are suitable for planting in small grounds, and should they ever exceed their allotted bounds may be cut back, as they stand pruning well. The yellow-berried Yew (*Taxus baccata fructu-aureo*) deserves special attention, and so, from their peculiarly neat habit and foliage, do *T. adpressa* and the nearly allied *T. brevifolia*. Where *Podocarpus andina* will do, it should by all means be planted, being so distinct and handsome a tree of low growth. Amongst the Spruces few are fitted for planting as garden trees, but several from their low, dwarf growth are fitted for the rock garden, such as *Abies excelsa*, *pygmæa*, *clanbrasiliana*, and *horizontalis*, all Conifers that rarely exceed a yard in height. The *Golden Larch* (*L. Kämpferi*) has been used with advantage for places such as we have in view. It is a pretty tree, with foliage in autumn of a deep golden tint.

These are a few low-growing Conifers suited for planting where ground is of small extent, and mentioned here just to show that there is no need whatever for the two or three forest giants that we so commonly see in such places being constantly planted to the exclusion of all others.

A. D. W.

Broom.—The common Broom is now charming in rough parts of the woods, growing and flowering profusely under the dense shade of huge trees, even close to the trunks, where hardly any other plant would exist. It is also interesting to note how when left to Nature to scatter the seeds and, so to say, arrange her own clumps, what lovely peeps of colour one gets in most unexpected spots, which probably a year or two before were barren wastes. Where the Broom does not abound naturally, it will amply repay for some trouble bestowed to establish it in rough places as undergrowth for timber trees.—J. R.

Rhodora canadensis.—I recently saw this pretty North American shrub recommended as a suitable subject for forcing, and for such a purpose its naturally early-flowering habit stands it in good stead. Besides this, it is a very desirable shrub for the open ground in a fairly sheltered spot, as the blossoms expand so early that where at all exposed they are sometimes injured by the frosts and cold

cutting winds which prevail about that time. It is in general appearance a good deal like some of the hardy Azaleas, and forms a rather upright-growing shrub, with slender branches and a profusion of bright, rosy-purple coloured blooms, which are composed of somewhat narrow petals. This *Rhodora*, which is a native of the swampy districts of Canada, is quite hardy in this country and succeeds under the same conditions as the Azaleas, *Rhododendrons*, and their allies. The flowers are produced before the leaves, and the plant is seen to much better advantage when in a mass or clump than as an isolated specimen.—T.

Wistaria sinensis.—What wall climbers have we at this season that can vie with the above in beauty and sweetness?—fine old plants with gnarled trunks and intertwined branches in most fantastic forms, clothing square yard upon square yard of wall with their graceful hanging racemes, being truly majestic. Let us hope that the present generation will not be content with planting only annual and other quick-growing and fleeting climbers, fine and handsome as they are, and eminently suited for furnishing and adorning quickly many an unsightly object, but by all means let us not neglect to emulate our forefathers in planting also such as the above, that will continue as living monuments of taste, foresight, and example to generations yet to follow.—J. R.

SHORT NOTES.—TREES AND SHRUBS.

New red-leaved Sycamore (*Acer pseudoplatanus* brilliantissima).—I send you leaves of this fine pictorial tree, raised here. At the present time there is nothing in the whole collection of coloured-leaved trees to compare for brilliancy with it. As an isolated specimen or in association with others, it will, I think, be a tree of the future.—T. SMITH, *Newry*.

Thorns.—For an exquisitely beautiful form among the Thorns and a fitting companion to our common, yet lovely May, commend me to the single scarlet, which I think no hardy shrub can surpass in beauty even at this season of the year. Strong plants with immense spreading heads, worked on stems 5 feet or 6 feet from the ground, with sprays of bloom that can be measured even by the yard, are indeed magnificent objects.—J. R.

Rhodotypus kerrioides.—Among the shrubs that flower in May the white Jew's Mallow, or *Rhodotypus*, is prominent and pretty either upon the wall or as a bush. It has the slender habit of the *Kerria* and similar foliage, but the flowers are large and white, like single white Roses. Upon a wall it may be trained to a height of 12 feet or more, but when grown as a bush in the open away from support, it is a dense but graceful habited shrub, about 6 feet in height. It lasts in flower for a considerable time, and is far too uncommon in gardens.—A. H.

MOUNT USHER, CO. WICKLOW.

ON Saturday, May 23, this beautiful little garden, of which you recently published an account (see *THE GARDEN*, May 9, p. 433), was visited by Miss H. M. White and the lady members of the horticultural class of the Alexandra College, Dublin, at the kind invitation of the owners, who did all in their power to ensure the comfort and pleasure of their guests. As usual, the garden was in perfect order and the early summer flowers at their best. I am afraid of trying to express as to what the Co. Wicklow really is to English readers, but it is of itself a wild and luxuriant garden to begin with, as one may see. There is nothing like it in England except in Devon or Cornwall, or in the pet spots of the Lake district. Here by the silvery Vartry River flowers seem peculiarly luxuriant and happy. *Clematis montana* wreathes the walls, the scarlet *Tropæolum* is beginning to flower, and the thousand and one flowers of this "flush o' th' year" to exhibit their "bridal leaves," as Ruskin calls them.

Suffice it to say that a very happy day was spent, and much taught and learned by the students in Flora's train. These "garden days" or excursions are a great success, and have been the cause of much pleasure both to hosts and guests.

At a recent bazaar and flower show held in the interests of the botanical and horticultural scholar-

ships of the Alexandra College, at the instance of the lady principal, the sum of over £500 was obtained, and has been invested for this useful purpose, and such scholarships, so far as gardening is concerned, are likely to be of great encouragement to girls who, as the late Mrs. Ewing says, "are born with a natural love for grubbing up the ground." Straffan, St. Anne's, Clontarf, and Mount Usher have already been visited, and in each case the result has been not only very pleasant, but practical as well. In a country like Ireland, entirely dependent on her land culture, it seems very appropriate that a practical interest in matters of the kind should be fostered and encouraged in the higher colleges and schools. W.

ORCHARD AND FRUIT GARDEN.

VALUE OF AMMONIA.

Of the great value of ammonia, both in the soil and atmosphere, little need be said. It enters largely into the composition of nearly all the best mixtures of manures, of which there are so many to select from now-a-days, and in some form or other provides the nitrogen so necessary to the well-being of plants, fruits, and vegetables. An over-dose, however, whether applied to the roots or liberated in a confined atmosphere, say of a forcing house, is frequently fatal to the roots in the former case and quickly fetches off the leaves and ruins the crops in the latter instance. It is, therefore, a necessary, valuable, and yet a dangerous aid to the fruit grower, to be used and not abused, or otherwise accidents or failures will occur. It is my intention at the outset to more especially direct attention to the risks to be run in using mulching material strong in ammonia in vineries, Peach and other fruit houses, this being a continuation of the paragraph on page 166, for which I was responsible. I there pointed out what would be the effect of freely using covered farmyard manure as a mulch, this usually being very highly charged with ammonia, or what a very little warmth and moisture quickly convert into that volatile gas. Kiln or malt dust is also a dangerous mulching material, and recently I have met with yet another apparently harmless, yet very destructive, substance if used to excess for a similar purpose, this being peat Moss litter after it has been used for bedding down horses. This is now being largely substituted for straw, and there is every probability of the demand for it increasing rather than otherwise, and that for reasons other than economy as compared with straw. On entering a stable where this litter is used with or without a light surfacing of straw, it will be observed that there is neither moisture nor smell. The litter absorbs all the urine and some think the ammonia as well, but this I hold to be a mistake, simply because there is little or no fermentation going on and therefore no ammonia created; that has to come. Directly the litter, now converted into a fairly strong manure, is subjected to warmth and moisture the nitrogen is released and converted into ammonia, and the consequence of the excess of the latter in a confined atmosphere has already been alluded to. The whole of the fruit in a fairly large Peach house situated within three miles of where I am writing was ruined, and very much of the foliage crippled from no other traceable cause than a too free use of peat Moss manure as a mulch before dangerous gases had been got rid of by fermentation. This ought to serve as a warning to others who may contemplate using it. The leaves of a *Maréchal Niel* Rose in the same house were nearly all destroyed, and altogether more mischief was done than one not

familiar with the facts would consider possible. It should be added that the mulch was not applied till the Peaches were as large as Sweet-water Grapes, and since the crop was shed and the ammonia evaporated a healthy wood growth has commenced.

In another instance where this kind of manure was used as a top-dressing for early Vines—this time mixed with an equal quantity of fresh loam—the effect was highly satisfactory, and also somewhat surprising. The soil evidently absorbed much of the ammonia escaping from the manure, the Vines breaking strongly and growing away very freely, or better than usual. We are told by experts that ammonia is most needed in the soil, or where the roots can have access to it, before or till the foliage is fully formed, as subsequently they are in a position to absorb much of what they require of it from the atmosphere and by means of their leaves. Ammonia also both quickens germination of seeds and hastens root action, always provided there is not too much of it, but although well aware of these facts I was scarcely prepared to see the extraordinary effect it has upon the stems of old Vines. If the latter are surrounded and the borders liberally top-dressed with a mixture of peat Moss manure and loam, fibres will be attracted to the surface from older roots not far below the surface, while from the stems just above ground whole clusters of large healthy roots will be emitted, say by the time the Vines have had their bunches finally thinned out. These fresh roots spread rapidly, each pushing out a network of fibres, and if taken good care of must greatly assist in the work of finishing the crops. I have adopted a somewhat similar plan with Vines in borders that require renovating, but surrounding the stems with moderately good ordinary stable manure, loam, and wood ashes in mixture will not cause them to emit roots nearly so strongly as does the peat Moss manure. The advantage of having abundance of good roots on or near the surface of a border needs no emphasising, and plenty of healthy roots close up to the stems is especially desirable when it is in contemplation to partially lift the Vines and to replace exhausted soil. It is not yet too late in many cases to try the effect of a liberal surfacing of manure strong in ammonia in mixture with loam, the Vines being more prone to form fresh roots after the crops are nearly or quite matured than they are prior to that time.

Mulchings of peat Moss manure or the best substitute for it might also with advantage be applied to heavily cropped fruit trees against walls and in the open quarters. They never stood in greater need of extra help from the surface than they do this season—this remark applying with greatest force to Pears, Plums, and Peaches, though it may yet be discovered that many of the Apple trees are equally heavily cropped. In all such cases there is no necessity to mix loam with the manure, as it is only when confined that the ammonia is dangerous to the foliage, while there is little likelihood of too much reaching the roots. At the same time it would be far more effective if lightly covered with soil, this preventing waste by evaporation and also serving to keep the manure moist, in which state only is it of any service to the roots. It is advisable, therefore, to lightly fork up and throw back the surface soil, returning it on the top of a liberal dressing of the manure. In very many cases it would pay well to give the borders, especially those against sunny walls, a good soaking of soft water after the manure is applied; this washing down some of the juices from the latter, and the soil being then returned to its original position will serve to effectually

enclose the much-needed moisture. These mulchings of nitrogenous manures are of the greatest permanent assistance to fruit trees generally, as in addition to supplying them with food they also attract and keep many roots on or near the surface of the borders—this being where they do the most good.

PRACTICAL.

APRICOTS.

ALTHOUGH the fruit crop of the present year, taking it as a whole, will probably hardly come up to our expectations, the season of 1891 will be memorable as furnishing an abundance of one particular fruit that generally is not very plentiful, viz., Apricots. It seems rather a pity that the Apricot should be dropping out of cultivation in many places, but if owners of gardens, as a rule, prefer Peaches, Nectarines, the best of Plums and dessert Cherries, the gardener has no alternative but to grow these largely to the practical exclusion of the humble Apricot. The frequent scanty crop of this fruit may be traced mainly to two causes, viz., its early flowering and (in some soils) its persistent bud-dropping. Apricots do not, as a rule, receive the amount of care in the matter of spring protection that is bestowed on so-called choicer fruit, and yet the fact of the early flowering should necessitate extra care in this direction, for as a matter of fact the double or triple thickness of fish netting that serves for Peaches and Nectarines is not enough in many seasons to preserve the early flowers of the Apricot. Nor can I recommend the makeshift Spruce bough protection; it must be taken off every morning and replaced in the evening, a work of considerable time if labour is scarce, and unless the workman is very careful the branches are apt at times to come into sharp contact with the bloom. Tiffany or scrim canvas is the spring covering for Apricots. If iron rods, rings, and blinds can be provided, so much the better, but if these are considered too expensive, I have found it a good plan to nail a strip of deal just under the top of the wall for each tree, first plugging the wall to allow the deal to stand out, say, about an inch. If then a sufficient quantity of material for each tree is placed on two stout poles, the tops of the latter when in position can be pushed under the deal, and all danger of collapse in high rough winds is hereby avoided, for, as I need hardly remind your readers, the wind is often very erratic in its movements at the time Apricots are in flower, and after blowing some time dead against the wall is apt to veer suddenly to another point of the compass, and, catching the protecting appliance at the side, would bring it to the ground unless it had a fastening of some kind. I approach that other cause of failure in the Apricot crop, viz., bud-dropping (quite in a way as disastrous to the cultivator as a visitation of frost), with some diffidence, for "who shall decide when doctors disagree?"

The decided opinion of more than one good fruit grower has been to the effect that an indifferent stock was the cause alike of gumming and bud-dropping. It may be so sometimes, but not always. I have but one or two clean-stemmed trees among the Apricots, and hardly a season passes without a branch or branches dying out, but so far as the trees are concerned generally, I may claim to have got the better of the bud-dropping. To be brief, I should attribute this failure to gross, rank and badly ripened wood, resulting in correspondingly badly ripened buds, which always come off with the quickening of the sap in early spring. This may arise from two causes, viz., climatic influences and unsuitability of soil. With the first of these it is almost impossible to cope successfully, and where it is encountered in the majority of seasons, as for instance in the humid parts of Devon, it is perhaps not advisable to attempt the culture of the Apricot to any extent. It is, however, fortunately well within the reach of all to cope with the second cause of failure, and to a thorough renovation of soil I may trace our present immunity from bud-dropping. Finding that we were troubled with this two years in succession, I examined closely the soil along the alley,

and found it very light and sandy, the sort of compost in fact that one can never under any circumstances render firm and solid except the slight portion on which there is constant traffic. The first operation was to turn up a good heap of stiff road-sidings and to incorporate with it a few barrow-loads of dry cow manure well broken up with forks. We removed the existing soil until the roots were exposed and replaced it from the heap, adding an additional 2 inches, and giving a soaking of water. When the surface was dry it was trodden down firmly and a mulching of long litter finished the operation. The trees have done well since with the exception of the occasional loss of a branch, nor, as I have said, have we been troubled with bud-dropping. With this effected, and a favourable blooming season such as we experienced

are not available, proving a welcome addition to the dessert and a pleasing variety to our autumn fruits. If the yellow and red forms are dished up together they make a very pretty dish. Its flavour also is most delicious. The cultivation is very simple, now being a good time to plant runners to bear a crop the ensuing autumn. Here we allow autumn runners to remain on the old plants until the time comes to make fresh beds, by which time they are well rooted, when they are carefully lifted, planted in beds 4 feet or 5 feet wide and 1 foot apart between the plants each way. As to site, preference is given (when such can be spared) to a bank of not over-rich soil with a southerly aspect. The old stools if desired may also be left in the beds, deprived of their present bloom, and every encouragement given them to throw up a later crop; but we prefer young plants, as bearing finer fruit; hence our practice of treating them as annuals. To anyone who has not hitherto given the above variety a trial, I would strongly recommend him to do so, and feel confident the result will be satisfactory.

—J. R.

RED CURRANTS.

THERE seems to be no doubt whatever that whilst Black Currants will be a very thin crop, Red Currants will be unusually abundant. That is saying a good deal for the latter, for on the whole we have few hardy fruits which are more persistent croppers than are Red Currants. Perhaps we have few hardy fruits which also are more beautiful, for there can be no doubt that branches literally smothered, as they bid fair to be this year, with the rich red clusters of berries form a beautiful picture. It seems difficult to understand why Black Currants are so poor and Red Currants so plentiful. We had far from a plentiful crop of Black Currants last year; indeed, for two years the fruit production has been moderate, and great were the anticipations formed this season, especially that the buds on the branches were last winter so prominent. Perhaps the tendency on the part of Black Currant bushes to push up their buds so early is the cause of the present almost failure to fruit well, as necessarily these buds must be more or less subject to the intense frost, and it is very possible that to the hard weather of last winter we owe our present lack of fruit. Red Currants have very hard buds, well protected by sheaths or scales, which keep them from harm. They are not of that soft vegetable nature which characterises the buds of Black Currants. Then we find the Blacks fruiting on the yearling shoots, which may be green or matured just as the autumn has been favourable or otherwise. The excessive rain of last summer caused a stout growth on the bushes, but probably did not enable it to mature or ripen so thoroughly as is desirable. Red Currants, on the other hand, if properly spurred, should really fruit on old wood, although from yearling buds. Bushes in



Hæmanthus toxicarius. (See p. 539.)

this year, the crop is one to brighten the eye of the wall man, and we have lately finished the pleasing operation of removing some hundreds (I had almost written thousands) of fruit. We have three varieties—Kaisha, Hemskirk, and Moor Park; the first named is rather the heaviest cropper. Apricots are not as a rule subject to a variety of insect pests; the Plum fly is sometimes troublesome, but if taken in time it is easily checked. The best remedy is to thoroughly damp the underside of the leaf and dust with tobacco powder.

Claremont.

E. BURRELL.

Strawberry Quatre Saisons (Alpine).—To those who appreciate delicious dishes of Strawberries during late summer I wish to recommend the above variety as being unique for the purpose. It is, I admit, small in size in comparison with the summer-fruited kinds, but it is a very heavy cropper and can be fruited at a time when others

this locality, which in the winter resembled some seven or eight rough gnarled-looking stems, are now heavily loaded with bunches, which it would seem nothing can prevent becoming fine and ripe. There can be no doubt whatever but that the Red Currant crop will be a very heavy one. No doubt housekeepers will hope that the Raspberry crop may be an equally plentiful one also, for these two fruits seem for all domestic purposes to be indispensably allied. There will be farther still a stout wood growth on the bushes, and thus a capital opportunity will be offered next winter of obtaining plenty of cuttings. The stouter the wood if well matured, the better for the making of fine young plants. Red Currant cuttings, as a rule, root freely, but not every season gives so good a promise of strong cutting shoots as the present. There is not the same demand for Red Currant as for Black Currant bushes, whilst the demand for Currants is far less than for Gooseberries.

Generally, all bush fruits are very prolific and profitable, their endurance depending very much upon soil cultivation and hard thinning out of old wood every winter. Reds sometimes get to look as if mere old stools of bare sticks, even when in a good bearing state. Old branches are occasionally cut clean out and new suckers replace them. It is the rule to send out all bush fruits on clean stems, but a few years' growth spoils the arrangement, and suckers come up from the roots. Judiciously selected and cared for, these suckers soon become as fruitful as are the ordinary branches. Because the bushes lose their leaves early, we may always plant early in the autumn, a good plan with bush fruits, as then the plants get well established before the winter sets in. A mulching of long manure to each bush is also very advantageous. A. D.

New seedling Strawberries.—Two most promising varieties were shown at the meeting of the Royal Horticultural Society on June 9. These are the results of crossing the Countess with British Queen. The variety provisionally labelled No. 4 partakes somewhat of the character of Countess, but is more conical, and in the opinion of some is of rather deeper colour and richer in flavour. The other kind, No. 3, resembles the British Queen in its appearance, but has somewhat of the shape of the Countess. Some fruits of British Queen shown for comparison as to flavour left no doubt as to the superiority of the seedling in this respect. It will be interesting to see these seedlings shown again from the open air; should they then present as favourable an appearance and maintain their superior flavour, they will no doubt be much sought after when placed in commerce. Mr. Allan sent these fruits from Gunton, and may be considered fortunate in this venture of his in respect to the raising of new varieties. It ought to be stated that the fruits were gathered from plants potted up rather late last season.—A.

Potted-up Strawberries.—Knowing that there would be rather heavy demand for Strawberries during the first ten days in June, and also fully realising that the outside crops would be quite a week later than they were last season, I was obliged to make an extra effort to ripen more under glass than usual. The supply of plants in pots being nearly exhausted, I decided to pot up a few dozen strong plants of Noble from a west border. This was not done till the plants were coming into flower, and only just in time to save them from being spoilt by the frosts which we had on or about May 18. All were lifted with a moderate amount of soil about the roots and were placed in 8-inch pots, a little good manure being placed immediately under them. At first they were stood under Melons, Cucumbers and Tomatoes, and this, coupled with frequent overhead syringings, prevented them from flagging badly. They were soon sufficiently recovered to be placed on shelves and on the sunny fronts of forcing houses, and there was not a failure among them. The fruits set abundantly, but were reduced to about one dozen to each plant, and a very pretty sight they now (June 4) present. Naturally, the Strawberries are not of full size, but many of them are not far short of it, while all will prove of good service. I have previously potted up Strawberries with very satisfactory results, but the variety Noble would appear to be most amenable to this treatment, besides being remarkably early and productive. I often wish I could speak more highly of the quality of the fruit.—W. I.

Sir Charles Napier Strawberry.—This fine old kind has, I consider, never been seen in better condition than on Tuesday last at the Drill Hall. The grand examples shown by Mr. Norman, from Hatfield Gardens, were one of the chief features in the show. I fancy many growers who force Strawberries in pots and have discarded Sir Charles will be induced once more to give it a trial. As shown, nothing better in its way could be desired. Compared, for instance, at this season with the much lauded Noble with its poor quality, the balance is all on the side of Sir Charles, with its superior flavour and fine appearance. I have always found

the latter a good and reliable kind for pot culture and it will travel well. During the winter I have found it safer to have the plants if possible under glass in a cold frame or stacked upon their sides to prevent an excess of moisture in the crown.—H.

Strawberry Auguste Nicaise.—At the last fruit committee meeting of the Royal Horticultural Society some extra large fruits of this Strawberry were shown by Mr. Smith, Mentmore. These large examples were from the centre or crown flower. Others were shown from the lateral flowers; these were of excellent shape, and large enough for any practical purpose. The lesson thus learned is to pinch out the large flower when extra vigorous and not of good shape. As shown, the smaller and better formed fruits were decidedly to be preferred to the larger, but ungainly ones. This variety appears to be of excellent constitution and well suited for forcing for midseason use.

THE COLD WAVE OF MAY.

SELDOM has the proverbial cold wave of May rolled with more resistless force over orchards and gardens than this year. The Apple and other blossoms were at their best, and even the Roses so long and firmly held in the iron fetters of frost, broke with a most welcome freshness, though rarely with their usual strength. The dash of tropical weather in May also hurried them on with a rush, and not a few rosarians began to hope that the Rose harvest might yet be pulled up to time as well as quality. The old-fashioned winter had gripped the Roses hard and cut many of them low; still the majority of them survived, and broke weakly if not overwell. A genial May might have almost wiped out the traces of the abnormally long and cold winter; but instead of this we have had December in May. Fortunately, these cold waves are seldom general; if they were, few fruit buds or Roses would remain alive after the first frost, for the frosts have ranged from 5° to 20°. As it is, Roses in most directions have had a severe check. Writing on the 26th of May, that is a full week after St. Dunstan has done his worst to freeze the Apple orchards into barrenness, the Roses can hardly be said to be out of the wood. Such a cold régime so long continued must needs lose time as well as sacrifice force. Like most heavy trials, the cold winter and spring among the Roses bring some compensation. The low freezing and hard cutting back may in the end concentrate and so augment their growing force. There must needs be a sacrifice in the amount as well as in the quality of the early bloom, but the ultimate vigour of the plants may gain what is thus lost.

On the other hand, unless temperature is speedily brought up to time, who shall say when Rose shows shall be held in the year 1891, or how many fixtures will have to be postponed? On the other hand, should the rigours of winter suddenly melt into midsummer warmth, the blooms will be rushed with a puff as fatal to substance and size as colour.

But rosarians sooner or later should never prophesy unless they know, and old-fashioned May weather—warm, genial, dripping, gently forcing—in June may yet work marvellous transformations among our Roses. Meanwhile we must watch our Roses and safeguard them from all their foes. Their chief ones just now after the starving cold are insects and suckers, or, in other words, robbers and devourers. Even these terms may be interchanged, for suckers devour Roses also, only by a different and a more subtle process. They divert vital strength, beauty, and fragrance in the suckers from the Roses, and so starve them off or prevent the beauty that might have been, while aphides, maggots, caterpillars, &c., mar or devour the beauty in its further advanced stages. The experienced rosarian will feel that it is his special pleasure and mission to safeguard every leaf, bud, branchlet, and blossom from first to last. D. T. F.

Artistically arranged groups.—These I consider are great features at horticultural exhibitions, and at the Manchester Whit-week show there were

three good ones. One of these set up by Mr. P. Blair was the most beautiful I have ever seen. The plants used were few in number, but the arrangement was faultless. The group next to this was set up by Mr. Holms, and to a great many present it gave more satisfaction than did Mr. Blair's. The massing of the Cattleyas was too heavy, and it pleased those who were fond of colour. Another good group was put up by Mr. Elkin, which was inferior to Mr. Blair's, but quite charming. Miss Lord, of Ashton-on-Mersey, set up a very nice group indeed, but it was rather heavy, and in it were some plants that began to hang their heads, quite spoiling the effect. I observe that the smaller amateurs and the nurserymen also appear to be quite alive to the value of the new *Spirea astilboides*, and it certainly has a marvellous effect when allowed to hang in a natural manner. If tied in any way its effectiveness is quite lost.—W. H. GOWER.

NOTES OF THE WEEK.

A fine Spanish Chestnut.—Mr. Greenwood Pim sends us a photo of a grand old Spanish Chestnut in Rossana demesne, Co. Wicklow. Its dimensions are as follows: Circumference 4½ feet above ground over 25 feet; diameter of spread of branches, about 92 yards.

The Gardeners' Orphan Fund.—The executive committee of this deserving institution have instituted a general national collection on behalf of the fund in every garden, nursery, and seed shop throughout the country on Saturday, June 13. We understand that 10,000 collecting cards have been sent out, and we trust that the response may be worthy of such a noble cause.

Rhododendrons in Ireland.—Having seen a notice of some hardy Rhododendrons in last week's GARDEN, I think one now in full bloom in the garden at Ravensdale Park, Newry, may be worth notice. It has been in the garden for fifty years in a sheltered place, and no particular care taken of it. It is not grafted, and is like a tree with three stems. It is 18 feet high and 65 feet in circumference, and has never been covered. It has stood all frost and snow for all these years and never seemed the worse for it. Unfortunately, the name is not on it, but perhaps you will be able to name it by sample blossom sent with this notice.—C.

* * The flowers you send are those of Rhododendron arboreum.—Ed.

Læliopsis domingensis.—A flower of this comes to me from J. Simmonds under the name of Broughtonia lilacina. This, however, is only a synonym. Twenty-five years ago this plant was more frequently to be found in collections than at the present time, and I used to grow it very well upon a large block of wood, hanging it up near the glass in the East India house, and keeping it well sprinkled. It did not have much about its roots, and it used to grow and flower well with me. I, however, have grown it since in a small teak-wood basket, well drained, and with but a little peat fibre and Sphagnum Moss, keeping it well watered during the growing season.—W. H. G.

Burlingtonia fragrans.—There are now several well-grown specimens of this Brazilian Orchid flowering in Messrs. Sander & Co.'s nursery at St. Albans. Taken altogether, it may be described as the most desirable of Burlingtonias, for whilst others, like *B. candida*, have flowers as large and as beautiful, they do not possess to such a degree the delightful fragrance of this species. It is of dwarf habit, with small ovate pseudo bulbs, which, like the channelled leathery leaves, are dark green. The spike originates in the axil of one of the leaves, which clasp the base of the pseudo-bulb, and is pendent, bearing six to eight or even more flowers. These are arranged in two rows and are wholly pure white, excepting a yellow streak on the lip, the flower measuring 1 inch in depth, but scarcely so much in width. There is a particularly fine form flowering at St. Albans with flowers quite half as large again as those ordinarily seen. This is a purely epiphytal species, being found in its native

condition on the top of the Cedrela trees of Brazil. Under cultivation it may be placed in shallow teak baskets, these for the greater part being filled with drainage, a little Sphagnum being used as compost. It enjoys abundant light and moisture, and should be given an intermediate temperature.

Lilium candidum under glass.—This beautiful old favourite of the outdoor garden is fast becoming one of the recognised plants for supplying pure white flowers in May from cool glass houses. Very few plants yield such good results with so little trouble. My plan is to lift some good large bulbs from the open ground when they are at rest in August and pot them up, four or five in a 10-inch pot, using good loam and a little rotten manure. They are set out of doors until signs of sharp frost are apparent, when they are placed in cold frames and covered during severe frost. They are kept in the frames until the flower spikes need more height, when they are placed in cool glass houses, where they produce splendid spikes of lovely white flowers. —J. G. H.

Royal Horticultural Society.—We are informed that the dinner at the Hotel Metropole on Tuesday, June 23, promises to be a great success. Amongst the invited guests of the society who have already accepted the invitation of the council may be mentioned the American Minister, the Greek Minister, the Rt. Hon. the Lord Mayor, the Rt. Hon. the Earl of Rosse, the Rt. Hon. Sir Lyon Playfair, Bart., M.P., the Lord Justice Fry, Sir James Paget, Bart., Sir Joseph Lister, Bart., Sir James Whitehead, Bart., F.R.H.S., Sir Henry Thompson, Mr. Sheriff Farmer, F.R.H.S., Mr. Brymer, M.P., F.R.H.S., Dr. Farquharson, M.P., General H. D. Donnelly, Mr. Norman Lockyer, Mr. S. B. Bristowe, Q.C., Dr. Aitchison, the Mayor of Croydon, Dr. Herman Weber, Mr. H. W. Lawrence, F.R.H.S., &c. A few tickets (price 12s. 6d.) may still be obtained on application to the secretary, 117, Victoria Street, S.W.

Aerides mitratum.—This has long, cylindrical leaves, which taper to a fine point, and are deep green. The raceme of bloom is 6 inches or 8 inches long and many-flowered; the sepals and petals are nearly equal, white; lip oblong and bright purple. The spur is much compressed, projecting backwards, and bears some resemblance to a bishop's mitre. The plant first flowered in England twenty-one years ago, and Mr. Lucas, of Warnham Court, now sends me a bloom of a form of it in which the sepals and petals are deep yellow, the lip being as in the typical plant. For this variety I propose the name of *aurantiacum*. I must congratulate Mr. Lucas in having the only yellow-flowered plant of this species which I know of in the country. —W. H. G.

Disa racemosa.—Every season renders the value of this *Disa* more apparent. Although it is only a little over four years since its first appearance in England, sufficient has been seen of its behaviour under cultivation to prove it a most useful addition to cool Orchids. Whilst it is inferior to *D. grandiflora* in size and in brilliancy of colour, it has more flowers on the spike, and it has not yet displayed any of that unwillingness to thrive which in many places makes *D. grandiflora* a most unsatisfactory plant. Except in being smaller in leaf, its habit is the same as that of *D. grandiflora*. The spike rises from the centre of a rosette of leaves to a height of 1½ feet, from four to eleven flowers being produced on each. The colour of the flower is reddish purple, and its diameter from 1½ inches to 2 inches. A coloured plate of this *Disa* was given in THE GARDEN for Jan. 3, 1891. A group of plants may now be seen in flower at Kew.

Geranium atlanticum.—This is the plant often called *G. malvæiflorum* in gardens, and under which name we believe it is figured in the *Botanical Magazine*. *G. malvæiflorum* is, however, quite distinct. *G. atlanticum* is a native of Algiers and perfectly hardy. This year the late severe weather seems to have suited it, as it is now flowering more abundantly than we have ever before seen it. The foliage, which begins to grow in winter, is not unlike that of *G. tuberosum*, but it is hairy, giving it a silvery appearance. The flowers, in loose bunches

and borne on strong stems well above the foliage, are purple with distinct darker lines. It is well worth growing, thriving even in exposed places.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 9.

ALTHOUGH following so closely upon the splendid show at the Temple, there was a very extensive display at the Drill Hall. It was, in fact, one of the best shows of the season as far as hardy flowers were concerned, these being present in considerable quantity. Of these latter, the chief features were the lovely hybrids of the *Aquilegias* or *Columbines* shown by Messrs. Veitch and Sons, the *Pæonies* and *Pyrethrums* with *Irises* from Messrs. Kelway, and mixed assortments of hardy herbaceous flowers in quantity from Messrs. Barr and Son and Mr. T. S. Ware. Besides these, a large number of cut trusses of hardy *Rhododendrons* were contributed by Messrs. Wm. Paul and Son, and *Pæonies* in pots by Messrs. Collins Bros. and Gabriel.

Orchid Committee.

Orchids were not present in great numbers on this occasion; some choice varieties were, however, exhibited. First-class certificates were awarded to

LÆLIA HYBRIDA ARNOLDIANA (*Lælia purpurata* seed parent × *Cattleya labiata* pollen parent).—This seedling has the sepals and petals of *Cattleya labiata* with the rich purple lip of *Lælia purpurata*, having in addition a rich orange-veined throat in lieu of the lighter one of its last-named parent. The habit of the plant is intermediate between the two parents. The seed was sown in 1881. To this fine hybrid, as the best seedling Orchid, a silver-gilt Flora medal was also awarded. Messrs. Sander and Co., St. Albans.

ODONTOGLOSSUM VEXILLARIUM VAR. MRS. HENRY BALLANTINE.—A decidedly distinct form of this popular Orchid; it has a richly coloured lip with a pale blotch of yellow in the centre, the colouring of the lip running into the sepals; also from Messrs. Sander and Co.

DISA VEITCHI (*Disa racemosa* × *D. grandiflora*).—This was a most interesting exhibit, inasmuch as it is the first hybrid *Disa* yet raised. It is quite intermediate between the two parents, having the racemose spike of *D. racemosa*, with the flowers more nearly approaching those of *D. grandiflora* in size. The sepals are of a rich rosy shade, the dorsal sepal some shades paler, with the lip marked in the way of *D. racemosa*. Three plants slightly varying in character, each with strong spikes, were shown, having been raised from seed in the short space of one year and nine months. In addition to the first-class certificate this fine new hybrid was awarded a silver Flora medal. Messrs. Veitch and Sons.

SOBBALIA MACRANTHA KIENASTIANA.—A very beautiful pure white variety with flowers of superior size. The inner portion of the lip has a faint blotch of pale golden-yellow. The variety appears to be of much dwarfer habit than the type, and also very free flowering. From Baron Schroeder.

Awards of merit were given to the following:—

CATTELEYA MOSSIE LAWRENCEÆ.—This is one of the finest of the pale coloured varieties with white sepals and petals, the lip having the faintest tinge of purple, with a rich orange throat and beautifully fringed. From Sir Trevor Lawrence.

LÆLIA ELEGANS (Cullimore's var.).—The distinctive feature in this fine form is the richly coloured lip, some shades deeper than in *E. elegans*. The flowers did not appear to be fully developed, being only recently expanded. From Mr. Malcolm S. Cooke, Kingston Hill.

CATTELEYA MENDELI MORGANI.—This, like the foregoing, is a very pale form of the type, with white sepals and petals, the lip beautifully tinged with pale lemon colour, with a dash of purple at the margin. Mr. R. B. Cater, Westfield, Bath.

Other Orchids consisted of a group of good forms of *Cattleya Mossiæ* from Mr. Fowler, South Wood-

ford. In one instance the lip was very richly marked and fringed in an exquisite manner. Messrs. Sander and Co. also showed *Cattleya Mossiæ Reineckiana*, a pale form, very distinct. From Messrs. H. Low and Co. came *Cattleya* species, apparently intermediate between *C. amethystoglossa* and *C. intermedia*. Messrs. Veitch and Sons showed *Thunia Veitchi* (*T. Bensoniæ* × *T. Marshalliana*) with an extra strong growth crowned with a cluster of lovely flowers. The same firm also showed *Odontoglossum excellens* (*O. triumphans* × *O. Pescatorei*). This is most interesting, being the first English raised hybrid *Odontoglossum*. It is of especial interest, as it confirms the supposition previously entertained by botanists that the imported plants were natural hybrids between the same two species. The plant shown had a strong spike of seven blooms. Two other hybrids came from the same firm; these were *Epiphrontis Veitchi* (*Epiphrontis radicans* × *Sophrontis grandiflora*), in which the latter parent has imported to its progeny a far deeper colour, and *Lycaste hybrida*, in which the parentage is uncertain, but bearing a certain resemblance to *L. Deppel*. From Mr. Le Doux, Langton House, East Moseley, came three splendid varieties of *Odontoglossum vexillarium*, one being a light form with flowers of superior size, twenty-four upon four spikes; another was richer in colour, bearing seven spikes; another bore some resemblance to the hybrid *O. Bleianum*. This exhibit was awarded a cultural commendation. Some extra strong clumps of *Cypripediums*, hardy vars., chiefly *C. spectabile*, came from Messrs. Pitcher and Manda, Swanley, Kent; these were well grown plants and freely flowered. The same firm showed a hybrid var. named *C. pavonium inversum* (*C. venustum* × *C. Boxalli*). It has much the character of *C. Boxalli*. Mr. Hudson sent from Gunnersbury House four spikes of *Lælia purpurata* bearing eighteen flowers, the variety a good one.

Floral Committee.

A first-class certificate was awarded to

CELMISIA SPECTABILIS, a most distinct and valuable addition to the *Compositæ*. The habit is dwarf with deep green foliage of a rigid character. Its white *Marguerite*-like flowers are on woolly footstalks, from 6 inches to 8 inches in height; the petals are narrow, but set closely together. The flowers are freely produced. This most promising introduction from New Zealand was shown by Messrs. Veitch and Sons, Chelsea.

The following awards of merit were given:—

TREE PÆONY LOUISE MONCHELET.—This variety has flowers of extra size, double, and very full. The colour is a pale satiny pink. Messrs. Kelway and Son, Langport.

HERBACEOUS PÆONY PARADOXA.—This double variety has flowers of a deep blood-red colour and of good size. Kelway and Son.

PYRETHRUM (SINGLE) JAMES KELWAY.—In this we have one of the brightest coloured kinds yet raised, with flowers of an extra deep crimson-scarlet colour. Kelway and Son.

GERMAN IRISES QUEEN OF MAY AND PRINCESS OF WALES.—The former is of a pale rosy-lilac colour, the latter a pale French white, both possessing extra vigour with flowers of superior size. Kelway and Son.

CARNATION SELBY.—This is one of the Tree type with pale yellow self-coloured flowers and fringed edges, very full, and of good size with a delicate perfume. This should prove a valuable variety in its colour, the individual flowers being superior to those of the well-known *Germania*. Mr. Jennings, Ascott Gardens, Leighton Buzzard.

BEGONIA DUCHESS OF LEINSTER (single tuberos).—This is a promising and distinct variety in its colour, which is a deep orange, the flowers of extra size, the plant vigorous. Messrs. Kelway and Son.

BEGONIA LADY LAWRENCE, single kind, with bright yellow flowers and of very dwarf and vigorous habit. Messrs. Cannell and Sons.

PINK PRINCESS MAUD.—This is a white variety of extra size with a slight tinge of colour towards

the base of the petals. From Mr. Stacey, Farnham Royal.

SPIRÆA MULTIFLORA COMPACTA.—This is in the way of the well-known *Spiræa japonica*, the spikes very dense and compact, certainly not so light and elegant-looking as the older variety. Messrs. Collins and Gabriel.

Messrs. Kelway and Son had a very fine show of *Pæonies* in excellent variety, choice kinds of single and double *Pyrethrums*, *Iris* (German) many fine sorts, *Poppies* (both Iceland and large-flowered kinds), and other herbaceous plants in season. In addition they staged a well-assorted variety of *Amaryllis*, both dark and light kinds, selfs and striped; these made a brilliant show and testify to their value as decorative plants at this season of the year (silver-gilt Flora medal). Messrs. Wm. Paul & Son, Waltham Cross, showed the best kinds of hardy *Rhododendrons* cut from plants grown in loam. The most noteworthy were Lord Palmerston, Mrs. Standish, Nero, The Gem, Michael Waterer, Old Port, Mrs. Fitzgerald, The Queen, Titian, Fredk. Waterer, Everestianum, Sir R. Peel and Portia. In addition they had Hybrid Perpetual Rose Danmark, which has been repeatedly shown this season; it, however, improves each time. This variety is after La France, but more globular. Hybrid Perpetual Rose Spencer, with pale pink flowers, is a promising kind (silver Banksian medal). Messrs. Collins Bros. and Gabriel showed a large group of *Pæonies* in tubs and pots. These were of the herbaceous type and made a brilliant display, one pale pink variety called *magnifica* being the best (silver Banksian medal).

Mr. T. S. Ware exhibited hardy herbaceous cut flowers consisting of good assortments of *Pyrethrums*, German and other *Irises* (*I. sibirica* in variety and *I. chilensis*), *Spiræa astilboides*, *Poppies* of the *P. orientale* and *P. nudicaule* sections, *Lilium croceum* Prince of Orange, very dwarf, *Lupinus polyphyllus* albus, extra fine, *Cypripedium spectabile*, and *Delphinium nudicaule* (silver Banksian medal). Messrs. Barr & Son staged *Pæonies*, *Pyrethrums*, *Anemones* of the coronariatype, the double white or *Gardenia Narciss*, and some good bunches of *N. Nelsoni*. Mrs. Backhouse, very fresh. *Hyacinthus amethystinus* in this collection was singularly striking and effective (silver Banksian medal). Messrs. J. Laing and Sons, Forest Hill, sent a small group of choice kinds of new single and double tuberous-rooted *Begonias* (bronze Banksian medal). Messrs. Cannell and Son also showed some promising new varieties of these *Begonias*. Messrs. J. Veitch and Sons staged a select assortment of herbaceous cut flowers in boxes on Moss, still the best way to display them to advantage. These consisted of such as *Anthericum liliastrum*, *Asphodelus luteus*, *Iris Labard*, very dark, *Heuchera sanguinea*, *Iris graminea*, *Hemerocallis flava*, and *Poppies*. With these were grouped charming varieties of *Aquilegias*. The floral committee commended this strain of *Aquilegias*. Mr. Crisp sent from Wimborne Gardens a large basket of cut hardy *Rhododendrons* of the best kinds and some extra fine *Gardenia* flowers. Mr. R. Dean staged several varieties of the florist's Tulip, contrasting those of English origin with others of Flemish growth; these included breeders, bizarres, roses, and bybloemens. Those of English origin were from the collection of Mr. Barlow, and the others from that of Mr. J. W. Bentley, both from Manchester. A small group of alpine was sent by Mr. Hodges, of Chislehurst, the best things being *Saxifraga N'abiana*, *Ajuga genevensis*, *Ramondia pyrenaica* and the white form, and *Erinus alpinus*.

Fruit Committee.

The display of fruit was not extensive, but a few good things were shown. The fruit committee voted an award of merit to Mr. Wythes, of Syon House, for a promising new Melon, named Wyth seedling. The fruit shown was of superior flavour, the flesh a pale scarlet, deep and good to the rind, which is thin. Mr. Allan, Gunton Park Gardens, showed four seedling Strawberries; those labelled Nos. 3 and 4 bid fair to become standard sorts, both possessing superior flavour. Mr. Norman, Hatfield Gardens, exhibited some grand examples of Sir Charles

Napier Strawberry, the finest we remember to have seen. These were quite a feature, a bronze medal being unanimously awarded. A very fine dish of Brown Turkey Figs was shown by Mr. Wythes, and some well coloured Lord Napier Nectarines by Mr. Hudson, to both of which cultural commendations were awarded. Messrs. Veitch and Sons sent a dish of well kept Apples, named North End Pippin, a cooking kind, with a brisk flavour and very juicy. Peaches, Melons, and Lettuces were contributed by Mr. Miller, Ruxley Lodge, Esher. Mr. Smith, Mentmore Gardens, sent several kinds of Strawberries, amongst which were some extra large fruit of Auguste Nicaise. Mr. Miller, The Gardens, Rood Ashton Park, Trowbridge, sent a fine dish of Peas labelled Windsor Castle. We assume these were grown under glass.

The Rev. C. Wolley Dod in the course of his lecture on alpine plants, delivered at 3 o'clock, said that many ordinary alpine plants can be grown in unsuitable places with made rockwork and attention to small details. High elevation is of great importance, especially in towns, and good drainage is most essential. On flat borders a depth of 3 feet of stones and soil should be given, and, as previously stated, ample drainage given. Rockwork should consist of all stones, no wood nor roots used, as they create fungus. Stones should be of irregular sizes and not flat surfaces, and should be firmly fixed to prevent looseness and damage from frosts and heavy rains. Abundance of large heavy stones is preferable to a quantity of shallow pockets, as the natural habit of the plants can then be imitated, and they suffer less from changeable weather or variations of temperature. The aspect of the rockery should be east, and sunk rockeries are often best, but not overhung by trees, as drip is injurious, the large stones, if used as advised, often giving great shelter. Soils are of less importance than many persons imagine, and he was not so particular if the proper position was given. The rock or stone used should be suited to the plants. Some require more or less of limestone; others require chalk. In some instances both are required, mixing good loam, humus and coarse stone siftings with the compost. Round stones and pebbles are objectionable in all cases. Many alpine are ruined by being planted and allowed to get over-run with coarser growing varieties. This should be avoided, preferring to use separate places for the strong growers and coarser plants. The best aspect for alpine is east, the worst west. Bulbs, though very ornamental when in bloom, are untidy at other times and better elsewhere. Watering requires care to prevent disturbing the tender plants. Plants that seed freely, as *Poppies* and *Harebells*, will not be in place on choice rockeries. Rare seedlings should be carefully saved and wintered in cold frames. The frames should also be utilised for choice cuttings in pots, and in severe weather damp must be guarded against, airing freely whenever possible. The Liverwort fungus must be kept down and destroyed as soon as seen, as it rapidly spreads and cuts off valuable alpine. Grouping choice kinds in pots may be often effectively done, plunging the pots in the soil; these form an early display in a sheltered corner. Walls may often be clothed to advantage, even new red bricks being readily covered by using suitable materials, and little trouble will be needed to make an unsightly wall present a pleasing appearance.

ROYAL NATIONAL TULIP SOCIETY.

THE annual exhibition of this society took place on the 6th inst. at the Botanic Gardens, Old Trafford, Manchester, in weather much more like that of March than June. The exhibition was originally fixed for May 30, but the extreme lateness of the season made a postponement necessary, and it is certain a better show could have been had a week or ten days later still. With few exceptions, the flowers were small and lacking purity, through want of time to bleach; indeed growers had resorted to various contrivances in order to get their flowers expanded at all. As is usual, the blooms were arranged on tables in the glass-covered annexe, where they were seen to the best advantage. It may be remarked that Tulip shows are

now much less frequent than they used to be in Lancashire and Cheshire, and at the present time, through the deaths of old growers and the lack of younger men to take their place, there is danger of Tulip exhibitions dying out altogether. It would be a great pity if the beautiful varieties of florists' Tulips, so much improved during the last thirty years, were to become lost for lack of someone to grow them. It is a flower possessing such a singular physiology as to be highly fascinating to those who take an interest in it. That five or six years at least have to elapse before the seedlings flower, that they then assume the self-coloured or breeder stage, and remain in that for two or three and up to ten or twelve years before they break from the intermediate to the final character, are conditions which invest the Tulip with a peculiar interest. Even then the broken or rectified flower may be one season feathered, that is, having the colour laid on in delicate feather-like tracings on the petal edges only; or become flamed, that is, having in addition to the feathering a broad beam or flame of colour running up the centre of the petal. And what is more singular still, a self or breeder Tulip may be exquisitely coloured and highly refined, and then when it breaks into its final character be utterly worthless, while an ugly-looking and dull-coloured breeder may break into a flower of surprising loveliness in the estimation of Tulip fanciers.

The leading class at the above exhibition was for twelve dissimilar broken blooms of bizarres, roses, and bybloemens, two feathered and two flamed each. This is known as the cup class, and it is considered a great honour to be placed first in this class. The exhibitor was Mr. Thomas Haynes, curator of the Free Library, Warwick, an old grower and exhibitor, who well deserved his good fortune. His flowers consisted of bizarres, feathered, Sir J. Paxton and Duke of Edinburgh; flamed, Sir J. Paxton and Dr. Hardy; roses, feathered, Heroine and Lizzie; flamed, Mabel and Aglaia; bybloemens, feathered, Violet Amiable and Bessie; flamed, Talisman and Duchess of Sutherland. These flowers were considered to be very fine indeed, and especially in such a season. Mr. J. H. Wood, Royton, Oldham, was second, and Mr. Samuel Barlow, Stakehill House, Manchester, whose fine collection is flowering very late, was third. Mr. Haynes also had the best six Tulips, one feathered and one flamed, showing fine examples of bizarres, feathered, George Hayward; flamed, Sir J. Paxton, both grandly marked; roses, feathered, Mabel; and flamed, Mabel, an instance of the same variety in two different characters; bybloemens, feathered, Connorsby Castle; and flamed, Talisman. Second, Mr. C. W. Needham, Royton, Oldham. The best three feathered Tulips were bizarre, Sir J. Paxton; rose, Modesty; bybloemen, Violet Amiable. The best three flamed Tulips were bizarre, Sir J. Paxton; rose, Aglaia; and bybloemen, Duchess of Sutherland. The breeder Tulips are always shown by themselves, and Mr. Samuel Barlow, who has the best collection in the world, was first with six varieties, two of each class being shown. Of bizarre breeders he had Hepworth Seedling 140 and Criterion; roses, Mr. Barlow and Rose Hill; bybloemens, Glory of Stakehill and Maid of the Mill. Mr. J. H. Wood took the second prize. The premier feathered Tulip was Mrs. J. H. Wood, rose, pure white ground, handsomely feathered with cherry-red, shown by Mr. J. H. Wood. The premier flamed Tulip was Sir J. Paxton, bizarre, from Mr. T. Haynes; and the premier breeder Tulip, Ashmole's 126, bybloemen, shown by Mr. S. Barlow.

Book on the Willow.—Could any reader inform me where I could get a book or pamphlet on Willow growing or their management?—INQUIRER.

* * * "A Revision of the British Willows," by F. Buchanan White, M.D., F.L.S., appears in the Journal of the Linnean Society of Nov. 13, 1890.—Ed.

Names of plants.—W. S.—Ordinary form of *Stephanotis floribunda*.—W. Jager.—Fasciated stem of *Ranunculus bulbosus*; of no value.—F. Potter.—1, *Piptanthus nepalensis*; 2, *Lonicera tatarica*.—H. S.—1, *Cypripedium barbatum*; 2, form of *C. villosum*.

WOODS AND FORESTS.

VALUE AND USE OF THE SYCAMORE.

As the article in last week's GARDEN on the Sycamore seems intended to have a general application, I take exception to some of the statements it contains. It is certainly news to me that Sycamore is "essentially a fancy wood," unless we are to call wringing and washing machines, bobbins, and such like articles, which provide the main market for Sycamore, "fancy." Take note of the quantities of Sycamore, English and foreign, piled in the wharves and yards at Keighley, in North Yorkshire, alone, almost exclusively intended for useful articles. As for it being necessary to secure a purchaser before felling the trees and the seller standing in for faults in the timber afterwards, I am quite sure I could sell all the Sycamore on any estate at a good price without any such conditions. I have always been able to sell Sycamore girthing from 6 inches upwards, never getting less than 8d. per foot for poles under 11 inches quarter girth, and from two to three times that amount for all above 11 inches, the price depending on the size and quality. Eleven inches is the limit to the high-priced timber, that being the least girth manufacturers of certain articles can do with. Below that it is indiscriminately called "bobbin wood." These remarks apply, I believe, to the midlands and north of England generally at least, and also to Scotland, where from 3s. to 4s. 6d. per foot have been realised. The mortifying difficulty with myself and my neighbours on large estates is that we have so few big Sycamore trees to part with. Good trees are positively run after.

As for the forester sawing his big Sycamore trees "into planks," as suggested in the article, who in the world would think of doing such a thing when the consumer would pay more to have the tree as it fell to utilise it far more economically in his own yard? I never knew such a thing either done or proposed. As to decaying, Sycamore certainly rots faster than Oak or Ash, but it may lie for months with the bark on without injury, and often does lie much longer. Owing to the dearth of English Sycamore, American Maple has lately been used a good deal, and I read some months back of an order for some hundred thousand feet of Maple being placed with one manufacturer. Such competition will no doubt have a disturbing effect on the home trade, but as yet we find little difference in the demand.

YORKSHIREMAN.

Firs in a northern aspect.—So much does a cold situation influence the growth of the Fir, that trees grown on the northern side of a hill are superior to those grown on the southern side, as those on a northern aspect grow less rapidly than those on the sunny side. The timber on the northern side will therefore be, as a rule, more durable than that grown on the southern, and the trees would not be so liable to injury from frosts; indeed, many diseases are induced, perhaps aggravated, by the sap being checked during early spring on a south or south-eastern aspect.—B.

Ravenscroft's "Pinetum Britannicum."—On a recent examination of this work I found the fifth plate in the first volume marked "Pinus insignis, Mendocino, California," and at once recognised the tree represented as a fine old Douglas Fir of nearly 20 feet in girth which I saw on the 9th of May, 1876, when walking from Mendocino to Little Lake, and at a distance of about two or three miles from the former place. It then still retained many of its lower branches, which had a total spread of about 30 yards; and, as the Conifers in the forests of California rarely retain their lower branches, the

specimen in question made a strong impression upon me. The *Pinus insignis*, moreover, is not a native of this part of California, and the principal, if not the only forest of it lies between the town of Monterey and the lighthouse on Point Pinos, which forms the southern horn of the Bay of Monterey—some 80 miles to the south of San Francisco, and even there few of the insignis have a girth of more than 10 feet, the coarse granitic soil being naturally poor or having become exhausted. Facing the title-page of the first volume of the work there is a plate of a *Pinus insignis* at Osborne, and the second plate in vol. 2 is one of the *Abies Douglasi*, and a comparison can easily be made of these plates with that of the so-called Mendocino insignis. I may add that in Devonshire, and I believe in other parts of the south of England, *P. insignis*, which was only introduced in 1833, has attained a girth of 14 feet, and it is singular that its size in its native habitat should be so comparatively small.—WINSLOW JONES, *Ermouth*.

THE THEORY OF PRUNING TREES.

THE physiology of pruning forest trees requires looking into. The woodman in pruning cuts the branch clean off near the trunk, leaving the concentric rings which usually form round the base of a branch. As growth progresses, the bark gradually grows over the wound till it is quite covered, and it is then supposed to be healed. The time required for this depends on the size of the branches, but in good sized branches it takes years. Meanwhile, the exposed wound is very apt to collect moisture, and from that and other causes the tissue rots back into the trunk, leaving a hole which may in the end destroy the tree, and always injures it more or less. Paint will prevent decay, but unless it is applied frequently it wears off, the face of the wound cracks, water gets in, and decay follows. I have examined many tree wounds from artificial pruning, and found this to be the result in numerous instances. Nature prunes in another way and with different results. Decaying branches break off sooner or later some distance from the trunk. When this happens, Nature at once begins to work by closing in the bark at the base of the branch, which is finally forced off when the bark meets, if not before. In vigorous trees decay in such a case rarely extends farther than the base of the branch, because the projecting pieces afford protection from moisture until the wound is healed over, as is often very well shown in the buried knots of sawn-up trees.

I had a ramble through a broad belt of woodland the other day, in which, I was assured, the "pruning hook" has never been used, and was impressed by the fact that it had never apparently been missed. The trees are rather crowded, having been planted for sheltering purposes, but, with the exception of those at the margin of the belt, are remarkably straight and clean—although they are all deciduous—showing that the shape of timber trees depends more upon thinning than pruning. The wind has little power to do injury to such a plantation, but many of the lower branches decay and fall off naturally before they get strong, and hence leave no mark on the trunk, because the knots soon heal over. If this were not the case, such a thing as a clean Pine or Fir tree would never be seen in plantations, for, as a rule, these are subjected to no other pruning than Nature affords, and which consists in the shedding of so many branches annually. Within the past few years there have been cut here large tracts of as fine Larch, perhaps, as could be seen, every tree bare of branches to near the top, from Nature's pruning. There was not an unsound trunk among them from decayed branches. The same thing happens with deciduous trees under similar conditions. If the trees are judiciously thinned, the lower branches decay and fall off before they grow large, and the marks of them disappear in a short time. Y.

Selecting Oak timber.—In the selection of Oak a great deal depends on a knowledge of the soil on which it grew. It is generally found that

when Oak is grown on a peculiarly rich soil it is deficient in strength in consequence of rapid growth, and therefore coarser fibre. In addition to the character of the soil, we have to look at the effects which the atmosphere produces upon it in the situation in which it is grown, as it has been found that even on a few acres the quality would vary greatly according to the position of the trees. Timber cut down in winter should always, when possible, be chosen in preference to that cut in the spring, as it will require less seasoning. Great attention should always be paid to the centres of the trees, as it is there that decay generally shows itself.—D.

THE CORK TREE.

THE Cork Oak (*Quercus Suber*) closely resembles the Evergreen Oak (*Quercus Ilex*), so well known in English parks and gardens. It is indigenous to the mountainous regions of Spain, Portugal, and the south of France. It grows from 30 feet to 40 feet high and from 2 feet to 3 feet in diameter. Spain and Portugal supply the greatest portion of the cork which is used in Europe; abundant supplies are also received from the south of France, at the foot of the Pyrenees, the islands of Sardinia and Corsica, and the forests of Algeria. When this tree is about five years of age, the cork which composes the greater part of its bark begins to increase in a very remarkable manner. Nearly all its vegetative activity seems to be concentrated on this part, which grows unusually large, thick, and spongy. If left on the tree, it becomes cracked and so deeply fissured, that it is unfit for use. It is therefore removed before this happens. Its removal does not injure, but is beneficial to the tree, for if the cork is allowed to remain on its stem, the tree seldom lives longer than fifty or sixty years; if, on the contrary, it is removed, the tree flourishes sometimes for upwards of 150 years. After the tree is thirty years old its cork may be removed at intervals of from six to ten years.

The first crop is generally inferior in quality, and is principally used for making floats for fishing-nets. The harvest is generally in the months of July and August. Two opposite longitudinal incisions into the bark are made the whole length of the stem, and then several transverse ones about 3 feet apart. The bark is now beaten to separate it from the subjacent layer, and detached in cylindrical pieces for inserting under it the handle of the instrument, which is curved and made thin at the extremity for this purpose. In effecting this removal, great care is taken not to injure the living layer of cork beneath. After barking, the pieces of cork are slightly charred to close the pores, then loaded with weights to flatten them, and finally stacked in square masses in some dry place, where they remain for two or three months. In drying they lose about one-fifth of their weight. Only when the trees are forty or fifty years old is the bark sufficiently matured for making good corks. This substance is valuable for bottle corks, because it is light, porous, compressible, and sufficiently elastic to adapt itself to the neck of a bottle.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.

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"The Garden Annual" for 1891.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

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was most keen. Mr. Baker Ottershaw, Chertsey, showed three handsome bunches, to which he was awarded the first prize, being followed by Mr. Clinging, Marden Park, Caterham, and Mr. Ocock, Haverling Park, Romford. For a basket, the first named exhibitor was again first, being closely followed by Mr. Ocock, who in both instances had very fine berries. For any other kind of black Grape the first prize went to Gros Maroc, quite out of its season, from Mr. Smith, Warren Hall, Lough-ton. In white Grapes, the best Muscats came from Mr. Smith, who had three good bunches; the best basket being that from Mr. Grindrod, Whitefield Gardens, Hereford. With any other white kind, Buckland Sweetwater from Mr. Osman was first, and excellent Foster's Seedling second and third respectively from Mr. Crawford (Newark) and Mr. Clinging. Some good examples of Muscats cut from pot Vines were shown by Mr. Godfrey, Hillingdon. The best Peaches were Alexander and Grosse Mignonne, shown by Mr. Robins, Hartwell House, Aylesbury, and the best Nectarines those from Mr. Douglas, who had Lord Napier and another. Mr. Divers, Ketton Hall, Stamford, showed excellent Strawberries in August Nicaise and Noble. Mr. Hare, Wellingore, Grantham, was first with two splendid dishes of Cherries, with Black Tartarian and Elton. Figs were in good condition from Mr. Crawford. The best collection of fruit was that from Mr. Edmonds, Bestwood, who had good Madresfield Court Grapes, Melons, Pines, &c., and a dish of *Physalis edulis*—the same exhibitor being first for Melons.

Groups of plants were contributed by nurserymen and others, that from Messrs. B. S. Williams and Son being the largest, consisting chiefly of Orchids. This was a tastefully arranged collection, comprising several fine Vandas, chiefly vars. of *V. suavis* and *V. tricolor*. Six well-flowered plants of *Oncidium macranthum* were also staged, these being very fine examples; others consisted of *Epidendrum vitellinum majus*, *Cattleya Warneri* with fifteen flowers, C. Mendelli, and C. Mossiæ in excellent variety, *Odontoglossum vexillarium*, &c. (silver-gilt medal). Messrs. Sander and Co. had a smaller group, consisting of several extra choice varieties of *Odontoglossum vexillarium*, including the var. Mrs. H. Ballantine, which was certificated at the last meeting of the Royal Horticultural Society. In *Odontoglossum vexillarium giganteum* is a variety with flowers of superior size and colour; other high-coloured forms were also shown. *Odontoglossum citrosimum* and O. Harryanum, the latter unusually fine, were also staged, and a fine variety of O. Alexandræ. Other choice kinds consisted of *Cypripedium Curtisii*, C. superbiens, *Thunia Marshalliana*, *Lælia hybrida Arnoldiana* (still in good condition), *Phajus Humbloti*, &c. (large silver medal). Messrs. Veitch and Sons again showed their beautiful hybrid *Disa Veitchii*, still in as good condition as when shown last week; also *Epiphrontis Veitchii* and *Dendrobium Phalaenopsis Statterianum*. From Sir Wm. Marriott's garden at Blandford was sent a very superior new hybrid Orchid—*Lælia Cattleya Canhamiæ* (*Lælia purpurata* × *Cattleya Mossiæ*); this much resembles Messrs. Sander's hybrid, and although paler, is equally beautiful. Mr. Elliot, Devonshire House, Stamford Hill, showed a well-arranged group of *Cattleyas* and *Lælias* and *Aerides Warneri*. C. Mendeli and C. Mossiæ were present in first-rate variety (large bronze medal). Messrs. Laing and Sons put up a well-arranged exhibit of choice things, backed up with light foliage. *Caladiums* and *Begonias* were here seen in some of the best kinds, Duchess of Leinster, Lady Grimthorpe, and Mrs. R. Dean being prominent among the latter. New *Crassulas*, Orchids, *Ericas*, Carnations, &c., were also staged (large silver medal). A smaller group of flowering plants in season was shown by Messrs. Cutbush and Son, intermixed with foliage plants, forming a good bank (silver medal). Messrs. W. Paul and Son also had an extensive display of Roses in such new kinds as Hybrid Perpetual Denmark, Spencer and Climbing Pink Rover, with several boxes of cut *Rhododendrons*, Scotch Roses, &c. (silver medal). Messrs. Kelway and Son made a grand show with cut flowers of those things

which they grow so well—*Pæonies*, of which they put up some twenty boxes; German Irises, *Pyrethrums*, both single and double. Other good things consisted of *Dictamnus Fraxinella*, *Anthericum liliastrium majus*, and some good forms of *Saxifrages* (silver medal). Messrs. Paul and Son made a beautiful display with hardy flowers and foliage. This group was most effectively arranged, although the position was not of the best. This consisted of several kinds of Scotch and other Brier Roses and *Rosa rugosa* in rustic baskets, *Thalictrum adiantifolium*, *Adiantum pedatum*, the Oriental Poppy, one variety—a brilliant scarlet—being quite distinct among others; the single scarlet Thorn, *Ramondia pyrenaica alba*, with such ornamental foliage as *Bambusa gracilis*, *Corylus purpurea*, and *Quercus concordia*, *Rosa rubrifolia*, the latter valuable for the rich colour of its foliage (silver medal). Messrs. Veitch and Sons had a rich display of cut *Rhododendrons* of the best varieties in cultivation, particularly in those distinct kinds with dark blotches on the upper petals. This was a fine exhibit of this shrub (large bronze medal). From the same firm came a choice selection of cut herbaceous flowers, consisting chiefly of *Lis* in good variety, their strain of *Aquilegas*, one of the most attractive features amongst all the cut flowers; *Brodiaea coccinea*, *Hemerocallis flava*, *Gladiolus communis ruber*, *Pyrethrums*, single and double, with an excellent assortment of the lovely *Ixias* and *Sparaxis*, and *Lilium umbellatum* and *L. pyrenaicum*, a small silver medal being awarded. Messrs. Veitch also showed two most promising hardy *Azaleas* of the A. robusta type, but more free in growth and most profuse in flower.

Messrs. H. Low and Co. arranged a group of small *Ericas*, *Epacris*, and other Cape and New Holland plants, with a few good Orchids, chiefly *Saccabium* and *Cypripedium bellatulum* and C. niveum, to which a small silver medal was awarded. Messrs. Carter and Co. had a beautiful display of well-grown *Gloxinias*, the plants of close growth with abundance of flowers, the varieties and colours being excellent (small silver medal). Messrs. Barr and Son and Mr. T. S. Ware each showed a beautiful assortment of hardy herbaceous and bulbous plants. Those from the former consisted of Irises in large variety, the bunches well arranged, also a choice variety of *Ixias* and *Sparaxis* with double *Ranunculi*. Mr. Ware's group also consisted of Irises with several good forms of *Pyrethrums* and the Iceland and Oriental Poppies, *Cypripedium spectabile* and other choice things. To each a small silver medal was awarded. Messrs. Collins Bros. and Gabriel received the same award for a most comprehensive display of *Pyrethrums*, single and double, in excellent variety and well arranged, the flowers not being crowded together. Messrs. Dobbie and Co., Rothesay, N.B., staged an extensive collection of Pansies and Violas in fresh condition. Of these, 200 blooms of the former and 100 sprays of the latter were put up (large bronze medal). Messrs. Carter received the like award for a numerous variety of succulent plants, consisting chiefly of vars. of Cacti; the plants small, but healthy. For two large boxes of *Niphetos* Roses Mr. Rumsey received the large bronze medal. These were splendid flowers. Mr. Mould showed several rather leggy plants of *Pride of Penhurst* Carnation fairly well bloomed (bronze medal). A bronze medal was also awarded to Messrs. Cutbush for *Pyrethrums*. Mr. Pritchard, Christchurch, Hants, showed a small collection of herbaceous flowers.

A full prize list will be found in our advertising columns.

Gardeners' Orphan Fund.—The monthly meeting of the committee of the above took place at the Horticultural Club, Hotel Windsor, on the 5th inst. The balance at the bank to the credit of the fund was announced to be £508 17s. 2d. Among special receipts announced was one of ten guineas from Mr. John Wills, which is to be continued for the next five years. The secretary announced that the arrangements with the Crystal Palace Company for a grand floral fête and Rose fair in aid

of the fund had been completed, and the same would take place on Wednesday, July 15. Sub-committees were appointed to carry out the details of the same, which promises to be of a very attractive and popular character.

—As already announced in the horticultural press, one of the items in the programme is a cricket match—The Seedsmen v. The Gardeners of the United Kingdom. Having been chosen captain of the latter team, and with a view of creating a widespread interest in the project, thereby adding to the success of the fête, I should be glad if players desirous of taking part in the match would send in their nominations as early as possible respectively to Mr. C. H. Sharman, 69, Houston Road, Forest Hill, London, captain of the seedsmen's team, and to myself for the gardeners' team, so that we can make the necessary arrangements as to the number of players on each side. We hope to receive nominations from as wide an area as possible, which would add considerably to the interest of the game and benefit to the fund.—E. MOLYNEUX, *Swanmore Park Gardens, Bishop's Waltham, Hants.*

Peat Moss as manure.—I shall be glad to have your opinion and experience as to the result of using stable manure made from peat Moss. I am using it this year with some admixture of straw manure, and find every row of Peas injuriously affected by it. The leaves are spotted and shrivelled like field Parsley, one row having turned yellow and the greater part died. A Pear tree over the roots of which the manure lay (not touching the stem, however) after an abundant bloom has produced a most scanty and shrivelled stock of leaves having a most unhealthy appearance. Beans and Cabbages are not affected. If you have had any similar experience I shall be glad to hear of it; if not, it may be worth while to take a note of what I write, and perhaps also some of your readers may have had like experience and be able to give some light on the matter.—T. H. S.

Scum in pond.—I have a small pond, circular, about 10 yards in diameter. Though small, it is of considerable interest, as it contains many fine hardy Water Lilies—white, red, and yellow—besides other aquatics. The pond is supplied by a pipe from the town waterworks. The plants all thrive and bloom profusely, but the beauty of the whole is much marred by the nasty scum which, especially in hot weather, gathers on the top of the water, and on the leaves and round the stalks of the Lilies. I should be very grateful to any of your correspondents who have encountered and overcome the same difficulties. The removing the scum by any method which has as yet occurred to us is such a lengthy proceeding, that it can only be resorted to occasionally. There are no fish in the pond, but various water-beetles, snails, scorpions, &c., have appeared.—A. C. BARTHOLOMEW.

Single white Narcissus becoming double.—Last autumn I removed from a herbaceous border some large old clumps and planted them out for procuring larger blooms, and on their flowering now they have all come double. Is this unusual? Can any of your many readers give a similar coincidence?—G. TAYLOR, *Inverurie, N.B.*

Hæmanthus toxicarius.—I beg to say that the *Hæmanthus* figured in the last issue of THE GARDEN as *H. toxicarius* (see p. 554) was no doubt erroneously named so, it probably representing the typical *H. multiflorus* or one of the allied species. The *Hæmanthus toxicarius* of Thunberg, also known as the African Poison Bulb, and figured as such in the *Botanical Magazine*, t. 1217, was afterwards named *Buphane disticha* by Dean Herbert.—C. G. VAN T., Jun.

BOOKS RECEIVED.

"Les *Cypripedium* et Genres affines; their History, Description, &c." By Angiolo Pucci. Louis Nicolai, 68, Via Faenza, Florence.

"A Manual of Orchidaceous Plants." Part VII. Messrs. Jas. Veitch and Sons, Chelsea, S.W.

Names of plants.—R. Turnbull, *Bankhill*.—1, *Polygala Chamæbuxus*; 2, *Ranunculus amplexicaulis*; 3, *Vicia cyanæa*; 4, *Corydalis solida*.—A. Y. Z.—We cannot undertake to name varieties of *Rhododendrons*.—V. M., *Devonshire*.—Lily of the Valley, not at all unusual.—Edward Temper.—*Cytisus Adami*.—Decca.—*Henbane* (*Hyoscyamus niger*).

WOODS AND FORESTS.

USES OF LARCH WOOD.

WITH respect to the various uses of the common Larch for timber, so much has been said by various writers, that it will not need any very exhaustive account here. The fact of its being a tree which is very largely used on the estate makes it familiar to many. With the exception perhaps of the Ash, it is a tree which can be used earlier in its existence than any other common to this country, as from 2 inches or so in diameter it can be used for poles. At a somewhat greater age it can be turned to use for a great variety of purposes, and notably amongst these comes that of colliery propping. It is rather a favourite theme with some to try to prove that the Larch is being, or will be, ousted from this use; but the note of alarm is, to say the least, premature. For cleanness of growth, and consequent freedom from waste, and also amongst Conifers for durability, the Larch has no equal. Of this colliery owners are well aware, and when a plantation of good Larch is to be had, it will be taken in preference to any other wood. For trees of a size somewhat larger still, the next important demand is for railway fencing. For fencing on estates the wood which would go for collieries, or even smaller sizes, would come in well enough for fencing, as the rails are seldom required to be squared. Some years ago the same was true of railway fencing; but now with most companies it is insisted on that the rails be squared, and for this purpose, to prevent undue waste, trees of a larger size than those which usually go for colliery props are necessary. The class of wood which cuts up well for this also comes in well for ordinary field gates. When Oak is not used the Larch is the next best material. This is a thing which landowners would do well to take note of, as it has been stated in these columns—and it is a practice which has obtained considerable hold—that many gates are now wholly or partly made of foreign deal. When Oak is not to be had I strongly urge that Larch should be resorted to, as it is a material against which for such purposes the most of the imported woods cannot be held up in comparison. Certain kinds of fencing hurdles, too, can be made from it, but for this the smaller sizes would answer equally well. Ascending again a little in the scale of size, we come to another kind of use, viz, sleepers of various descriptions. If it was obtainable in sufficient quantities and at a reasonable price, there is no doubt that the Larch is essentially the wood for permanent railway sleepers; but as the numbers required are enormous, and foreign wood which is prepared by one process or another comes to hand more regularly and cheaply, it is much more largely used. Notwithstanding this, however, Larch is used for such work in various places, and on tramways and other feeders to the main lines of railway it is held in considerable favour. Its comparative scarcity in suitable sizes is probably the reason why so many foreign poles are imported for our telegraph lines. If it is not this, it is hard to account for it, as for resisting the action of damp between earth and air, so far as my experience goes, Larch is the more suitable wood. If plantations of Larch really exist in this country fitted for use for telegraph poles, it is certainly a question why Larch should be discarded in favour of foreign wood. This is not a mere question of sentiment, but a thoroughly practical one, as if it can be proved that suitable wood is in existence here, but is passed by in favour of the produce of other countries, it is certainly a matter which requires looking into.

When the Larch first grew to any size in these islands some experiments were made as to its utility for ship-building. In some quarters strong opposition was manifested to its employment, and although on the whole the results were favourable, it has not been so largely used as may have been rightly expected. For the smaller class of fishing boats it, however, seems to be still in use, and for some purposes in ship-building. In many

respects the Larch is an invaluable wood where it has to be subjected to hard usage. For the planking of wagons and carts for the removal of stones or similar material it is eminently suited, and by some wheelwrights it is used in the place of Ash for shafts. For agricultural implements generally it has many uses, and for wheel-barrows and the like it is strongly to be recommended. Indeed, there is a whole host of things on the estate and farm where it can profitably be employed, and with judgment there need be very little or no waste. For the sides of ladders the smaller poles will come in well; for pillars and supports to many classes of buildings there is nothing better; for rustic bridges, stiles, and fences, when its bark is retained, it is simply unequalled; and it is also well suited for tubs, pails, buckets, and numerous other domestic utensils.

In house-building there appears to be no reason why it should not be extensively used, except, perhaps, that there are woods which could be used in interior house-building in its place which would not be adapted to stand the exposure for other purposes, which the Larch would do with immunity. Its claims, too, as a furniture wood have been urged by some. With this, in a general sense, I can hardly agree, as there are woods in abundance growing in this country which possess the qualities required in a furniture wood in a much greater degree than the Larch. Y.

THE COMMON BIRCH.

(*BETULA ALBA*.)

THIS is met with in all the countries of Europe, and in the north of this continent, as well as in Northern Asia and America, it forms extensive forests. In Sweden, Norway, and Lapland it springs up in places where Fir, Pine, and Beech forests have been destroyed by fire.

The size and appearance of the Birch vary considerably, according to the nature of the locality in which it grows. Upon lofty mountains it becomes comparatively small and shrub-like, thriving best upon slopes and plains. Its usual height is from 40 feet to 50 feet, but it frequently attains 70 feet. The bark of young trees is of a reddish brown hue, but with increasing age it whitens until it assumes a beautiful silvery colour; the larger branches also become white, but the small twigs always retain their original hue.

The Birch throws off the outer layers of its bark annually, and thus it generally presents a smooth and shiny appearance. Upon very old trees, however, the bark is sometimes burst and rent in all directions. The branches are slender, and at their extremities divided into numerous small twigs and rods. The leaves are ovate, sharp-pointed, and doubly serrated; they are bright green in colour, and when young emit a strong balsamic odour. The leaves droop downwards, and give a peculiar appearance to the tree, by which it can readily be distinguished from its forest companions. The flowers form catkins depending from the branches upon slender peduncles; the male catkins appear in autumn, but remain undeveloped throughout winter, and open only in spring. They bear upon each of the scales of which they are composed three quadripartite florets, with four stamens. The female blossoms appear in spring; they bear upon each scale two naked germs, each of which has two thread-like styles. The seeds are ovate, and provided with two membraneous wings. The ripe seeds fall in autumn, and are eagerly sought after by siskins.

The timber of the Birch is white, close-grained, tough, light, and pliant. It makes excellent firewood, and yields superior charcoal for smelting purposes. The *sabots*, or coarse shoes worn by the peasantry in some parts of France, are made from the wood of the Birch; in Germany, spokes, ladder-beams, axe-handles, and cattle yokes are made from it; and in Great Britain it is used for turnery, hoops, and fish-barrels. Almost every part of the tree is utilised. Brooms and switches are made from

the small twigs and rods. The young buds distilled in water yield a useful oil, which in taste and smell resembles balsam of copaiba.

In Sweden and Norway the leaves are often gathered while green, and given to sheep and goats in place of fodder. Prepared with alum, they yield an excellent dye, which imparts a beautiful permanent yellow colour to linen and woollen materials. The outer bark of the tree is very tough, and almost imputrescible, and contains valuable balsamic and antiseptic qualities. In Sweden, Norway, and Finland the bark is used instead of slates for roofing houses.

Along the Volga and in some parts of North America canoes are constructed from the bark, and fishermen make their shoes of it. In Siberia and Lapland it is employed in the manufacture of boxes, baskets, hats, ropes, and drinking vessels. In Russia a bright reddish brown oil is distilled from the bark of old trees; it is used in the preparation of Russian leather, to which it imparts a peculiar odour. In Poland the inner bark is highly esteemed by tanners. In America and Germany snuff-boxes are often made from the bark. When holes are bored in the trunk or branches in spring, before the leaves begin to expand, the sap readily flows out. This liquid is clear as water, and has a pleasant, sweet, though somewhat acid, taste.

Some trees yield a large quantity of sap, and as much as 10 lbs. of it may be obtained at once, especially if a bright sunny day follows upon a cold night. The sap contains a large amount of saccharine matter, and, when fresh, forms an agreeable beverage. In a fermented state it is known as Birch wine. In domestic medicine, certain preparations from the bark, leaves, and sap of the Birch are considered valuable remedies for ulcers, dropsy, intermittent fever, scurvy, and other diseases.

The common Birch is propagated by seeds, layers, suckers, and cuttings. The seeds do not retain the power of germinating for more than one season. They should be sown in calm weather, in moist soil, loosely dug and covered with Moss. Sandy wastes may be reclaimed by being planted with Birches; but, at the time of planting, it should always be remembered that such principal masses or trees as are to remain permanently must be arranged first, and their future size and character taken into consideration, so that the effect hereafter may not be left to chance. J. H. M.

The durability of timber is not wholly dependent upon the fibres of the wood, but is partly owing to the quality of the sap, which in some trees is of a highly preservative nature; thus, the Oak has an astringent or tanning principle, as well as a ferruginous quality in its juices, and it is from a combination of these qualities that its durability in exposed situations is obtained. The quality of Oak timber is never better than when the tree is grown in a good loam or loamy clay, resting upon a subsoil of blue clay, from which it obtains the oxide of iron with which the wood becomes impregnated.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

STANDARD ROSES.

As long as I can remember anything about Roses—my memory certainly only goes back as a cultivator to the year 1867, in which La France came forth, and in which I first saw a bloom of *Maréchal Niel*, and became the proud possessor of my first Rose tree—a dwarf plant of good old John Hopper, a variety I have always stuck to, and that still holds its own in the garden, the best of all tests, and is often seen in good form and the best of company in the winning 72's—standards have been abused and condemned over and over again. Still they are not yet an extinct race, and if we are to judge by experience past and present, they will yet remain a glorious feature in many a good garden where their cultivation is attended to with care and intelligence. True, they are not calculated to quite meet the requirements of exhibitors by always producing blooms raised to the high order of merit we are accustomed to see now-a-days, although I have known exhibition blooms of the greatest merit, both hybrids and Teas, to have been cut and shown from half and full standards both in the maiden and cut-back form. I shall never forget the beautiful standards I saw last year in Mrs. Waterlow's garden at Reigate, examples that Mr. Brown, clever rosarian that he is, might well be proud of—large handsome plants in the most robust health, laden with a beautiful crop of flowers of the highest excellence. Then, again, I am reminded of the magnificent standards growing in a Gloucestershire garden. Great large tree standards such as one seldom sees may be found upon Major Chapman's lawn at Stonehouse, a collection calculated to illustrate what standard Roses ought to be.

I believe that a good deal of the abuse and condemnation one hears of in relation to standard Roses finds its origin in the fact that people will have the Roses they admire most in the form of standards, whether the kinds they wish for are adapted for growing in that manner or not. It is all very well for some people to say that nurserymen are to blame because they grow many varieties as standards that are unsuitable for the purpose, but nurserymen, like other business people, must produce and be in a position to supply their customers with the article asked for. Purchasers generally expect to get what they want, and are seldom disposed to be satisfied with a substitute, however good. There are, I feel sure, scores of varieties asked for and supplied every planting season in the standard form that are unsatisfactory to the purchaser, or do not pay the grower, and are consequently a source of disappointment and annoyance all round.

If, therefore, it is desired to have trees that are to be big, strong, and vigorous, a selection must be made of varieties that possess a good constitution, that are of good habit as well as being of free growth, hardy, and profuse bloomers, sorts that flower continuously for choice, such as *La France*, *Gloire de Dijon*, *Souvenir de la Malmaison*, *Mme. Lambard*, &c. Many of the summer Roses make wonderfully fine standards, the writer having some plants of *Charles Lawson*, *Blairii* No. 2,

Coupe d'Hébé, *Paul Perras*, *Paul Ricaut*, and *Baronne Prevost* at an old Herefordshire farmhouse that are over twenty years old, with immense heads and great stout stems, laden year after year with blossoms rich and fragrant, a sight worth going miles to see, and such as only could be seldom met with in a far more pretentious garden. These plants were evidently worked upon just the right sort of Briers, not too old nor yet too young, and being hardy, free growers, *Roses* and *Briers* united in the happiest possible manner, the free growth of the head inducing the young but scarcely matured Brier to exert all its powers to grow out, increase in width, and so keep pace with the head, thus forming long-lived, really handsome trees.

If we are to take the trees I have mentioned, and I do not think there could be a better illustration of what standard Roses might be, as an example, it clearly shows that with a careful choice of sorts, worked on properly selected Brier stocks, there is no reason whatever why those who admire Roses in the standard form should not succeed to their heart's content, always provided that the soil and situation in which they are to be grown are not utterly unfitted for Rose growing.

Subjoined is a list of *Roses* found from observation to make satisfactory standards, hardy of constitution, good growers that would produce flowers abundantly throughout summer and autumn. New and improved kinds are purposely left out, but if we are to take into consideration the merits of *Malmaison*, one of the most lovely of all the autumnals, and *Mme. Isaac Perière*, both of which make capital standards, I feel pretty certain that the beautiful *Cheshunt-raised Bourbon Mrs. Paul* will be found to prove a fine addition to the *Roses* calculated to make handsome tree standards, its fine vigorous habit and beautiful colour making it in every way a most desirable acquisition both as a Rose and garden plant. No doubt there are some varieties I have not included in my list that are in every way desirable as standards. I simply give the names of those I know to be satisfactory.

HYBRID PERPETUALS.—*Abel Carrière*, *Alfred Colomb*, *Baronne Prevost*, *Boule de Neige*, *Centifolia rosea*, *Chas. Lefebvre*, *Comtesse de Serenye*, *Dr. Andry*, *Duchesse de Vallombrosa*, *Duke of Edinburgh*, *Dupuy Jamin*, *Edouard Morren*, *General Jacqueminot*, *John Hopper*, *Jules Margottin*, *La France*, *Mme. Clemence Joigneaux*, *Mme. Gabriel Luizet*, *Mme. Knorr*, *Mme. Victor Verdier*, *Mlle. Marie Rady*, *Magna Charta*, *Maréchal Vaillant*, *Marguerite de St. Amand*, *Marie Baumann*, *Marquise de Castellane*, *Maurice Bernardin*, *Miss Hassard*, *Mons. Boncenne*, *Paul Neron*, *Paul Verdier*, *Pierre Notting*, *Senateur Vaisse*, *Thos. Mills*, *Ulrich Brunner*.

BOURBONS.—*Sir Joseph Paxton*, *Souvenir de la Malmaison*.

HYBRID BOURBON.—*Charles Lawson*, *Coupe d'Hébé*, *Juno*, *Mme. Isaac Perière*, *Paul Perras*, *Paul Ricaut*.

TEA-SCENTED.—*Alba rosea*, *Anna Olivier*, *Catherine Mermet*, *Climbing Devoniensis*, *Francisca Kruger* (one of the most useful), *Gloire de Dijon*, *Homère*, *Jean Ducher*, *Mme. Berard*, *Mme. Falcot*, *Mme. Lambard*, *Marie Van Houtte*, *Miss Edith Gifford*, *Niphetos*, *Rubens*, *Souvenir d'un Ami* (and I should imagine the beautiful sport *Souvenir de S. A. Prince*, as it appears to possess all the good qualities and fine constitution of its parent, *Souvenir d'un Ami*).

HYBRID TEAS.—*Cheshunt Hybrid*, *Reine Marie Henriette*.

NOISETTE.—*Aimée Vibert*, *Bouquet d'Or*, *Celine Forestier*, *Mme. Caroline Kuster*, *William Allen Richardson*.

HYBRID NOISETTE.—*Mme. Alfred Carrière*.

HYBRID CHINA.—*Blairii* No. 2, *Chenedolle*, *Double-margined Hip*, *Fulgens*, *Mme. Plantier*.

MOSS.—*Comtesse de Murinais*, *Gloire de Mousseuses*, *John Cranston*, *Lanci*.

AUSTRIAN.—*Harrisoni*, *Persian Yellow*.

MISCELLANEOUS SPECIES AND VARIETIES.—*Rugosa*, *rugosa alba*, *simplex*, *bracteata*, *pulverulenta*, *flore albo*, *macrantha grandiflora*, *Thoresbyana*, *Ruga*.

From their pendulous habit of growth, the two last named *Roses* are admirably adapted for working upon tall stocks, on which they make delightful specimens. W. J. GRANT.

King's Acre, Hereford.

Rose exhibitions.—Growers will very soon be looking out their *Rose* boxes, tubes, &c, ready for the above, and the question will be, "Which show shall I compete at?" Unfortunately, there are so many fixtures upon the same dates. This cannot always be avoided; still, I think it should be better arranged than it is this year. For instance, *Brighton*, *Brockham*, *Bagshot*, *Lee*, and *Croydon* all come on one day (July 1); just a week later there are *Sutton*, *Tunbridge Wells*, *Hitchin*, and *Dursley* (July 8). These are only a couple of instances, but there are many days when two and three fairly good shows are held upon the same day. But perhaps the worst arrangement is, that from the 9th to the 16th of next month there are only a couple of small shows, affiliated to the *National Rose Society*, and one is the day before the grand meeting of the *National Rose Society* at *Hereford*.—R.

Roses in June.—I think we are now far enough into the month of *Roses* to be able to give a fair forecast of the prospects as regards the *Rose* season for 1891. I am afraid it will be one of the worst for many years; first, there was the extra hard winter, then cold, dull weather until May, and just as the *Roses* were inclined to push into full growth came the sharp frost of May 17. My *Roses* were not nearly so much affected by either of these trials as many others I know, nor are mine so backward as those of several of my friends, if I may judge from the mournful tone of their correspondence and the frequency with which they say they shall not be nearly ready for the early shows. Exhibition *Roses* generally are much later in coming to perfection than the majority of the older kinds, such, for instance, as *Souvenir de Charles Montault* and *Abbé Brameral* among the darker *Hybrid Perpetuals*, while among *Teas*, *Noisettes*, and various minor classes one may find many *Roses* in flower during the first and second weeks of June, even in such a backward season as the present. The most serious thing among my *Roses* this year has been the *Rose* maggot, and here let me say one word in favour of the much-abused sparrow, who wages war against these, and, in this district at least, is busy all day among the *Roses* eating the maggots, and occasionally running its open beak up the tips of the young *Rose* shoots and clearing them of green-fly. Maiden *Roses* upon the *Manetti* stock look healthy, but those upon the seedling Brier are not coming nearly so strong as I could wish; old cut-back plants, too, are not up to their usual standard this year. In fact, as far as I am concerned, it is to the maidens upon *Manetti* and hedge Brier that I must look for the exhibition blooms, and it is doubtful if they will be ready in time. A few early flowering *Teas* and *Noisettes* are just commencing to bloom, but these are of no quality as yet, coming all shapes and with green cores in the centre. *Rubens*, *Cheshunt Hybrid*, *Jaune Desprez*, *Grace Darling*, *Souvenir d'un Ami*, *Bougère*, *Marie Van Houtte*, *Mme. Lambard*, *Homère*, *Devoniensis*, and *Gloire de Dijon* are all more or less in flower in sheltered places. *Abbé Brameral*, *Souvenir de Charles Montault*, *Jules Margottin*, *General Jacqueminot*, *Miss Hassard*, *Marquise de Castellane*, *Elie Morel*, *Mme. Montet*, *Heinrich Schultheis*, and *A. K. Williams* have all been cut by the middle of June, while such early *Roses* as the

Japanese or rugosa, the Banksian, and the Monthly Roses are in flower in all sheltered positions.—SUSSEX.

White-flowered Rose La France.—Besides the original Rose La France, which caused so great a sensation when it first appeared, and which justly still maintains its reputation, there are some varieties of it which are but little known. The earliest variety, La France de 1879, a remarkable form, of which a description and a coloured plate were lately given in the *Revue Horticole*, will long continue to be grown. Another variety which deserves special notice is La France panachée, which was raised by M. Veyssset, and was shown at the recent horticultural exhibition at Lyons. The white-flowered La France, which is highly extolled by the *American Florist*, was brought forward by Messrs. George and Thomas Field, of Washington.—*Revue Horticole*.

NOTES OF THE WEEK.

Flowers from Birmingham.—By same post we send you a few sprays of *Genista Andreana*, also *Philadelphus multiflorus*. Both plants have been uninjured by the past winter.—R. H. VERTEGANS, *Chad Valley Nurseries*.

Pyrethrum Jubilee.—I forward you a few flowers of our single *Pyrethrum Jubilee*, as I think it the most beautiful single variety I have seen. I grow several single forms, but none are so bright or have so much substance in the petals as Jubilee.—W. BALCHIN, *Hassock's Nurseries, Sussex*.

* * Flowers deep carmine, the richest-coloured variety we have seen and very handsome.—Ed.

Ranunculus Lyalli at Aberdeen.—We send to-day, per parcels post, a truss of the beautiful *Ranunculus Lyalli*. The plants are from seed sown six years since, and have bloomed for the last three years in succession. It has been grown all along in the open border.—JAMES COCKER & SONS, *Aberdeen*.

* * Very beautiful both in bud and bloom and well grown.—Ed.

The true form of Stephanotis.—We send for your inspection a piece of *Stephanotis* in flower. It was taken from a plant having six shoots, each 54 feet long, and you will see the importance of every grower being certain that he gets the true free-flowering form, as, unfortunately, many of them are by no means so free. This one never disappoints us.—DICKSONS & CO., *Edinburgh*.

* * A superb wreath 7 feet long, one mass of fine flowers.—Ed.

Hæmanthus Catharinæ.—As I see you have an article on *Hæmanthus* last Saturday I send you up a spike and leaf of *H. Catharinæ*, which, as far as I know, far exceeds any other member of the family in beauty. A plant with half a dozen of its huge heads of flower and with fresh green foliage (which is wanting in *H. Kalbreyeri*) is really magnificent. Its culture in a warm vinery is of the simplest, but it is miserable if put in the stove, as is too often the case.—E. H.

* * A very handsome variety.—Ed.

Destruction of Kew Ait.—In the *Standard* of June 12 a correspondent calls attention to the fact that in a week or so, unless the force of public opinion is brought to bear upon the matter, this picturesque screen to the ugly Brentford shore will be almost a thing of the past. Orders have already gone forth to fell the timber. Kew Ait is one of the prettiest of the Thames islands, and to destroy it would be a piece of vandalism. And for what? For the sake of a few pounds, required for the cost of camp shedding, which would save the Ait from being washed away.

Ranunculus macrophyllus (syn. *R. lanuginosus*).—Do any of your readers know this plant? It has bright golden flowers, as large as a florin, and is worth cultivating. I brought one or two specimens from Algiers two years ago, and they have stood the severe test of last winter without injury. It is said to be found in Spain, Corsica, Sardinia, the Balearic Islands, and the north coast of Africa. I do not find any mention of it in Nicholson's "Dictionary of Gardening," a book which would be more useful if it were more complete. Paxton, however, gives this plant under its synonym of *R. lanuginosus*. It evidently likes moisture, for one plant growing in my bog garden

is twice as vigorous as another one planted on the rockery. Speaking of Algiers reminds me of the occasion on which I first met with this species. There is, or there was, two years ago (I hope he is still alive) a M. Durando, an enthusiastic botanist, and a most delightful old man, who for forty years, as he informed me, has taken the charge of weekly natural history excursions on Sunday afternoons, which are open to any who like to join them. On the occasion on which I accompanied M. Durando there must have been fifty or sixty persons in the party, and a most pleasant and profitable afternoon we spent. M. Durando supplies bulbs and roots of Algerian plants, many of which are very interesting, at very reasonable prices, and this perhaps some of your readers may like to know.—F. W. HARMER, *Oakland House, Cringleford, near Norwich*.

Senecio Doronicum.—This plant should be found in every garden where a rich and particularly deep moist soil obtains. Dwarf and robust, rarely exceeding 18 inches high, of compact and densely caespitose habit, surmounted by flowers of the most brilliant orange-gold, it has few rivals at this season of the year. The plant is not generally well known, as was instanced at the Drill Hall on the 9th inst. by a cluster of its flowers being labelled as *Rudbeckia Newmanni*. Of such desirable plants we have but few, and this is the greater reason for affording such things every encouragement. Later in the season this colour becomes more frequent, but in early June it is a rarity, and as such should be regarded. It is a plant of the easiest possible culture, and may be increased by division in spring-time to almost any extent. The flowers are nearly 2 inches across, usually solitary, the buds slightly tomentose, leaves numerous and fleshy, somewhat downy, forming a compact tuft close upon the ground. Native of the south of Europe, from whence it came nearly 200 years ago.—J.

New Ivy-leaf Geranium Beauty of Castlehill.—This fine variety of a beautiful family of florists' flowers is quite the best thing of its kind I have ever seen, and is a real and undoubted acquisition for the decoration of our conservatories and greenhouses, as its dwarf and compact habit of growth (so seldom found in other members of its family) render it specially fitted for pot culture, which Ivy-leaf *Pelargoniums* usually are not. *Beauty of Castlehill* is a seedling from that also fine variety *Souvenir de Charles Turner*, and was, like its parent, raised by Mr. Robert Owen at his nurseries near Maidenhead. It is, however, in every respect superior to its parent both in compactness and dwarfness of habit and in freedom of producing its flowers, the parent being a somewhat shy bloomer and decidedly a long-jointed and coarse grower. The flowers of the new variety are quite as large and as fully double as those of its parent, and have the merit of opening fully and evenly, which the flowers of other double Ivy-leaved varieties do not always do. The shade of colour is a bright and pleasing rose, of a rather lighter tint than that of its parent. No good collection of Ivy-leaf *Pelargoniums* can be complete without this lovely variety.—W. E. GUMBLETON.

Dais cotinifolia.—As long ago as 1792 this plant was figured in the *Botanical Magazine*, and it is there said to have been introduced from the Cape of Good Hope by a Mr. J. Gordon, of Mile End, in 1776. But though considerably over a century has passed since it came into cultivation, it is still, to most gardeners, a practically unknown plant. I notice, however, that it is advertised in a London nurseryman's catalogue at a reasonable rate. It is a greenhouse shrub of deciduous habit, and closely allied to *Daphne*, *Pimelea*, &c. The leaves are opposite, oval, about 3 inches long, and of a rich bright green. The flowers are produced in compact rounded heads at the end of the current season's shoots, twenty or more flowers occurring on each. The flower is three-quarters of an inch in diameter, and consists of five segments which are of a very pretty and delicate rosy-pink, set off by the central bunch of yellow anthers. As in many of its congeners, notably the *Daphne*, the

flowers are sweetly scented. The species is of some economic value, as it is said to yield the strongest fibre known to the natives of South Africa. The genus is composed of four species, three of which are found in Madagascar. *D. cotinifolia* is now flowering in the temperate house at Kew.—B.

Cirrhopetalum Collettianum.—*Cirrhopetalum* is one of the comparatively few genera which are not only amongst the most remarkable of Orchids in structure and appearance, but possess at the same time considerable beauty. *C. Collettianum*, which has just flowered at Kew for the first time in Europe, may, on both these points, take rank as the finest in the genus. It was discovered in Upper Burmah three or four years ago by General Collett, whose name is already known as the introducer of *Rosa gigantea*. The flowers are borne on an umbel of five or six blooms, and are of a reddish purple colour. The most remarkable parts of the flower are the two lower sepals, which, as in other *Cirrhopetalums*, are partly united by the outer edge; on the plant which flowered at Kew they were about 3 inches long, narrow, and tapering to slender points, but in a figure given in the *Journal of the Linnean Society*, vol. xviii., they are shown to be nearly 5 inches in length. The upper sepal and the petals are comparatively small, but are also remarkable in being furnished with a number of what General Collett describes as "banner-like appendages"; these are only slightly attached to the outer margins of the sepals and petals, and are wafted about by the slightest movement of the air. A similar arrangement is seen in the pretty little *Pleurothallis ornatus*. The pseudo-bulbs are about an inch high and bear one short leathery leaf.

PUBLIC GARDENS.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, held at 83, Lancaster Gate, W., Sir William Vincent presiding, it was agreed to ask for permission to improve the churchyard of St. Leonard, Shoreditch; to offer to plant a tree and place seats in Molesworth Square, Weston Street, Borough; to lay out an additional portion of the churchyard of St. James's, Ratcliff; to lay out as a public garden the land behind the projected free library in Kingsland Road; and to continue efforts to secure the opening of Lincoln's Inn Fields, and many other recreation grounds in various parts of London, including the churchyards of Christ Church, Spitalfields; St. Katherine Coleman, Fenchurch Street, and St. Botolph, Bishopsgate; Arbour Square, Stepney; Sidney Square, E.; De Beauvoir Square, N.; Hoxton Square, N.; and Albert Square, E.

A recreation ground in Wapping.—A few days ago Mr. W. H. Dickinson, the chairman of the Parks and Open Spaces Committee of the London County Council, opened Teach Street Recreation Ground, Wapping, an area of 2½ acres, which has been laid out by the County Council for recreative purposes. Mr. Dickinson, in a brief speech, said that in the unavoidable absence of Sir J. Lubbock, the pleasurable duty had fallen upon him to open those grounds for the use of the multitude of the dwellers in Wapping. They were a multitude indeed around that spot. There had been some 150 or 200 acres of land laid out in different parts of London for the use and recreation of the people, but that in which they now were was much the most expensive ever dedicated to the public. Others had cost from £1000 to £8000 per acre. Teach Street had cost £21,000 per acre, or a total sum of £52,000, and he asked if it was not worth it. It was formerly nothing more than a nest of rookeries of the very worst sort, which the Council had pulled down, intending to let for rebuilding, but could not get anyone to take to it; therefore they decided to turn it into an open space and give it to the public for ever, thus transforming it from a plague spot which it had been to a healthful resort. He had great pleasure in proclaiming the ground now open for the use of the inhabitants of Wapping.

TREES AND SHRUBS.

CONIFERS IN POTS.

MANY of the tender Coniferae form conspicuous objects in conservatories, and even when they cannot be planted out, but are confined to pots, they do well with comparatively little attention. Some of the Araucarias are often grown in this way, and are certainly very beautiful. The one most frequently met with under such conditions is the Norfolk Pine (*A. excelsa*), of which the annexed is an illustration. There are, however, several others equally suitable, as *A. Cookii*,

growth. For growing these Conifers in pots nothing equals good loam, in which they will thrive for two or three years if well attended to during the summer as regards watering.

Mr. H. Fulljames, whom we have to thank for the photograph from which the engraving was prepared, thus writes:—

I send you herewith a photograph taken by myself of what I think is a fine specimen of *Araucaria excelsa*. The tree in question I have only had in my possession a few weeks, but I was tempted to buy it on account of having been very successful in keeping the variety. Some four years since I bought a young plant, which has been kept in the drawing-room for a long time at a stretch. During the winter it was kept in a greenhouse barely

flowers, produced in June, are disposed in erect clusters similar in every respect to those of the Horse Chestnut, and are of a pale yellow colour. It would hardly be effective in a small state owing to the comparative dullness of the flowers, but a good specimen is certainly attractive, and there appear to be several forms of it with slight variations in size and colour of flower. One such that we have now in bloom has rather larger flowers distinctly shaded with a brownish red upon the upper petals. The leaves of this kind die off very early in autumn, but they take on a beautiful shade of yellow. Our light dry soil, however, has much to do with this, as elsewhere the tree keeps green longer and is not so bright when fading. Next in order in point of stature and in season of bloom comes the red Buckeye (*P. rubra*). This does not attain to more than 20 feet in height, but in habit and general appearance it resembles the preceding kind except that it has red flowers. It also seems to occur in other forms, some of which never attain to more than the dimensions of a shrub, whilst the finest species of the family—*P. macrostachya*—must be called a spreading shrub. It rarely exceeds 10 feet in height, but it spreads about in diameter more than exceeding its height, and whilst it is pretty in leaf its value is enhanced by the fact that it comes into bloom quite six weeks after the other Pavias and Horse Chestnuts are over. It seems to grow almost anywhere, flowers with great freedom, is strikingly effective, and sweetly scented. The flowers are of the palest yellow, almost white, with red stamens. It is easily increased often by means of suckers, but if there are none of these, the shoots that rest upon the ground soon root if covered with soil, whilst the plant's habit assists in its increase by this simple means. The above trio, with perhaps a few of their more distinct forms, would make a grand group upon some open spacious lawn.—A. H.



The Norfolk Island Pine (*Araucaria excelsa*). Engraved for THE GARDEN from a photograph sent by Mr. H. J. Fulljames, Ravenswood, Worple Road, Wimbledon.

A. Rulei, and *A. Cunninghami*. The stronger growing species of Araucarias, such as *A. Bidwilli* and *A. brasiliensis*, are not so suitable as the Norfolk Island Pine, but when planted out they form noble specimens. The smaller growing Conifers are also suitable for pots, for balconies and similar places, and for plunging in the ground to furnish bare spaces in the winter they are unrivalled, being always fresh and green, with the exception of a few such as *Cryptomeria elegans*, *Retinospora ericoides*, &c., sorts that assume a brownish hue during that season. These are, however, welcome for the sake of variety. All such plants should be stood out doors during the summer to make their

warmed. The specimen from which the photograph was taken stands 5 feet 6 inches high.

Buckeyes (*Pavias*).—A specimen of the yellow Buckeye about 20 feet high and covered with bloom is one of the most conspicuous flowering trees in the garden and serves to forcibly remind us of the beauty of their near allies, the Horse Chestnuts. They are very valuable for the garden, and they might even be associated with the Horse Chestnuts in the park, as they are by no means particular or fastidious concerning soil and aspect. The kind above mentioned, *P. flava*, is perhaps one of the most common, and it is the largest in growth, as it attains to from 30 feet to 40 feet in height, making a compact, dense, round-headed tree. The

NOTES ON FLOWERING SHRUBS.

THOUGH later than usual, and in many cases showing more or less the effects of the severe weather through which they have lately passed, several of our hardy shrubs are now in flower, among them being the following:—

AZALEAS.—These are not nearly so fine as in previous years, for the flowers, especially the earlier ones, suffered severely from the sharp frosts we experienced last month. *Azalea mollis*, which usually gives us such a fine display before the various hybrids grouped under the collective title of Ghent Azaleas expand their flowers, suffered to such an extent, that in many places but a few blooms opened. Of the Ghent Azaleas some of the later ones are opening fairly well, while the very latest of all, owing to their backward state at the time of the frost, do not seem to have suffered to any great extent. So beautiful are these hardy Azaleas when in bloom, that one would expect them to be more commonly grown than they are at the present time, and this is perhaps to some extent owing to a very widespread idea that peat soil is absolutely necessary to their well-doing. Such, however, is by no means the case, as like their allies the Rhododendrons they will grow well in loam, provided it is never parched up. Even where the soil is not all that might be desired much may be done by incorporating a quantity of decayed leaf-mould with it.

CHOISYA TEENATA.—Despite the severe winter and sharp spring frosts, this, a flowering shoot of which is shown on p. 573, is blooming well in many places, but the foliage has been so much injured, that a good deal of the beauty of the plant is lost. It will, however, quickly recover, as young shoots are being pushed out freely enough over the entire plant, so that a bush of it will soon be covered with the rich green shining leaves, which diffuse such an aromatic fragrance when handled in any way.

GENISTA HISPANICA (the Spanish Furze) is noteworthy from the great profusion of its bright golden-yellow coloured blossoms, which are so numerous that the entire plant appears to be of that hue. In a good open position, such as crowning a knoll on a sloping bank, or on a sunny part of the rockwork, it is at home, and now one of the

showiest low-growing shrubs we possess. In planting it must on no account be crowded up with other shrubs; still, given an open place it will succeed at least fairly well even in smoky districts. Where the soil is of a dry sandy nature the Spanish Furze will hold its own better than many shrubs.

EXOCHORDA GRANDIFLORA (the Pearl Bush) does not appear to be blooming with its usual freedom, but even where the flowers are but few it is very ornamental, as it forms a bush of graceful and pleasing outline, the young foliage being of an attractive shade of green, and as a rule plentifully produced. We sometimes see it treated as a wall plant, and in this position it can be counted upon to flower with greater certainty, but a mistake is often made with this and, in fact, many other wall shrubs. It is nailing them too stiffly to the wall, as by so doing they always have an artificial appearance; whereas, by securing the branches in position till the space is covered, and then allowing the slender shoots to dispose themselves in a graceful manner, the effect produced is vastly more pleasing.

DOUBLE-FLOWERED LILACS.—We have had a great many double-flowered Lilacs put into commerce within the last few years, and, judging by a few I have bloomed and half a dozen varieties exhibited at the recent Temple show, it appears to me that there is a very great sameness amongst them. The pure white well-shaped flowers of Mme. Lemoine stamp it as a very desirable variety, while the pinkish tint of President Leon Simon renders it different from the others. It seems to me that we do not want any addition to these double-flowered Lilacs till we have some more distinct shades of colour amongst them. Why will nurserymen persist in grafting these on to the common Lilac, which, being so prolific in suckers, needs continual attention? There is no need of this, as cuttings of the growing shoots strike root without difficulty in the summer if put in a frame, and though it might take a little longer to obtain saleable plants in this way, yet few, if any, would mind paying the additional price for a plant on its own roots.

BERBERIS CONGESTIFLORA HAKEOIDES.—This is one of the South American evergreen Barberries, but very different from the better-known kinds from that region, such as *B. empetrifolia*, *B. Darwini*, and *B. dulcis*. It forms a sturdy growing bush, which is said to attain a height of several feet; but it flowers freely when its stature may be reckoned by inches. The leaves, which are each from 1 inch to 2 inches in length, are roundish, the upper surface being bright green, while the lower is glaucous. A very distinct feature is furnished by the stout coriaceous character of the foliage and the large conspicuous spines upon the margins of the leaves. The flowers are, like those of most of their class, of a golden-yellow colour, but crowded together in dense heads. It is one of the numerous valuable hardy shrubs for which we are indebted to Messrs. Veitch.

CYDONIA JAPONICA.—Many regard the Japanese Quince and its varieties as fit only for walls, and ignore its beauty altogether when grown as a shrub in the open ground. Still, it is well suited for growing in bush form, as it is perfectly hardy and will both grow and flower well so treated. Perhaps these forms of the Japanese Quince are seen to the best advantage when planted in a clump or group, sufficient space being allowed each individual for its full development and yet not enough to present an isolated, dotted-about appearance. When grown in this manner they are, of course, later in blooming than on a wall, but in any case their flowering season is spread over a lengthened period.

RUBUS DELICIOSUS.—This is often spoken of as the Rocky Mountain Bramble, but really it is very dissimilar from the other members of the genus. In the first place, the spines are totally wanting, and the plant naturally forms a somewhat spreading bush clothed with Currant-like leaves. The flowers, which are of the purest white, are more than a couple of inches in diameter, reminding one of a Dog Rose; they are also very pleasantly scented. It is a perfectly hardy shrub, but, this year espe-

cially, the flowers are much better on a wall than where the plant is in the open. This *Rubus* is certainly a very beautiful wall shrub, though seldom seen.

JASMINUM FRUTICANS.—Trained to a warm wall this Jasmine has mounted up to a height of over a dozen feet, the wall being thickly covered with its neat growth and foliage, while it is already studded with its bright golden-coloured blossoms, of which a succession is often kept up throughout the summer.

BROOMS.—The rich golden yellow blossoms of the common Broom, those of the White Broom, and that pretty form known as *Cytisus sulphureus* or *præcox* are all very beautiful, while to these must be added *C. Andreanus*, which is attracting far more attention than usually falls to the lot of a new shrub. One reason of this novelty becoming already so popular is that it admits of ready increase, for it may be easily grafted on to seedling stocks of the Laburnum and common Broom, and also strikes root from cuttings.

KALMIAS.—The pretty little *K. glauca* has now finished flowering, and a second species, *K. angustifolia*, is just commencing to expand its blossoms. It is an upright shrub, a yard or so high, while the flowers are in the best forms richly tinted.

BERBERIS STENOPHYLLA.—If not the very best, it is certainly one of the most beautiful of all Barberries, and that no garden should be without. The graceful arching manner in which the long wand-like shoots are disposed is a great point in favour of this Barberry, which must be classed as one of the happiest instances of the hybridiser's skill.

T.

FLOWER GARDEN.

VARIETIES OF POET'S NARCISS.

REGARDED from an all-round point of view, I think few will deny that the several varieties of *Narcissus poeticus* are among the most useful of this large and interesting group of plants, while from a commercial standpoint the most valuable may be summed up in three kinds, viz., *ornatus*, *poetarum*, and the *Gardenia*-flowered *albus fl.-pl.*, and if a further reduction was necessary, the first and last named may be found to do all that is requisite for the providing of quantities of flowers in the hands of experienced cultivators. By thus reducing them I would not infer that there is no room for the other varieties which help to make up this group; far from it, as each and all of them are useful enough in their way, particularly in those gardens where such flowers are only grown in the open borders or beds; then it is that such early and late kinds as *angustifolius* and *recurvus* are valued for the succession which they afford, while *poetarum*, which in point of flowering occupies a central position, should always be grown by reason of its distinctive features, if for no other purpose. It has not the fine pure white flowers of *ornatus*, but it possesses a richly coloured cup, or rather a cup suffused with bright orange-scarlet, that wins for it many admirers, and where the longest season of flowering is regarded with importance this should always be found. The variety *angustifolius* is noteworthy for its earliness more than anything else, as it flowers a fortnight before *ornatus*; it is, however, of a somewhat fragile habit of growth, rather taller than the majority, with star-shaped blossoms and reflexed segments. *Grandiflorus*, which according to the name should be something of special merit, will in my opinion never make a popular plant—that is, popular in the sense that *ornatus* is at the present time. It is certainly a large flower, but it assuredly is not a refined flower by any means, and it lacks in its entirety the glistening whiteness as well

as the exquisite form and elegance of *ornatus*, the best commercial plant of the whole group. Another excellent kind, when well suited at least, is the double white form of this group; indeed, it would be valuable but for one serious defect, and this is its tendency to come blind, which minimises its worth in no small degree. It is the more vexing that no remedy has been found for its shortcoming, and it is perplexing in the extreme when we remember that we can grow a fine bulb far superior in quality and weight to the Dutch-grown bulbs of the same variety, and as a step beyond this it is apparent that we can produce a fine healthy flower bud, but the defect is in the fact that we cannot do the most important item of all, and that is persuade these very bulbs to produce and develop flowers in due season. That we can produce fine bulbs and trace the existence of perfectly formed flower-buds in September and onwards would at all events appear to prove that soil and cultural conditions generally were according to their requirements; but then, again, we have to face the fact that these very buds will issue from the bulb in apparent health and vigour to a height varying from 6 inches to 10 inches, to be discovered on the next examination to be blind, and, of course, worthless. This season they are much worse than I have ever known them, quite two-thirds of those that produced apparently healthy flower-sheaths failing to develop into bloom. Repeated examination of the sheaths containing the would-be flowers does not reveal anything new, and it suddenly becomes a fact when they attain the height above named that they are useless. This fact has caused many to regard the evil as due to atmospheric or local conditions at this particular stage of their existence, some asserting that spring frosts or dry harsh winds have had something to do with it; but after an experiment with several hundreds of very fine bulbs in a cold frame, which were even worse than those in the open ground, so far as blindness was concerned, I concluded this to be no solution of the mystery. Last year I asked the question whether any of your readers had experience with these as sub-aquatics, but it brought forth no reply and I determined to try some in very moist soil in the following manner. I selected twenty-four fine bulbs, half of our own growing and half Dutch grown, the English grown being decidedly superior. The bulbs were planted in good soil in large pots, six bulbs in each, early last autumn, and when plenty of roots had been made I moved them into a cold pit. Early in the present year I made two pots water-tight by cementing them at the bottom, and when hard I placed 3 inches of clean gravel in each pot and upon this I stood a pot each of the Dutch and home-grown bulbs, and kept the gravel just covered with water, so that the roots should have a continuous supply of moisture; the other two pots were placed beside those just named and freely supplied with water at all times, but the end of it all is only to record another failure, for I did not get even one bloom from the whole of the bulbs, and I can only cling still to the belief that heavier and moister soils are what these things need. Little or no difference is apparent in instances where the bulbs are lifted annually or have remained a second year, or whether planted on newly broken-up pasture land without manure, or on land heavily manured, in so far as the blindness is concerned, for still blind flowers appear every year. Happily, this *Narcissus* blooms freely in some districts, and I shall still try to discover if possible the reason of its non-flowering. Meanwhile I would be

glad of any suggestions that may be in the minds of any of your readers who grow and flower these successfully and in quantity, also particulars concerning soil, situation, depth of planting and so forth; such information will be helpful and of interest to many besides myself. What is the experience of growers of it on heavy clay land or in northern districts, or Scotland? for this particular kind is certainly not content under the conditions which suit the rest of the Poet's Narcissus so well. E. JENKINS.

PLANTING CLIMBERS ON WALLS.

ALL plants liable to injury from severe frost are better planted now out of pots than at any other season. The Clematis family are probably for the most part hardy, when well established against a warm wall, but a very large percentage die the first year, and if planted in autumn and the winter happens to be cold many will have to be replaced in spring. The best and hardiest of the Clematis hybrids is Jackmani, and large quantities of this variety are propagated and sold every year. The question might be asked what becomes of the many thousands of these plants sold from the great nurseries; of course, many die and disappear, but I believe most of these deaths are owing to autumn planting, and are therefore preventable. May is the best month for planting the Clematis, and when the spring is cold the planting may with advantage be delayed till June. I should adopt just the same course with Veitch's Virginian Creeper (*Ampelopsis Veitchi*). This plant is very popular in towns, and no wonder, for where used it quite alters the character and appearance of the place. Both the Clematis and the Ampelopsis are propagated in heat under glass early in spring. This may make them rather more tender; at any rate, a larger percentage die off during the first year than ought to be the case with plants actually hardy. If they are planted in autumn a little covering of dry Fern round the base will be beneficial. Passion Flowers on many walls and buildings are dead. Where young plants in pots have to be purchased the planting should be done now, and if strong plants are set out, considerable progress will be made this summer. E. H.

Lilium candidum.—I am sorry to notice the appearance of the disease so fatal to the above-named Lily. I have applied a powder that has been strongly recommended as a remedy for the Potato and Tomato fungus, and will duly chronicle the result. Anything that will arrest the disease and preserve the bloom should be a boon to gardeners, as there is in many places a great and increasing demand for spikes of this old favourite. What are the peculiar conditions out of doors favourable to the approach and spread of the disease? I say out of doors, not having been troubled with it inside. Perhaps some readers who have grown this Lily largely in pots will kindly say if they have experienced the disease under these conditions, and if so, what remedies have been used against it.—E. B., *Claremont*.

A few survivals from the winter.—Now that the winter has, it is to be hoped, finally left us it is interesting to note how well some plants have survived that are usually considered to be not quite hardy. The following shrubby plants stood altogether unprotected and are quite uninjured: *Akebia quinata*, *Berberidopsis corallina*, *Desfontainea spinosa*, and *Lycesteria formosa*. Others were protected from wet either by glass or overhanging eaves, such as *Gelsemium sempervirens*, cut down to the root, but now growing strongly; *Ecceimocarpus scaber*, covered with a mat; *Mitrisaria coccinea*, kept dry by a sloping glass, cut to the ground, but now showing plenty of foliage; *Veronica chathamica*, covered with a glass and only partially cut; and *Daphne indica* under a projecting window and quite uninjured. The last three species afford a striking example of the importance of keeping tender plants dry at the root during severe winters. Among herbaceous plants that

have survived without any other protection than a few ashes or dead leaves are *Bletia japonica* and *Roscoea sikkimensis*, both kept rather dry by being close to a house wall, and *Myosotis azorica* in the open. A curious case of difference of constitution in plants of the same species is afforded by *Eucalyptus Gunni*. My plant, about five years old and 8 feet high, stood in a rather exposed situation without losing a leaf even on the shoots of the last year, while a much older plant 10 feet or 12 feet high in a more sheltered position in a friend's garden a few hundred yards off is completely destroyed. It is probable that these trees were raised from seeds gathered at different altitudes, as in other cases such are known to differ in hardiness. A number of other plants grown from the same batch of seed as mine have stood equally well in a somewhat colder district. High mountain species, such as *Meconopsis Wallichii*, *Cathcartia villosa*, and many of the hardier alpine, seem to have been benefited by the long-continued winter, and are now growing luxuriantly.—A. R. WALLACE, *Parkstone, Dorset*.

PINKS.

THE blooming season of Pinks is close at hand, and probably ere this appears in print we shall see the earlier varieties in full bloom. The plants seem to have wintered well, and have come through the hard weather apparently unharmed. Something of this is due to the native hardiness of the Pink, something to the close growing nature of the plants, which enabled the snow to cover them and protect them from the intense frosts. It is not merely that plants standing thinly in beds or singly in borders are unharmed; we see them in huge breadths bristling with stems and flower-buds, which when presently expanded will display masses of snowy whiteness or of pale pink. These, of course, are the common market or bunching Pinks, which so hardy and so free blooming still rank amongst the very best of all plants for the production of an abundance of flowers for cutting. One notes with surprise almost how rough comparatively is the cultural treatment accorded to these plants, and yet how well they thrive. So soon as they become too dense, and that is after the second year, the plants are early in the autumn lifted, pulled to pieces, and the best pieces dibbled out into rows about 15 inches apart in fresh clean soil. These make quick root and growth, but are at their best in the second year, when the bloom is at once the finest and most plentiful. So far the market grower seems to have limited himself to these two common varieties. Mrs. Sinkins certainly produces fine flowers, but is far less free and constant than is the old white. The blooms of Mrs. Sinkins, though of so excellent a hue, are almost invariably burst or split-podded, and are thus in less favour than are the white laciniated flowers of the common Pink, which never burst the calyx. Those who have noted the very remarkable difference between the flower production of Mrs. Sinkins and of the older types will readily understand how indifferently the former variety comes up to the cut-flower grower's ideal. Apart from that, Mrs. Sinkins lacks that robust constitution which would enable it to have rough and ready treatment, such as is usually given to market garden Pinks. It is possible that some recently raised seedlings give even better white blooms for bunching than do the old variety, but these must be tested in bulk before such opinion can be sustained. It really is less in white than in dark colours that improvement is needed. The pink form of the common white is a poor pale-hued flower, and it is not difficult to find others which materially excel it, but it is not so easy to obtain that robust free habit which the old Pink enjoys. Not until scores of plants have been propagated and grown can we tell how far seedling varieties may be useful. The blotched flowers are not of much merit for bunching, although very pretty in gardens. Pure selfs are best, especially good reds. No doubt whatever exists but that presently we shall get plenty of good reds, but their development is necessarily a slow process. I do not see much probability that

we shall get the needful colours from the florists' strains. The best they have given us, Lord Lyon and Derby Day, lack altogether that robust habit which will enable them to be grown anywhere and anyhow. The florists have worked for size of bloom and smoothness of petal, whilst the laciniated edged flowers are always robust, just as smooth-edged ones are the reverse. I have that pretty smooth-edged white Mrs. Walsh, but it seems devoid of stoutness and growth, and shows none of that tendency to break and make strong tufts also carrying many bloom stems, which characterise the hardy border forms. Pinks, of course, seed none too freely, especially if at blooming time the weather be wet. I bloomed one batch last year, and have some more seedlings to flower again shortly, but the excessive rain of last summer prevented seed-production. A. D.

Morisia hypogæa.—This was referred to a few weeks ago as being in full bloom, and we are glad to say our estimate of its free-flowering habit has been more than borne out. The plant in question has flowered incessantly for a month at least, and it looks now as if it would continue as long again. It is a very attractive little plant, its numerous deep golden flowers showing up well against the bright green varnished-looking leaves, which are deeply cut. We know not whether it is biennial or perennial, but it promises such a crop of seed that there will be little fear of losing it now we have it in cultivation. It is a native of Corsica and Sardinia.

Polemonium Richardsoni is one of the most useful and effective of hardy perennials. It is also known as *Polemonium humile*. I think it was first sent out by Mr. Ware, and it was awarded a first-class certificate in 1885. Its merits consist not only in its being such a tidy plant, with its graceful foliage, but also because throughout the whole summer it sends up a profusion of light blue flowers as large as a shilling, which flowers just nestle above the top of the Fern-like foliage, making it a most effective plant. From remarks I have heard it is possible it does not grow so well in the south of England as in the more elevated regions in the north. If allowed to seed it seems to lose its character, and many of the seedlings approach more nearly to the common Jacob's Ladder. The true plant can only be kept by division, and also by keeping it well apart from *coruleum*. On one occasion I had a seedling from it which was white, but it had not the character and beauty of the variety Richardsoni. *Polemonium reptans* is by no means showy, yet a plant on the rockwork pleases. *Polemonium himalaicum* is decidedly an over-rated plant, tall and untidy in habit, and it is soon over. *Polemonium confertum*, described as one of the most beautiful of hardy plants, has so far beaten me, it exists, but does not flower. It is a native of the Rocky Mountains, and there seems to be a difficulty in finding out its requirements. Seed is now offered of *Polemonium flavum*, a new distinct species with buff-yellow flowers; it has not yet flowered here.—G. H. C., *Brookfield*.

SHORT NOTES.—FLOWER.

Tulip with four flowers.—By this day's parcels post I forward you a monstrous Tulip with four flowers on one stem. Two on a stem are very common, but I do not remember having heard of four.—FREDK. BEDFORD, *Stratford*.

Aquilegias.—The fine new hybrid varieties now in cultivation come true from seed, and a good stock can in this manner be had, which will flower fairly well another season if the seed be sown at once. I have found it a very good plan to set apart a light in a small pit or frame for these and other plants similarly raised. In this manner the seed can be sown thinly, and the soil does not dry up so quickly when thus in the bulk instead of using pots or pans. The seedlings appear, too, I think, rather more quickly than by the other process; it is certain that they gain strength much sooner through the roots having more freedom, and this is of importance.—G.

A green carpet wanted.—Herbaceous borders have always an unpleasant and unnatural appearance, owing to the fact that the plants spring from bare

ground, a thing which never exists in Nature. Is there any plant known which can be grown as a close green carpet to bring the borders to something like a state of nature? Some of the Saxifrages might do, but they are liable to damp off on level ground in the winter and leave unsightly patches, and they have also the very serious objection that the covering of some thousands of square yards would be a very costly and troublesome matter. Perhaps some of your readers may be able to give some advice. That the borders shall be clothed with green is a necessity if Nature is to be followed as a guide to art.—THOS. FLETCHER.

THE SAXIFRAGES.

(Continued from p. 545.)

S. ADENODES (Poepp.).—A native of the Andes of Chili, at an altitude of 2400 mètres to 2800 mètres. A caespitose species, forming large tufts of glandular-pubescent foliage. Leaves trilobed. Flowers white, in corymbs—five to six in a corymb. Not in cultivation.

S. DECIPIENS, Ehrh. (syn., *S. villosa*, Willd.).—A native of the mountains of Europe. A caespitose species of loose habit. Leaves light green, much-divided, and furnished with long hairs. Flowers white, in corymbs—five to nine in a corymb. Culture the same as for *S. canaliculata*. The following varieties are found in herbariums: *S. d. laevis* (Mack.) and *S. uniflora* (R. Br.). In cultivation we meet with the varieties *S. d. palmata*, Panz. (the leaves of this variety are glabrous and obtusely lobed), *S. d. Sternbergi*, Willd. (syns., *S. elongata*, Panz., and *S. hibernica*, Haw.), a form from Greenland with ciliated leaves; *S. d. sponhemica*, Gmel. (syns., *S. elongella*, Smith; *S. laevis*, Haw.; *S. affinis*, Don; *S. quinquefida*, Haw.; *S. hirta*, Haw.), a native of the mountains of Central Europe, with smoothish stems and trilobed glabrous leaves; *S. d. groenlandica* (L.), a small plant from the arctic regions, of close-growing habit, and with finely divided leaves; *S. d. caespitosa* (L.), a native of Northern Europe and the northern parts of North America, with smooth leaves and short, few-flowered stems. Three years ago Dr. Regel sent us seeds of the following varieties, the plants raised from which have not yet flowered to such a degree of completeness as would warrant me in giving any description of them here, viz., *S. compacta* (Koch), *S. villosa* (Koch), *S. grandiflora* (Rgl.), *S. Haworthi* (Hort.), *S. hirsuta* (Koch), *S. latifolia* (Rgl.), *S. latiloba* (Rgl.), *S. purpurea* (Rgl.), and *S. recurvifolia* (Rgl.).

S. HYPNOIDES (L.).—A native of the mountains of Northern, Southern, and Western Europe. A very caespitose species, forming dwarf tufts of not very closely-set foliage. Leaves handsomely and finely divided, encircling the branching stems, which creep on the ground. Flowers white in light panicles, with purplish-pink stems. Culture, the same as for *S. ajugifolia*.

S. CANTABRICA (Boiss. and Reut.).—This is a dwarf Spanish form of *S. hypnoides*, and is grown in the same manner.

S. CONIFERA (Coss.).—A native of the province of Leon, in Spain. A very interesting little species, which appears to me to come much nearer to *S. aspera* than to *S. hypnoides*. It has very small, entire, coriaceous leaves, ciliated at the margin, closely imbricated, and encircling the weak stems, which spread on the surface of the ground. When the heat and drought of summer come on, all these small leaves appear to become dried up, losing all their verdure, and assuming a scariosus aspect; they then become closely compressed together, and, as it were, condensed into a small, brown, dried-up, and apparently lifeless cone, whence the species derives its name. When the rainy season sets in, the foliage resumes its verdure, dilates, and spreads over the ground. Flowers white, with yellow dots. We grow this plant in a light pebbly soil in a dry, half-shaded position. Multiplied by division of the tufts or by sowing the seed.

S. SPATHULATA (Desf.).—A native of the Atlas range of mountains. A pretty dwarf species, with spatulate, entire, or tridentate leaves of a cheerful green colour, ciliated at the margin, scariosus,

and even cobwebby. Flowers white, with bright pink dots. Culture, the same as for the preceding species.

S. ERIOLASTA (Boiss. and Reut.).—This is a form of the preceding species, of much larger dimensions than the type, and also grown by us in a dry and half-shaded position.

S. REUTERIANA (Boiss.).—A native of the mountains of the province of Grenada, in Spain. A small very caespitose species, covered with closely-set, fine hairs, and forming handsome spreading tufts of foliage. Flowers white, solitary, or in twos. Not in cultivation.

S. GLOBULIFERA, Desf. (syn., *S. granatensis*, Boiss. and Reut.).—A native of the mountain ranges of Southern Europe and Algeria. A handsome species with deeply incised and finely-divided leaves of a cheerful green colour, nerved or veined, and long-stalked. Flowers large, pure white, five to seven in number in a loose and graceful panicle. This species is grown in the same manner as *S. ajugifolia*, but should have a drier position. The Algerian variety of this plant, *S. g. oranensis* (Munby), which is of much larger dimensions than the type, is to be met with in some herbariums, but is not in cultivation.

S. GIBALTARICA (Boiss. and Reut.).—A native of Southern Spain. This species comes near the preceding one, but, under cultivation, a very perceptible difference is observed between the two species (which perhaps is not so marked in dried specimens), the leaves of *S. gibraltarica* being much more attenuated and thinner than those of the other species. We grow it in the same manner as *S. conifera*.

S. MUSCOIDES, All. (syn., *S. planifolia*, Lap.).—A native of the Alps and high mountains of Southern Europe. A caespitose species, forming dense closely-set tufts of foliage. Leaves imbricated, entire, linear. Flowers yellowish white, in small clusters of two to five flowers. Culture, the same as for *S. moschata*. In herbariums the following varieties are to be met with, viz., *intermedia* (Koch), *citrina* (Heg.), *acaulis* (Gaud.), and *trifida* (Gaud.), while in cultivation we find the variety *S. Facchini* (Koch), a bright purplish-red-flowered form from the Southern Tyrol.

S. GLABELLA (Bert.).—A native of the mountains of Italy and Greece. An interesting, caespitose species with erect stems and deep green, linear, glabrous leaves. Flowers white, in small groups of two or three blooms. Not in cultivation.

S. ANDROSACEA (L.).—A native of the high mountains of Central and Southern Europe and of Central Asia. A caespitose species, with deep green, ciliated, spatulate, entire, oblong leaves. Flowers white, in small, erect groups. This plant likes a cool, moist soil, but at the same time a position fully exposed to the sun. We grow it in a compost of one-third loam, one-third leaf-mould, and one-third peat, always kept moist and in the full sun. Multiplied by sowing the seed and by division of the tufts. The two following varieties are to be met with in herbariums: *S. a. pyrenaica* (Scop.) and *S. a. tridens* (Jan.).

S. SEQUIERI (Sprgl.).—A native of the high Central Alps, at an altitude of 2500 mètres to 3000 mètres. A small species, forming exceeding dwarf, level, flat cushions or carpets of foliage. Leaves spatulate, closely set. Flowers small, greenish-yellow, crowded together on short hairy stems. This species, which occurs on the mossy rocks of the glacier regions, is not very amenable to cultivation. We have succeeded in getting it to flower by planting it between non-calcareous stones, half exposed to the sun and in the same compost as that given for the preceding species.

S. SEDOIDES (L.).—A native of the Tyrolean Alps, at an altitude of 2000 mètres to 2500 mètres, and also of the high mountains of Southern Europe. A branching species, carpeting the ground with small rosettes of narrow, aciculate, glabrous leaves of a cheerful green colour. Flowers lemon-yellow with purple anthers, solitary or two or three together. Culture, the same as for *S. conifera*, except that it requires calcareous soil. *S. Hohenwarti*

(Sternb.) is a variety of this species, not in cultivation, but to be met with in some herbariums.

S. APHYLLA, Sternb. (syn., *S. stenopetala*, Gaud.).—A native of the calcareous districts of the Central and Eastern Alps, at an altitude of 2000 mètres to 3000 mètres. A pretty little species, forming dense, roundish, pincushion-like tufts of foliage. Leaves entire and of a cheerful green colour. Flowers light yellow, solitary or in pairs on short, slender stems. When growing at very high elevations it sometimes happens that the flowers are sessile, lying close to the tufts, and so numerous and densely crowded together as to completely conceal the foliage. Culture, the same as for *S. androsacea*, with the addition of broken limestone in the compost. Multiplied by sowing the seed.

S. BICUSPIDATA (Hook.).—A native of Cape Horn, in South America. A small, Moss-like species, with diminutive, closely-set, one-nerved leaves and inconspicuous flowers. Not in cultivation.

In addition to the foregoing species there are also numerous hybrid Saxifrages which belong to this section, but most of these are not in cultivation. In herbariums we find the following kinds: *S. Muretti*, Ramb. (*aphylla* × *planifolia*); *exilis*, Heg. (*moschata* × *planifolia*); *Padellæ*, Brüg. (*androsacea* × *Sequieri*); *trifida*, Gaud. (*muscoides* × *moschata*); *moschata* × *mixta*, Engl.; *moschata* × *exarata*, Engl.; *granulata* × *decipiens*, Engl.; *androsacea* × *planifolia*, Brüg.; and *moschata* × *Sequieri*, Brüg. In our alpine garden we grow the following hybrids: *S. capitata*, Lap. (*ajugifolia* × *aquatica*), a superb form, possessing in equal proportions the characteristics of both its parents, and cultivated in the same way; and *S. Wettsteini*, Brüg. (*exarata* × *planifolia*), a hybrid of no great value as an ornamental plant, but interesting on account of its parentage.

SECTION TRACHYPHYLLUM (Gaud.).

This section comprises plants of very diverse kinds from the Alps, the Himalayas, and the arctic regions, with entire, coriaceous, rigid, and often spinulose leaves.

S. MERKI (Fisch.).—A native of Central and Eastern Siberia. This species forms thick tufts of numerous branching stems which terminate in rosettes of long, lanceolate leaves, ciliated at the margin. Flowers yellow, in twos or threes. Not in cultivation.

S. SERPYLLIFOLIA (Parsh.).—A native of North America and of Northern Asia. A very pretty little species which forms dwarf tufts of hard, deep green, closely-set leaves, and has flowers of a fine yellow colour. Not in cultivation. The variety *Pallasiana* (Sternb.) is found in some herbariums.

S. PERPUSILLA (Hook. and Thoms.).—A native of the alpine regions of the Eastern Himalayas, at an altitude of 5000 to 5500 mètres. A very minute, caespitose species, forming dwarf, level tufts of imbricated leaves, which are ciliated at the margin and of a handsome green colour. Flowers brilliant yellow, borne on very small naked stems. Not in cultivation.

S. MICROPHYLLA (Royle).—A native of the alpine regions of the Western Himalayas, at an altitude of 4500 mètres. The plants of this species are the smallest of the whole genus. They form very dwarf, level tufts of imbricated, linear leaves, from which arise slender flower-stems, each bearing a solitary flower. Not in cultivation.

S. STELLA AUREA (Hook. and Thoms.).—A native of the alpine regions of the Western Himalayas, at an altitude of 4500 to 5300 mètres. This is also a minute species with densely-crowded imbricated leaves, forming tufts of a fine green colour, from which arise the flower-stems, each bearing a single large-sized flower of a brilliant yellow colour. Not in cultivation.

S. JACQUEMONTIANA (Dene).—A native of the alpine regions of the Himalayas, at an altitude of 5200 to 5400 mètres. This species comes near the preceding one, from which it is distinguished by its more densely-crowded habit, by its shorter flower-

stems and by the shape and colour of the petals of its flowers, which are of a brilliant yellow with deep orange dots. Not in cultivation.

(To be continued.)

STOVE AND GREENHOUSE.

HOTHOUSE ARALIAS.

ARALIAS are, for the most part, distinguished from other hothouse plants by their slight and graceful habit of growth as well as by the readiness with which they adapt themselves to the embellishment of plant houses and the apartments of dwelling houses. About twenty years since a number of charming species, most of which require only a house of moderate temperature, were introduced from New Caledonia.

The following list contains a description of some of the best species of Aralia at present known:—

A. ALIA CHABRIERI (see illustration) (*Elæodendron orientale* or *Terminalia*) (New Caledonia, 1882).—Leaves alternate, pinnate; pinnules arranged regularly, elongated in form and narrow, of a bronzy-green colour with a broad red midrib. Not a true Aralia.

A. CRASSIFOLIA (*Pseudo-panax crassifolium*) (New Zealand, 1846).—Leaves alternate, elongated, 2 feet to 2 feet 4 inches long, narrow, not quite 2 inches broad, wavy at the margin, of a deep olive-green colour with an orange-red midrib.

A. ELEGANTISSIMA (New Hebrides, 1873).—Leaf-stalks slender and elongated, leaves digitate, with filiform leaflets, wavy at the margin and slightly drooping. Stem straight.

A. FILICIFOLIA (see illustration) (Polynesia, 1876).—Leaf-stalks sheathing at the base; limb of the leaf irregularly pinnate; pinnules opposite, pinatifid, and of a glistening green colour; stem and leaf-stalks marked with whitish dots.



Aralia filicifolia.

A. GEMMA (New Caledonia, 1875).—Leaves pinnate, with deeply-cut pinnules of an olive-green colour with reddish yellow lenticulations; under surface of the leaf violet-red. Stem dotted with white.

A. GUILFOYLEI (New Hebrides, 1876).—Leaves

pinnate on slender elongated leaf-stalks; leaflets oblong, irregularly cut at the edges, with a border of creamy-white and a light green centre, sometimes spotted with grey; stem erect, spotted.

A. KERCHOVEI (see illustration) (South Sea Islands, 1883).—Leaf digitate in circular contour; leaflets spreading, elliptical-lanceolate in shape, wavy at the margin, of a fine green colour, with a pale green mid-rib. A plant of very handsome habit.

A. LEPTOPHYLLA (Melanesia, 1862).—Leaf digitate; leaflets filiform, drooping, broader at the extremities, and of a fine deep green colour. Leaf-stalks and stems slender.

A. LONGIPES (North Australia, 1882).—Stem erect; leaf-stalks long; leaf digitate, with oblong, lanceolate, acuminate leaflets, wavy at the margin.

A. MACULATA (South Sea Islands).—Leaf light green, with oblong, acuminate leaflets. Stem and leaf-stalks erect, and spotted with green on a brown ground colour.

A. MONSTROSA (see illustration) (South Sea Islands, 1880).—Leaves pendent, pinnate; leaflets oblong-elliptical, irregularly cut at the edges, with a creamy-white border on a green ground colour, which in the rest of the surface of the leaf is spotted with grey.

A. OSYANA (South Sea Islands, 1870).—This is very like *A. leptophylla*, but has the leaflets deeply bifid, and the nerves and veins of the leaves of a fine brown colour. A very elegant kind.

A. QUERCIFOLIA (New Britain, 1880).—Leaves opposite, trifoliate; leaflets sinuated along the margin; leaf-stalks long and slender.

A. RETICULATA.—Leaves alternate, elongated, of a deep green colour with light green reticulations; mid-rib and stem of a fine brown colour.

A. REGINA (New Hebrides, 1877).—Leaf-stalks olive-coloured and pink, with brownish spots; leaf digitate; leaflets roundish, drooping. Very graceful habit.

A. ROTUNDA (Polynesia, 1882).—Limb of leaf spreading, orbicular, heart-shaped at the base, and

mental species. Leaves opposite, trilobed; leaflets oblong-lanceolate, sinuated at the margin, and of a light green colour.

A. VEITCHI (New Caledonia, 1867).—Leaves digitate, with filiform leaflets, wavy, of a deep



Aralia monstrosa.

green on the upper surface and dark red underneath. Stems slender, erect.

A. VEITCHI GRACILLIMA (see illustration) (South Sea Islands, 1876).—Leaflets more filiform than in the type and with ivory-white midribs. A plant of exceedingly elegant habit.

In the wild state Aralias, as described by



Aralia Veitchi gracillima.

margined with small white teeth. Sometimes the leaf is trifoliate, with brownish, spotted leaflets.

A. SPECTABILIS (syn., *A. concinna*), Delarbrea spec. (New Caledonia, 1879).—Leaves unequally pinnate; pinnules incised and toothed; stems spotted.

A. SPLENDIDISSIMA (New Caledonia).—Leaves pinnate; leaflets of a fine glistening green colour.

A. TERNATA (New Britain, 1879).—A very orna-

travellers, appear as very branching shrubs growing from 6 feet to nearly 10 feet high, and covered in spring with small white flowers. They are mostly found on low hills or rising ground in dry localities.

CULTURE AND MULTIPLICATION.—Aralias are now cultivated to a pretty considerable extent, being especially used for table decoration. The only fault that can be ascribed to them is that

in most cases they are slow or difficult to be propagated. They like to grow in a compost that is rich and at the same time light in character; a mixture of stiff loam, fibrous heath-soil and coarse sand suits them admirably. They bear frequent repottings and require to be kept somewhat dry, as their roots easily rot. Liquid manure is good for them, but should be given in moderation. The young plants like a bottom-heat, and the best results will be obtained by plunging them in a hotbed under a frame. Most Aralias are multiplied by means of cuttings, which are kept close after they are inserted in the pots. The pots should be well drained, then filled nearly to the brim with very sandy heath-soil, the remainder of the pot being filled up with a layer of dry sand. The cuttings are then put in. These are made with a truncate sloping cut, and the wood from which they are taken should be half ripened. The leaves are held up by tying them to the prop which is inserted in the pot for the support of the stem of the cutting which is also fastened to it. The cuttings are then watered. It may be easily supposed that particles of the upper layer of sand, after the pot has been watered, are carried down and fill up all the interstices of the soil around the stem of the cutting, so as to thoroughly exclude the access of any air. The pots thus furnished with cuttings are then placed on a good bottom-heat under frames in the propagating house, and are lightly watered morning and evening. In about three weeks or a month the cuttings will have struck root, when they should be repotted and grown on as previously directed. Some kinds, such as *A. Veitchi*, *A. Veitchi gracillima*, and *A. elegantissima*, are difficult to raise from cuttings, and these are multiplied by cleft-grafting or side-grafting them on *Aralia reticulata* or on *A. filicifolia*, both of which are rapid in growth and easy of culture. The only other point in the grafting of Aralias that needs mentioning is that the graft should be made as low down as possible on the stock, and that the cuts on both stock and scion should be made as clean and even as possible in order to avoid the production of any swellings or enlargements from exuding sap, which would disfigure the lower part of the plant. The grafts unite in about three weeks, sometimes sooner. The plants should then be repotted and treated like plants raised from cuttings. In England they sometimes employ a special method of grafting Aralias, namely, by making an oblique incision in the stock to the depth of two-thirds of its diameter, in which the scion, cut in a sloping manner to correspond, is inserted. This method is particularly useful in the case of strong subjects in which the lower branches have become thin or few, as the head can be cut off and then grafted on the lower part of the stem. Attempts have been made to propagate Aralias, especially *A. Chabrieri*, from cuttings taken from the extremities of the lateral branches. This method, the success of which is by no means certain, is of little use except for the production of "mother plants," i.e., plants from which cuttings or scions may be obtained. The stem of a plant raised from one of these cuttings having attained a sufficient degree of strength, is pinched at the extremity, after which it proceeds to develop lateral shoots which will supply material for cuttings.—*Revue Horticole*.

Mignonette in pots.—Where a stock of this annual is required in the autumn to add to the attractions of the show house, the seed should now be sown in the pots in which it is intended that it should flower. Repotting in the case of small plants does not pay for the trouble. It is better to spend a little more time in preparing the pots for

the seed. The soil should be upon the dry side; it can then be rammed firmly down into the pots. If some old mortar rubble is at hand, it should be added to the loam after having been reduced to a powdery condition. Upon the drainage a layer of fowl's manure may be placed. This greatly assists the plants by the time the roots have worked well into it. Where Tree Mignonette is contemplated for another season the seed should now be sown, the same treatment being observed, with the exception of reducing to the most promising plant in each pot. Six-inch pots are a very good size for usual purposes, but a size smaller is at times desirable. If placed in a cold frame and kept shaded from the sun the seedlings will soon appear, then gradually harden them off until well exposed to light and air.—G.

FLOWERING SHRUBS FORCED.

Not only are the very early flowering shrubs forced prematurely into bloom in order that they may be employed for the embellishment of the greenhouse or conservatory at a time when those outdoors, if not actually dormant, are only just awakening from their winter sleep, for now some of those that bloom naturally quite late in the season are so treated, and being brought on under glass they, of course, flower much earlier than those in the open ground, but not so soon as the early spring-flowering shrubs. Of the later blooming kinds there is one grown to a greater extent than all the others put together, and it is that most beautiful flowering shrub *Hydrangea paniculata grandiflora*, so popular as a market plant, and of which splendid examples are now to be seen in Covent Garden. It is certainly one of the finest flowering shrubs we possess, equally beautiful whether bloomed early under glass or as an outdoor shrub, while it is perfectly hardy. Another late flowering shrub that Messrs. Veitch have from time to time shown us as available for pot culture is the North American White Alder (*Clethra alnifolia*), which when laden with its spikes of white blossom is very ornamental, added to which they are agreeably scented. It is a deciduous member of the Ericaceæ, and like the majority of that class needs a cool, moist soil for its well-doing. Many other interesting shrubs in flower were to be found in Messrs. Veitch's group at the Temple show, among which especial mention must be made of *Hypericum Moserianum*, the Continental-raised hybrid between the Japanese *H. patulum* and the European *H. calycinum*. The plant in question studded with its bright golden-coloured blossoms was very attractive. The North American Fringe Tree (*Chionanthus virginica*) with its long pure white ribbon-like petals is both distinct and pretty treated in this way, while the light pinnate foliage and Pea-shaped blossoms of *Indigofera floribunda alba* render it very attractive. A beautiful flowering shrub and one that has rapidly advanced in popularity within the last few years is *Spiræa confusa*, or at all events the species known as such, its correct name being, I believe, *S. media*. Its neat freely branched habit and the profusion in which the corymbs of pure white blossoms are borne are all points in its favour for such a purpose. There is undoubtedly a great future before this *Spiræa*, which will probably ere long be as much grown as the ever popular *Deutzia gracilis*. Another species of *Spiræa* which is very pretty in the greenhouse when at its best, in which stage, however, it does not long remain, is the Japanese *S. Thunbergi*, which forms a shrub of pleasing outline clothed with narrow pointed leaves of a very bright green, while the small Hawthorn-like blossoms are arranged for some distance along the shoots. All the hardy Azaleas readily lend themselves to flowering under glass, and of them some of the newer double-flowered varieties afford a pleasing change from those commonly grown. In all cases shrubs that are needed for blossoming in this way should be potted as early as possible, for the flowers on established plants remain in perfection very much longer than on those which are potted but a very little time previous to blooming. For this very reason shrubs for forcing are by some grown altogether in pots, and so treated I have seen Azalea

mollis and *Magnolia stellata* flower well year after year without being repotted, though in their case occasional doses of weak liquid manure were given during the growing season. H. P.

***Eranthemum pulchellum*.**—This *Eranthemum* should, if possible, be grown in pits near the glass; it does well with rather more heat and moisture than accorded to the *Poinsettia*, although it will do fairly well with that plant. The same kind of soil will suit it, but more water is required at the roots. Another lot of cuttings should be put in; these should be taken from the old plants in preference to heading down the younger ones. From now onwards I have found an excrescence form upon the undersides (and occasionally upon the upper) of the leaves on frequent occasions. This need not cause any alarm as to the future well-being of the plants; they generally manage to outgrow it in due course.—H.

***Conoclinium ianthinum*.**—As an early spring flowering plant this is both distinct and ornamental. If the old plants have not yet been cut back no time should be lost in doing it. Young shoots should be taken advantage of for propagation, as it is just as well to have a few young ones to replace the older. It is easily increased from cuttings, but by reason of its hirsute foliage, too great an amount of moisture must be guarded against. The old plants should be reduced and repotted into smaller pots for a start, being placed in a gentle warmth until fairly growing again; then a cooler course is better for them. It is a wonder that this showy plant is not more grown than it is. For large houses it is most desirable, and being of easy cultivation may be had in quantity. The only thing to guard against is overcrowding.

***Humea elegans*.**—The present is an excellent time for sowing the seed of this plant. Being very fine, the seed needs careful treatment and but very lightly covering with fine sandy soil or cocoa fibre reduced almost to a powder. This latter retains moisture and saves the trouble of watering for some considerable time. Heat is not at all essential to assist germination beyond what is gained by a close pit or frame. Covering the pan with glass is advisable and some paper should be placed upon it if it stands where the rays of the sun reach it. Close watch for the appearance of the young plants should be kept; these do not germinate very quickly or in a regular fashion, and during the earlier stages grow somewhat slowly. As soon as some of the larger ones are fit to prick off it will be just as well to do it, taking care not to disturb the soil more than is possible.—G.

***Cytisus Everestianus*.**—Were it not for the difficulty attending its propagation we should no doubt see this beautiful greenhouse member of the Broom family far oftener than is the case at present. It is but a garden form of the ordinary *Cytisus racemosus*, so much grown as a market plant under the title of *Genista*. The leaves of *C. Everestianus* are more hairy than in the ordinary type, while the flowers are much deeper coloured, being in fact almost of an orange tint. It is equally as dwarf and free-flowering as the other, but while *C. racemosus* can be easily propagated by cuttings during the summer months, *C. Everestianus* will not readily conform to such treatment. It is usually increased by grafting on the common kind, and if this is done when young and care taken that the point of union is as near the ground as possible, it will with successive pottings be gradually covered, and as the stock is never troublesome, none of the objections to grafting apply in this case.—T.

***Aphelandra aurantiaca Roezli*.**—Seedlings of this handy dwarf-flowering plant should now be fit for potting into either 3-inch or 4½-inch pots. In these pots they should be allowed to flower. With seedlings one has to guard against the plants becoming drawn up tall more than when dealing with old cut-back plants. They should, therefore, be given as light a place as possible, and the nearer the glass the better. The foliage of itself is ornamental, being very distinct with its silvery grey shades; guard therefore as much as possible against

its being injured or broken and otherwise disfigured by insect pests. This and other *Aphelandras* take a liberal supply of water when the pots are well filled with roots. An excellent contrast to the foregoing variety is *Aphelandra nitens*, with its dark metallic coloured leaves and yellow flowers. This variety is of rather slower growth.

PIMELEAS.

THE species of this genus are somewhat numerous, but only a limited number combine the properties essential to their coming into general cultivation. They are dense, low-growing shrubs that vary considerably in the character of their growth and in the colour and general appearance of their flowers. They are profuse bloomers, bearing such a dense head of flowers when well managed as to almost hide the foliage. The plants are somewhat formal in outline, but devoid of stiffness. In most of the cultivated kinds the shoots are slender and droop gracefully, so as to come down below the rims of the pots in which the plants are grown. For greenhouse decoration they require little in the shape of sticks and ties further than is necessary to support a few of the principal branches. *Pimeleas* are easily managed plants; they grow freely provided a few essentials to their well-being are understood and attended to. Their roots are much less delicate than those of many kinds of New Holland subjects. During the season of active growth most of the sorts require the soil kept a little more moist than many things that come from the same part of the world. Through the spring and summer it is also necessary that the syringe should be used freely every day to moisten the foliage thoroughly; this greatly assists the growth and is requisite to keep the leaves free from red spider, which, in the absence of enough moisture, turns them brown and causes them to fall off prematurely to an extent that gives the specimens as they get old a bare, scraggy appearance at the base. This applies more particularly to *P. decussata* and others of like character that make shorter and much stiffer growth than the weaker wooded kinds, such as *P. spectabilis* and *P. Hendersoni*. To get the plants on, particularly in their early stages, they should have a thin shade over them in bright weather during the spring and early part of summer whilst growth is most active. If this is accompanied by a more humid atmosphere than necessary for many hard-wooded subjects, double the amount of growth will be made that would be produced if the plants are surrounded by dry air. In most gardens where there is anything like fair accommodation for plant-growing this can be managed by standing the plants at one end of a house or pit, where the necessary shade can be given without interfering with the requirements of such things as are better without shade. There is another matter in which *Pimeleas* differ from many kinds of hard-wooded subjects; they are better not submitted to open-air treatment in the latter part of summer. If they are grown in a house that admits plenty of light and they are kept well up to the glass, both the wood and the leaves get sufficiently hardened without exposure out of doors, which in their case is not necessary to enable them to bloom. *Pimeleas* will grow in either loam or peat; in the latter they usually make the quickest progress, but the flowers of the pink kinds are generally deeper and brighter in colour when grown in loam than in peat. In selecting plants of the ordinary trade size, it is essential to choose those that have had their strongest branches tied well out, so as to bring them down nearly to the rims of the pots whilst the wood was yet thin and pliable, as after the

branches get strong they are too brittle to bend, the consequence being that when training has been neglected early it is not possible to keep the plants fully furnished down to the bottom.

For the first two years it is better to aim at getting the plants up to a useful size rather than to treat them with a view to their flowering. This being the case, early in spring the preceding summer's shoots should be cut back to about half their length. It is necessary to repeat this cutting in annually; without it the specimens will get too thin and straggling, but, as will be easily understood, when the plants are large enough to be intended to bloom the shoot-shortening in question must not be carried out until after they have flowered. When the blooming is over, it will be found that the plants have already started into growth and have pushed several shoots just below the base of each head of flower. The grower must on no account be tempted to forego the use of the knife and allow these to go on, for if, as already said, this growth is let remain, the specimens will soon become unshapely. After cutting in keep the plants a little close, and syringe overhead once a day to help the new growth to break. Directly the young shoots are fairly in motion, repot, giving additional room more or less in accordance with the natural size and strength that the particular species attains. *P. spectabilis*, for instance, grows more quickly and attains a much larger size than the other kinds ordinarily cultivated. A full-grown specimen will run to as much as 5 feet or 6 feet in diameter, whilst *P. hispida* and *P. Neippergiana* do not usually attain half this size. Whichever is used, peat or loam, should contain plenty of vegetable matter, and have enough sand added to it to ensure its porosity for a long time, as no shaking out or disturbance of the roots must be attempted. With a like object the drainage must be ample. In potting, do not disturb the roots further than by removing the old drainage material. Ram the new soil well in, so as to make it as solid as that of which the balls are composed. Shade from the sun and give less air until the roots have had time to begin moving into the new soil, and keep the atmosphere moist by throwing water about the floors and stages daily.

Whilst the plants are young, *Pimeleas*, in common with the generality of hard-wooded stock, are much better for being stood on an inch or two of moisture-holding material. By keeping this damp the moisture it gives off tends to promote growth. Except in their earliest stages, *Pimeleas* require no stopping, as after the foundation for the future specimens is laid, and enough branches to furnish them are secured, any interference with the shoots further than the annual cutting-in described does harm, inducing weak growth, a condition that should always be avoided. Until the plants get to something approaching the size required they should have a shift annually. When it is determined not to increase the size of the pots, recourse must be had each season to manual stimulants either in liquid form or the ordinary surface dressings; and the longer the plants remain in the old soil the more necessary is it to give increased help in this way, as the roots will virtually have nothing else to depend on through the old material having become exhausted. Even whilst young they will be benefited by the use of manure applied in one or other of the ways named during the summer months when growth is most active.

As to the most desirable kinds, the rose-tinted variety of *P. spectabilis* is much superior to the old white form; the flowers are far more effec-

tive, especially in the earlier stages of their development. As already said, it is a strong grower, quite distinct from any other plant in cultivation. It is an effective object in a conservatory or greenhouse. To prolong the flowering of this, as well as the other species, the plants should be carefully shaded from the sun when in bloom. In the case of *P. decussata* and *P. Hendersoni*, shading is also necessary to preserve the bright colour of the flowers. *P. Hendersoni* is a slender, but free-growing plant, with small linear leaves and bright pink flowers, which appear in dense heads almost globular in form. *P. decussata* is a slower grower; it makes much shorter wood that is more inclined to assume an erect position; the flowers of this kind are smaller and still more dense than those of *P. Hendersoni*. It is a good grower, that with ordinary care will continue to thrive and keep in a healthy condition for many years. *P. elegans* is quite distinct from anything else in cultivation, so far as my memory serves me. It is a stronger growing plant than either of the two last named, and is more open in the distribution of the branches; the leaves are considerably larger than those of other *Pimeleas*, whilst the flowers are much smaller, being about the size and having much the appearance in form of those of the outdoor shrub, *Buddleia globosa*. They are white tinted with yellow. *P. Neippergiana* is a small-growing species, the flowers of which are white, and produced in spring. This is a suitable plant for growing where room is limited. *P. hispida* is another small grower; the flowers are like miniature examples of those of *P. spectabilis*, white tinted with pink. This plant is peculiar, inasmuch as it blooms two or three times in the course of the year, the flowers setting as soon as the shoots have made two or three inches of growth; consequent on this habit the shoots do not require cutting back after flowering in the way recommended for the other kinds, as if when the bloom is over the old flowers are pinched out, the plant will remain sufficiently furnished. Examples of this species when from 12 inches to 15 inches in diameter are pretty decorative objects. I have found this kind do better in peat than in loam. T. B.

Thyrsacanthus rutilans.—This is unique in its way when a well-grown plant in profuse bloom is obtained. This is easily accomplished, the plant being of free growth, but it has an inveterate enemy in the brown scale, from which it should in every possible case be kept free. Old plants which flowered rather late in the spring will now be fit for repotting. If they have young growths upon them suitable for cuttings some should be secured; these will strike freely in a moist, close atmosphere, each cutting being put singly into a small pot. The older plants will possibly need a little pruning, but not sufficient to shorten their height to any extent. This plant looks far better when grown as a standard with stems of about 3 feet or more in height. In this manner, the long pendulous racemes of flowers are displayed to the very best advantage. On one occasion I had several plants which were of sufficient height to reach the wires near the glass usually devoted to climbers. Here I secured them for the flowering period, partially overhanging the pathway. Being old plants they bloomed most profusely, and produced a beautiful effect for several weeks. The young plants should be grown on a single stem until they reach about 3 feet in height, being secured to a stake to guard against breakage. Afterwards they will throw out lateral shoots; these will extend another foot or so before the time of flowering. These young plants should be grown on rather briskly. I have found them to do well in the stove, choosing a light position. The older plants when fairly started into growth will do well in a cooler house with more air. I have,

in fact, seen them stood out of doors during the summer in favourable positions farther south, but would not advise this plan in a general way.—G. A.

Centropogon Lucyanus.—If the stock of this handsome plant for winter decoration is short it may be increased by division. This will now be a better means of increase than by cuttings. Young plants will bear rather more warmth for some time yet; so also will divided plants, but the other part of the stock will now do better under a cooler course of treatment. From now onwards these may be grown in a pit or frame without any fire-heat. For a while early closing in the afternoon will be advisable, but in a few weeks the plants will be all the better if kept cooler; the lights even may be left off during very warm weather. Nearly all loam is best for this plant, too light a soil encouraging a strong growth, a close bushy plant being in all respects the most desirable.

Elæocarpus cyaneus.—I quite agree with all "T." says of this lovely greenhouse shrub. The flowers remind one much of those of some of the alpine *Soldanellas*, as the berries are less ornamental than those of some other greenhouse plants with less attractive bloom. I find it best to remove them early to reserve the strength of the plant for its charming blossoms. It appears to be more hardy than it is generally thought to be. My plant has resisted several degrees of frost this winter, standing in a house which is only occasionally warmed, and where frost penetrated many times, with several other things reputed more hardy which succumbed. It is now in perfect health and full of buds. I hope the time is not far distant when the beautiful hard-wooded plants of the stove and greenhouse will emerge out of their long unmerited neglect and again come to the fore.—J. M., *Charmouth, Dorset.*

Primulas (Chinese).—When only medium-sized plants are required, and these chiefly for flowering in the early spring, the month of June is a good time for sowing the seed. Some leaf mould worked down very fine through a sieve of close mesh, with a little light loam added to it and some silver sand, makes a very good soil for *Primula* seed. This should be well watered before sowing; then add a little more leaf-mould or cover with *Sphagnum Moss*. In the former instance the pan will want covering with a square of glass and some paper as a shade; in the latter no more addition is needed besides close watching for germination and a light moistening of the Moss. A very successful raiser of *Primula* seed informed me that he always had the best returns when he used the Moss. As soon as the plants appear this can be gradually removed until it is all taken off. Those who have not had good success in raising their *Primulas* are advised to try this plan and test the results practically.—H.

SHORT NOTES.—STOVE AND GREENHOUSE.

Poinsettias.—In favoured localities with a warm sunny position, old stools of these may be planted out after having been pruned hard back. When old plants are retained, I would prefer this system to that of keeping them in pots throughout. Cuttings taken from these plants at the end of July and in August will provide a useful dwarf stock. The position for these plants should be a fairly dry one and the soil none too rich, so as to guard against a too succulent growth.—G. A.

Plumbago rosea and P. coccinea.—These both do well under the same treatment. Young stock of these showy plants should receive liberal treatment. After once stopping, the shoots should be allowed to run on and gain strength; lateral growths will then, in due course, be pushed forth. It is now getting too late to strike *Plumbagos* for making good flowering plants for another winter. Where small plants can be made use of, a few cuttings might be put in; they will come in useful for another season.

Schizostylis coccinea.—When properly looked after this is a most useful plant for late autumn and winter flowering. It is grown far more easily when planted out than in pots. Old clumps or stools should be divided up singly and planted in rows in good soil rather deeply so as to prevent them becoming dried up. Others which may have been recently purchased or

broken up should be planted as they are, so as to give less check to their growth. In some districts where this bulbous plant stands out all the winter with tolerable safety, good examples can be had for lifting in the autumn. These I would divide up and assort at once in order to secure extra strong plants, each of which would most likely flower in due course. In other respects they should be treated as recommended for *Callas*.—G. A.

Clianthus puniceus.—Several examples of this were flowering freely in the Botanic Gardens, Manchester, and they reminded me of those plants Mr. Bruce, a market gardener, near Ham, in Surrey, used to grow in 6-inch pots for Covent Garden Market. Mr. Findlay's specimens are the first and only ones I have seen flowering so small. If this *Clianthus* could be grown and flowered well in what I may call the regulation-sized pot, there would be a great future for this plant.—G.

PLANTS AND THE PAST WINTER.

WITH a view to ascertain the damage to plants during the last winter, I made a close inspection of all our plants, trees, and shrubs the last week in May. I herewith give a list of those that have suffered, with notes as to their position, &c., avoiding many plants and shrubs, such as common and other Laurels, that are known to suffer to some extent. *Jasminum revolutum*, an old strong plant growing against a south wall, has been killed back to the old wood. Camellias have been killed on east wall, but on sheltered walls not injured. *Escallonia macrantha* much injured, in low spots young wood all killed, on high dry ground but little affected. Some large plants of *Ceanothus dentatus* on south and west walls killed back to the old wood. Standard bushes killed down to the ground. *Azara microphylla* cut badly, although planted against south wall. The *Loquat* planted against a west wall, with Ivy hanging over it and its roots under paving stones, not in the least injured. *Veronicas* all killed except *Traversi*. It is strange some plants of these should be killed and others escape, although growing close to each other. I noticed Mr. Wilson, of Weybridge, spoke of the same thing occurring with him recently. *Berberis Wallichiana*, young growth much cut where exposed. *Eucalyptus coccifera* killed to the ground; although some of our plants were growing in a high and sheltered situation, one planted against a south wall fared no better. *Clethra alnifolia* slightly injured. This has escaped better than I expected. A young plant of *Clerodendron trichotomum* has been quite killed. *Buddleia globosa* where growing strong much cut. We have here some plants growing on a high, dry, poor, stony soil. Here they grow but slowly and look thin and poor, but they bloom most profusely. These have not been injured in the least. A large bush of *Cistus ladaniferus* growing in an exposed situation quite dead, although many years old. *C. florentinus* where growing on high and poor dry ground, although exposed, is not injured in the least. The young growth and leaves of *Garrya elliptica* injured. *Yucca filamentosa* and *flaccida* injured or dead, although growing on rockery. Bays much damaged. *Laurustinus* not much damaged where not growing too strong. *Bambusas* not much damaged, although *Metake* has suffered the most. This arises from its growing too strong, being in good soil. *Pampas Grass* has suffered severely, although not killed. Old clumps suffered the most. *Passiflora cœrulea* growing against a south wall, sheltered by the abbey on the east, killed to the ground. *P. Constance Elliott* has fared somewhat better, although much injured. This is planted in a most sheltered spot facing west, with a high portion of the abbey sheltering it from the east. It is killed to the old wood. Some Tea Roses growing against a low stone wall facing east have been killed to the ground, while others are still uninjured. These had not the least protection. *W. A. Richardson* growing against an east portion of the abbey, although only planted in 1890, has come through uninjured. Those that are killed to the ground are breaking again strongly.

With reference to border plants our loss is not great, although we grow a good collection. Amongst the things that have suffered most are *Pyrethrums*.

Some Rock Roses are much damaged and others have not suffered, although growing side by side. *Myosotis dissitiflora* growing on low and damp soil was killed, while that growing on dry banks and between the stones in our rockery is not in the least damaged. *Montbretias* have suffered severely, although growing on a south border in sandy soil. *Lobelia fulgens* Queen Victoria where left in the open is much damaged. Plants removed to a sheltered spot in kitchen garden and not protected, except in severe cold with a little dry Fern, have wintered better than those put under glass in a frame. New Zealand Flax, planted some two years ago in a sheltered spot with a little dry Fern placed amongst the leaves, is looking as fresh as ever, showing this ornamental plant to be more hardy than many suppose it to be.

It is worthy of observation how some plants, that are considered by some to be tender, have pulled through the severe weather. As an instance of this, *Linum flavum*, growing amongst the stones of the rockery here, is now coming away as strongly as in previous years. The same remarks apply to *Sedum Sieboldi variegatum*. We placed some plants in this position last summer to try them. The grounds and garden here lie low. We are close to the river Exe, and the grounds slope to the north. JOHN CROOK.

Forde Abbey.

GARDEN FLORA.

PLATE 810.

CYPRIPEDIUM VILLOSUM.

(WITH A COLOURED PLATE.*)

CYPRIPEDIUM VILLOSUM may certainly be classed amongst the handsomest and most striking of Lady's Slippers, and no species has shared to a greater degree the general popularity of those plants. It was one of the earliest of the East Indian species introduced, and being of easy culture and propagation it soon found its way into almost every collection. As a subject for hybridising it has been very frequently used, and of the hybrids now in cultivation there are more owing affinity to it than to any other species, with the exception of *C. barbatum*. It was first introduced to England by Messrs. Veitch in 1853, having been discovered by their collector, Thomas Lobb, on the mountains near Moulmein. In this locality, however, it is said to be comparatively scarce, but is found in considerable abundance farther north, near Tongu. According to the Rev. C. Parish, a veteran orchidist who has long resided in that region, it never grows at a lower elevation than 4000 feet. Unlike the great majority of *Cypripediums*—which are of terrestrial growth—this species is an epiphyte, growing on the branches of lofty trees. This peculiarity, however, does not necessitate any difference in its treatment from that given to the generality of Lady's Slippers, owing probably to the fact that it is always found with its roots embedded in Moss and decaying vegetable matter which have accumulated in the forks of the branches; it does not, therefore, practically differ in its natural conditions from the greater proportion of *Cypripediums* which grow on rocks where a layer of vegetable humus

* Drawn for THE GARDEN by H. G. Moon in the Clapton Nursery, February 23, 1891. Lithographed and printed by Guillaume Severeys.



has accumulated. According to Messrs. Veitch, two other species—*C. Lowi* and *C. Parishii*—are found in similar positions. The leaves of *C. villosum* are each from 10 inches to 1½ feet long, strap-shaped, and of a uniform deep green. The flower-scapes are usually about 1 foot high and with rare exceptions one-flowered, their hairy appearance giving rise to the specific name. There are few, if any species of *Cypripediums* with flowers larger or of greater substance than this. They each measure from 5 inches to 6 inches across, the lip being large and prominent. The upper sepal is brownish-purple at the base and centre, this being surrounded by an area of yellowish-green, the margin being almost white and fringed with short hairs. The petals are spatulate, and much narrowed towards the base; a band of purple runs lengthwise down the centre, the portions above and below this being reddish or yellowish-brown, the lower part the paler. The lip also is of a similar colour. This *Cypripedium* is one which varies greatly in the depth and brightness of its various tints, some forms being so dull in colouring as to be almost worthless. It is an Orchid which should, if possible, be purchased when in bloom. All the parts of the flower have a glossy, varnished surface.

Although *C. Boxalli* is usually conceded specific rank, it is really no more than a variety of *C. villosum*. It was introduced in 1877 by Messrs. Low. The distinguishing characters are chiefly found in the dorsal sepal, which is narrower at the base and has the margins more folded back, whilst the centre is boldly marked with numerous black-brown spots, and the margin of white is broader and purer than in *C. villosum*. It is a very variable Orchid, some forms (like var. *atratum*) having the black-brown spots on the upper sepal much larger, whilst in others (like var. *pallidum*) they are smaller, and the whole flower is of a lighter shade. Some, indeed, so nearly approach *C. villosum*, that the differences in colour are hardly recognisable. They may, however, be always distinguished by the narrower base of the sepals and petals and the more reflexed margin of the former.

C. villosum is undoubtedly one of the quickest growing species, and it is easily kept in robust health. If the plants are small they may be grown in pots, but for large specimens rather deep pans are preferable to ordinarily shaped pots, being more convenient to use and of better appearance. The compost should consist of fibry peat, chopped Sphagnum, and finely broken potsherds. For strong growing species of *Cypripediums*, like *villosum*, many growers add a small proportion of loam fibre to the compost, and find it an advantage, but in the neighbourhood of large towns, where the atmosphere has never the same invigorating effect on these plants that the country air possesses, and where, in consequence, a strong soil is unsuitable, loam may be altogether dispensed with. This does not preclude, however, the occasional application of weak manure water. It is a very free

rooting plant, and should not be stinted for pot room. Its requirements in regard to temperature, light, &c., do not differ from those of the majority of East Indian *Cypripediums*, although both it and *C. Boxalli* have this advantage—they may be grown in either the warm or intermediate house. As it usually flowers during the dark portion of the year (from December to March), it should at that time have as light a position and one as near the glass as possible. I have found the colours are always brighter and better developed than when the plants are flowered in shaded positions.

Of the hybrids whose parentage this species shares, *C. Harrisianum* is the best known. It was the first hybrid *Cypripedium* ever raised, and is itself now the parent of several others. *C. Godseffianum*, which was raised from *Boxalli* and *hirsutissimum*, and *C. Lathamianum*, whose second parent is *Spicerianum*, may rank amongst the most conspicuous successes British hybridists have hitherto obtained. Altogether at least thirty named hybrids might be mentioned which owe relationship to *C. villosum*. W. J. BEAN.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

BRUSSELS SPROUTS.—These, where sown early under glass and duly pricked off, are now large enough for planting out into their permanent quarters. The experience of the present season has shown the great need of sowing such a hardy vegetable as the Brussels Sprouts under the protection of a cold frame, for even where these were sown as early as the first week in April in the open, they are considerably later than usual this season. Being such an important crop, the Brussels Sprout pays for good cultivation, so that the plants should be set out on well-worked and fertile soil at the least 3 feet apart, and on those soils where the Brassicas are known to attain goodly proportions 3 feet 6 inches is none too close, both in the rows and between the rows.

AUTUMN BROCCOLI.—Here we have a very important crop, and coming in as it does when late Peas are on the wane, it proves very acceptable indeed. The plants should be set out as they become ready, selecting good ground if possible. By making two or three successive plantings, good heads may be cut in favourable seasons up to Christmas. The earliest plants having been raised under glass and duly pricked out should now be in their permanent quarters. Plants from seed raised in the open need not be pricked out previous to planting, unless where growing too thickly together. The plants should be set out firmly in rows 30 inches apart either way. Planting, however, in deeply drawn drills is a good system to adopt, for as soon as the plants become established and are growing freely, the soil can be pulled in about the base, this keeping them steady without any need of moulding up.

PLANTING CELERY.—The planting of Celery has now fairly commenced, and however backward the season for many other crops, Celery plants generally are looking very well. As a rule from plants put out at this date, heads early enough in the general run of gardens can be secured. For the winter or general crop the middle of July is quite early enough for planting. Celery planted now to produce good heads during the winter months will not keep well, for being matured early decay also sets in naturally early. Each plant must be lifted carefully, so as to disturb the roots as little as possible. The advantage will now be seen of the advisability of pricking out into a holding, yet rich soil on a hard surface, the roots being confined in

a compact ball. A thorough watering should be given over-night, for if lifted in a dry condition the balls are not very easily soaked afterwards. Before planting it is very necessary that the smaller leaves and suckers clustering about the base of the plants be removed. The plants should be set out in the trenches 9 inches apart where the single row system is adopted, and with the double rows in the same proportion. The practice of planting in double rows answers very well for early crops, but for the later crops the single row system is undoubtedly the best. After planting give a thorough watering to settle the soil about the roots, and sprinkle overhead for a few evenings until the plants commence to grow away freely, when afterwards the watering must be practised according to the weather.

CELERY FLY.—Upon the first appearance of the larvæ of the Celery fly prompt measures must be taken, or the plants will become seriously crippled. Dusting the foliage over with soot before the surface is dry from the effects of the night dews is a good system to adopt, this preventing the flies depositing their eggs. Where the larvæ are present, all affected leaves should either be crushed between the fingers or picked off and burnt. But if the practice of dusting over with soot is followed up the fly will not be very troublesome.

CELERYAC.—The plants of this useful winter vegetable having been duly pricked out are also now in condition for being planted out into their permanent quarters. Although partaking of the nature of Celery, at this stage of growth the treatment necessary to secure good results is totally different. Unlike Celery, the planting must be done on the level, and with this operation care is needed so as not to plant too deeply. The base of the plants must be almost set on the level and at a distance of 15 inches to 18 inches apart. Care must be taken to remove all suckers previous to planting, for if these are allowed to form, the plants will be a mass of divided stems instead of one main root. The error must not be made of earthing the stems up, for the clearer the base of the plants is from soil, the cleaner will be the roots.

YOUNG CARROTS.—Where young Carrots are appreciated for late table use a sowing should now be made, and for sowing at this date the Early Nantes is the best variety.

GENERAL WORK.—The late heavy rains have battered down the ground considerably, and on heavy soils this is especially the case; therefore, hoeing must be carried out with spirit. The majority of crops are considerably later than usual, but with a spell of bright and warm weather and frequent surface stirrings the various subjects will soon make up lost ground. In late districts main crop Potatoes are very backward, but with the return to warm weather they will soon push ahead. The intermediate space between the rows should be deeply stirred with a pronged hoe as long as this work can be done with safety, and the sooner they can be moulded up afterwards the better.

Y.

HARDY FRUIT GARDEN.

PEACHES AND NECTARINES.—These are now making good growth, young trees growing away in a very satisfactory manner. There should be no crowding of shoots in any case, those thinly trained being the most likely to form the hardest and most serviceable wood. Lay in young shoots where space requires filling, taking particular care of any that start from either the base of the trees or of individual fruiting branches, a leader also being permitted to extend on the latter; all other shoots not so required for furnishing the trees with good bearing wood next season should be either removed, or else stopped at about the fourth leaf, the latter alternative being adopted wherever there are fruits swelling. Not till the young wood is somewhat firm should it be either tied or nailed back to the wall, a little free growth benefiting it rather than otherwise. It will be some time yet before all but the very earliest varieties commence to colour, and there is, therefore, no necessity to fully expose them for another three weeks. If freely

syringing the trees every afternoon fails to keep down green and black fly, remove some of the badly curled leaves, puff tobacco powder into the rest, and syringe off next morning. The thinning out of fruit ought to be somewhat severe, as the trees are heavily cropped. This should be done gradually, selecting the best formed fruit, and also seeing that these are not very close to the wall nails. The latter should be shifted now, or they may become imbedded in the fruit before the mischief is discovered. If not already done give the trees a good mulching of strawy manure, and never let the borders close up to the walls become very dry.

APRICOTS.—Whether or not the glass should now be taken off the framework of the copings ought to depend upon circumstances. In backward or somewhat cold districts the glass greatly assists in the maturation of both the fruit and wood to a considerable distance, or say about 4 feet down the walls, and occasionally it is only that portion of the trees so benefited by the glass that flowers and fruits freely; consequently it is advisable in all such cases not to shift the glass. In more favoured localities the glass may safely and advantageously be removed now, this giving the trees the full benefit of all the moisture that falls, and there is then, as a rule, no difficulty experienced in keeping down red spider—the insect pest to which the Apricot is most liable. Where the glazed coping is kept in position—for all boards must be removed from well-furnished walls—the upper portion of the trees should be freely syringed with clear soft water every evening after bright days, trees not under copings, but which are liable to be infested by red spider, being similarly treated. It is not advisable to keep the trees excessively moist at the roots; indeed it is necessary in damp low-lying positions to ward off heavy rains by means of wooden or galvanised iron shutters, but in the case of high and dry borders the borders near to the walls ought to be frequently examined, and given a good watering before they are too dry to properly absorb what is supplied them. This is particularly necessary where fixed copings are used, but this difficulty is obviated somewhat by the use of the newer revolving glazed copings—these admitting rainfall to both the trees and borders. Apricots are quite forward enough to use in a green state for pies, and the sooner the final thinning-out is given the better it will be for the reserved fruit.

PEARS.—The more forward trees against walls are carrying exceptionally heavy crops, but any in flower on or about May 18 are not so well furnished with fruit as desirable. All require close attention, a good look-out being kept for caterpillars, a few of which may do much injury to both fruit and foliage. They are to be found rolled up in leaves or else in the clusters of fruit, and hand-picking is the simplest method of getting rid of them. There ought to be no great clusters of fruit permitted, these being favourite lurking-places for the grubs, and, besides, unless freely reduced, none of the fruit will be good for much. Select the largest, best formed, and soundest fruit, leaving them singly at first, still further reducing the number on heavily cropped trees of large-fruited varieties later on. Continue to stop the breast-wood, and much of it in the case of trees well furnished with neat spurs might with advantage be cleanly pulled away from the branches. Some of the trees in the open are bearing heavy crops and others very light ones, but all require immediate attention. Unless the clusters of fruit in the former case and the dead flowers in every instance are removed, much of the fruit that hangs may yet be spoilt by caterpillars. There is far too much dead bloom for heavy rains to dislodge, but much might be done in the way of cleaning by means of a good garden engine and clear water. All trees trained to wires or espaliers should have superfluous growth removed and the rest stopped at the fourth or fifth joint, the leaders being properly laid in and the fruit thinned out much the same as wall trees are treated. If the latter are not mulched with strawy litter, the least that can be done is to give the clear portion of the border a liberal coating of ashes.

These, in addition to conserving moisture without excluding air, also provide a clean walk and prevent the soil from first binding and then cracking badly, owing to so much traffic which must unavoidably go on where the trees are well attended to.

PLUMS.—Crops of these again are very variable, the earliest to flower in forward localities being by far the best furnished with fruit. So heavily are some of the trees cropped, that unless the fruit is very freely thinned out not a good Plum will be had. Heavy crops ought, therefore, to be materially lightened now, the final thinning being deferred till after the stoning process, when the fruit will then be fit for pies or even for making into preserves. Continue to remove superfluous shoots and to stop the rest at a length of about 2 inches, securing the leading growths to the walls before the winds have a chance of breaking them down. The advice to lay in young back growths of these and other stone fruits that are liable to either lose their main branches or to become naked cannot well be too often given, this being the best method of keeping the walls profitably furnished with healthy productive wood. There should be no undue crowding, the fruit not ripening well, and but few fruit-buds forming when the branches smother each other during the growing season. No mistake can be made, however, in laying in young growths over naked stems and branches. Sucker growth should be drawn out of the borders, not cut as fast as it forms.

APPLES.—The May frosts proved very destructive among the bulk of garden trees, but those which flowered somewhat late came out of the ordeal better than anticipated. Some are so heavily fruited that no wood growth is being formed, and unless the crops are immediately lightened the chances are the trees will become badly stunted, and, it may be, the fruit will also fall off wholesale. The Codlin family, including Lord Suffield, are very heavily cropped, great bunches of fruit swelling off strongly. These must be very freely thinned if good presentable fruit are desired, as at present there are no signs of a natural process of thinning out taking place. All other heavily cropped trees that can be got at ought also to be gone over and the clusters greatly reduced, this also getting rid of many caterpillars which the birds cannot well get at now. There is very much dead bloom on the trees generally, and the garden engine might well be brought to bear upon this, as in the case of Pear trees. Remove all fruit from newly planted trees, those only moderately well established being also very lightly cropped. Mulchings of strawy manure will benefit all alike. Thin out the shoots on pyramids and bushes, but do not stop the rest, as it may be desirable to leave them to their full length next season in order to promote productiveness. The cordon and horizontally-trained trees should be stopped and otherwise treated much as advised in the case of Pears.

W. I.

ORCHIDS.

It is not worth while to notice the constant changes of the weather, except so far that I observe a tendency amongst young gardeners to treat the plants pretty much alike, whether the day should be cloudy and cold or warm with more sunshine. No cultivator of Orchids can be successful who does not take careful observation of the state of the weather. For instance, I wrote on the 13th of warm, hot days causing the flowers to go off rapidly, even with all the blinds down and ample ventilation. A day or two later there was a keen east wind, which continued for several days. This might have caused some damage to the young growths in course of development if we had not been careful to moderate the influx of cold air from the east by closing the ventilators entirely on that side of the house and admitting it by the ventilators from the other side. By far the greater number of cultivators of Orchids have to grow the plants under their care in houses that contain many other classes of plants as well, and it is not always possible to give the plants the treatment they thrive best under; in those circumstances nothing but the continued careful attention of the

cultivator will avail to produce satisfactory results, and at this time extra care is necessary, as many delicate species and varieties of Orchids are making their growths. Some may be just starting to grow, others are in the middle of their growth, while a few early things may have quite completed their growth. Any serious check may be the means of crippling the growth for one year and preventing the plants flowering well.

It is still a good time of the year to add recently imported plants to the collection. They may either be purchased direct from the importers or at the auction sales. The plants are sent from many different degrees of latitude and longitude, and even when they are sent from the same district it does not follow that the treatment of the plants should be alike. The *Zygopetalum gramineum* (Lindley) has been sold recently at the auction rooms, growing upon the native plants of Lomaria, and this is the best way to grow the plant well in this country; the Lomarias should be kept in a growing state. Lindley named and described the plant as above in *Botanical Register*, 1844, misc. p. 15. Later it was figured in *Botanical Magazine*, t. 5046, as *Kefersteinia graminea*, and it has also been grown in gardens as *Huntleya fimbriata*. The flowers are more curious than handsome, and certainly are not like the ordinary run of those of *Zygopetalums*. It is interesting to see the plants growing and thriving on the living plants as they are found in a state of nature. *Zygopetalum maxillare* is the true Tree Fern *Zygopetalum*. Named such because when it was first discovered by Mr. Gardner on the Organ Mountains in April, 1837, it was always growing upon the stems of Tree Ferns, its rhizomes running up the stems to the length of 6 feet. It is very interesting to see such plants growing in our hot-houses as they are to be found in a state of nature. Amongst *Odontoglossums*, the old but distinct species *O. ramosissimum* has been introduced quite recently and should be added to collections; it flowers in the winter, and its tall spikes of very numerous white and purple flowers are very effective in a collection. Another species, *O. hastilabium*, should find a place in the most select collections; good bulbs ready to start into growth have been sold. These plants are purchased just as they are gathered from the trees, and it is necessary to look them all carefully over before potting them, and to sponge the bulbs with tepid rain water. They may be planted at once in the usual peat and Sphagnum compost, the pots being filled about half full of drainage, and in all cases what would be thought small pots for the size of the plants used. Newly imported Orchids do best when the roots are confined to a small space. The above species succeeds best in the Cattleya house, and the long spikes have a striking effect.

Amongst Cattleyas recently imported and sold at the auction rooms may be mentioned *C. Schilleriana*, *C. Schofieldiana*, *C. Harrisoni*, *C. Mendeli*, *C. lobata*, &c. As a rule it is best to plant these at once in the usual compost, which ought to be fibrous peat mostly, with a very little clean Sphagnum, broken potsherds and charcoal. *Dendrobium Wardianum* and other species are still being offered, but it is now getting late for these to make a vigorous healthy growth. The best treatment for these is to plant in teak baskets and suspend the plants from the roof glass of any warm hothouse, when once fairly started the plants revel in the high moist atmosphere of the warmest house. Our own plants were purchased two months ago and they are now half through their growing period. We plant in about equal portions of Sphagnum and fibrous peat, and the compost is kept in a moderate state of moisture. The better flowering growths are produced from plants that have been grown warm and not far from the roof glass.

Vanda cœrulea has also been imported quite recently. Not many growers succeed in producing strong vigorous plants of this most lovely species, which will maintain their vigour for a generation, but as some have succeeded in doing so, there is no reason why it may not be done more frequently, and it is rather tantalising when a gardener knowing little or nothing of Orchid culture succeeds, when

those with a long experience fail. I saw in a good garden the other day a number of these *Vandashung* up head downwards as the first step to take with imported plants of this genus. There is scarcely any need to adopt this plan. It is an old custom, and is still recommended by good Orchid growers. I saw this method once recommended in a garden calendar, the plants to be syringed two or three times a day; heads downward would be necessary to drain off the water as soon as possible. I never use any water on the leaves of imported *Vandas*. If planted in clean drainage, kept quite moist and in a damp atmosphere, new roots soon appear from the hard, dry-looking stems, when the plants may be placed in round teak cylinders filled with loose drainage, the top portion being made up with an inch or more of clean live *Sphagnum*. If placed at the end of the *Cattleya* house, they soon grow into flowering plants, but they retain their vigour longest in a similar position in the warmest house. I now advise damping the house where *Dendrobiums* are growing early in the afternoon, and on bright afternoons the plants may be well syringed; the temperature may rise to 100°, but the glass will be covered with moisture, and if the temperature does not exceed 100°, no plant will be injured. The *Cattleya* house may also be shut up early with plenty of moisture. We do not venture to syringe *Cattleyas* and *Lælias*, but they grow best in a moist warm atmosphere.

J. DOUGLAS.

PLANT HOUSES.

POINSETTIAS AND EUPHORBIAS.—The earliest of the *Poinsettias* should now be well rooted in the small pots in which they were recommended to be struck. These plants will now be quite fit for potting into 4½-inch pots; with us this shift has already been given. If the plants just previously have been fairly well exposed to light and air they will not need any further nursing. Should the growth, however, be rather soft and the foliage of a pale green, then some shading for a little time will be necessary to guard against losing any of the lower leaves by scalding. In recommending shading, I advise the use of the lightest material; heavy shading for all plants and purposes, to divert the possible injury from burning in bright sunny weather, is an utter mistake and delusion. It draws plants up long-jointed and weakly, whilst the foliage itself has not the resisting powers it should possess for all the usual variations to which plant life is subject. Scrim and Britains' netting are enough for all practical purposes when root action is healthy and active. This shading as applied to *Poinsettias* is only required for a few days until root-action is in motion in the fresh soil, then gradually withdraw it. The plants now struck and fit for potting should be nice dwarf stuff. The object now must be to endeavour to retain as short-jointed a growth as possible. If grown on in too much heat and atmospheric moisture this result cannot be obtained. They delight rather in a comparatively dry atmosphere with a free circulation of air. For this reason, where a small house cannot be given up to their particular requirements, as in the case of those who grow for market, I prefer to keep my plants in pits as long as I possibly can. Here they can be better accommodated. The point to aim at all through their course of growth is to keep them as close to the glass as possible, with plenty of light and air as soon as the young plants are sufficiently rooted and hardened off from the propagating pit. In our case the second batch of cuttings is just about struck; as soon as these are quite on the way, another lot of cuttings will take their place from the old stools, which it is always advisable to retain as long as any further increase in the stock is likely to be required. In every possible case these old plants should be kept in as sunny a position as possible to prevent the young shoots from drawing up weakly. I find a light loamy soil, leaf mould or a little peat suit *Poinsettias* well. As in all cases where successful culture is the chief object, they pay for care in potting, the soil being kept moderately firm and always if possible on the dry side when potting is being performed. What refers to *Poinsettias* as to cultural detail is equally applicable to

Euphorbia jacquiniæflora in all respects save one. This is in respect to the temperature, in which a considerable increase may be made in the latter instance. The best *Euphorbias* I ever saw were grown in a Pine stove upon a shelf devoted to the early spring to either French Beans or Strawberries. This shelf was at the back of a three-quarter span fruiting house, the temperature of which, all growers will know, is far in advance of what is even safe to attempt as regards the *Poinsettias*. Here the *Euphorbias* simply luxuriated in what would have been perfectly ruinous to the *Poinsettias*. I do not infer by this that *Euphorbias* cannot be grown, and that well, in cooler temperatures. They can, as I know from personal experience, but I instance this point where variation succeeds. Many may be able to take advantage of a suitable position for the *Euphorbia* where they would not venture to attempt to grow the *Poinsettia*. Cuttings of the *Euphorbia* may still be struck more easily now possibly than earlier in the season in some instances. Those who may have partially failed earlier in the spring for want of convenience will now stand a better chance of success. Advice as to taking these cuttings has been previously given. Old plants of *Poinsettias* were alluded to recently, but I would further add that these may be turned to a good use for planting out in inside borders. What is chiefly needed is a dry position against the wall, with the average amount of light and with plenty of head room for the growths, or horizontally, so that they may be tied down. Old plants of *Euphorbias* can also be turned out; these, although requiring plenty of light, do not need to have so much head room. The chief thing that can be urged against these modes of culture is the nuisance arising from mealy bug where this plant pest is not already exterminated.

BEGONIAS (shrubby and tuberous-rooted).—Cuttings of the former where well rooted should not be allowed to get in any way starved in the cutting pots, but be shifted at once into those of the same size as advised for the *Poinsettias*, another batch being struck now if smaller plants are preferred. Seedlings of these raised in the spring can be pricked off, three in the same sized pot. In this way I have the best results with such as *B. Knowsleyana* and *B. insignis*. Cuttings of the ornamental-foliaged *B. metallica* should not be overlooked, this being a most useful variety where much decoration has to be done, while it can be safely wintered in a growing condition in a temperature of 50° minimum. Cuttings of such useful kinds as John Heal ought to be struck as soon as possible.

J. HUDSON.

KITCHEN GARDEN.

ASPARAGUS IN SUMMER.

ASPARAGUS is probably one of the most profitable as well as one of the most accommodating crops which it is possible to grow in the kitchen garden, and it also responds to generous treatment as quickly as any. Considering its qualities, there are very few other crops which are so badly treated, and in many gardens the beds are utterly neglected after cutting is finished. Asparagus may be said to be in season from November until the middle of June, when the cutting from established beds should cease.

Under generous treatment it is astonishing to what size the heads will grow. It is also astonishing, even at the present time, when the methods have been so freely written about of the way Asparagus is grown in some districts in France, and we know the large size the heads grow there, to see some people still insist on having narrow raised beds, even where the surroundings are of a dry character. Certainly Asparagus dislikes a stagnant moisture about the roots, but on a very cold and clayey soil the site may be so arranged that the whole bed is on the level. With these narrow raised beds the roots cannot have that support which is so ne-

cessary to form a good foundation, as besides suffering from drought in a dry time, the rooting area is very much curtailed. It is no uncommon occurrence to see the outer roots exposed to the air, and this through the mistaken opinion which some people have, that it is a necessary part of the routine of Asparagus culture to annually pare down the sides of the beds and pile the trimmings on the surface. Oftentimes there is such a depth of soil over the crowns through this course being adopted that the shoots have a difficulty in coming through. Even these raised beds may be so arranged that the whole surface is on the level, and this by filling up the space with a rich and open rooting material. Decaying and burnt vegetable refuse with the addition of some good stable manure and gritty or sandy soil would be excellent for the purpose. Into this the outer roots would ramify, to the marked benefit of the crop. Where material and labour are plentiful, this mixture may well be wheeled in at the present time before top growth is so far advanced as to interrupt the progress of the work, but failing this, at any time after the stems are cut down in the autumn. I have seen excellent results follow on the adoption of this practice.

Another source of weak produce is keeping up the cutting too long. It is well known how weakening is the effect of continually cutting off the tops of any plant during the early stages of growth, and the same holds good with Asparagus. The middle of June is quite late enough to cease cutting, even from crowns of the most vigorous description, as even from this time the season of growth cannot be very extended. The next season's crop will depend upon the growth made during the present summer. Manurial assistance, clearing off weeds, and securing the stems to prevent these from becoming injured must each have due attention. Manurial assistance is very important, and must not be neglected. During the past spring, and just before growth commenced, our plantation had a dressing of well-rotted manure and burned garden refuse laid over the whole surface to the depth of 2 inches, and this being an annual occurrence, the surface roots are working into this freely. Any beds which were not surfaced at the time stated would be greatly benefited by a mulching at the present time, this both conserving moisture and attracting the roots nearer to the surface. Liquid manure or diluted sewage may be applied with advantage wherever these excellent fertilisers are at hand, and in the succeeding growth there will soon be a marked difference. Some of the artificial manures now in the market are excellent for Asparagus, but I do not care for those which are stimulating, such as nitrate of soda and sulphate of ammonia. The former may be applied, but only in a small quantity. The mixture which I prefer, and which I can strongly recommend, is soot, salt, and fish potash guano in equal parts, this being lightly sown over the surface. The best Peruvian guano might be substituted for the fish potash. A dressing applied during a showery time as soon as cutting is finished would do for the season, but failing a showery time it should be washed in with water, or much of its valuable fertilising qualities would be lost. Weeds should not be allowed any quarter, and where any are present these should be promptly removed by the hand. Weeds, besides robbing the soil of its valuable fertilising properties, prevents the air from having free access. It is also no uncommon occurrence to see young seedling Asparagus coming up over the surface of the bed where the seeds have dropped; these also should be promptly removed. Three or four strong stems

from each crown will be sufficient, the weakest being early removed. Where beds are at all crowded through too close planting, the thinning out of the shoots is of untold benefit. Securing the stems is of the greatest importance, and this is one of those simple precautions so often neglected. Many people are in too great a hurry to remove the stems in the autumn, thinking more of a tidy appearance than the success of the beds, but as long as the stems are at all green allow them to remain. Cutting off the stems too early tends, in addition to weakening the crowns, to start the dormant shoots into growth, and if these do not appear exactly through the surface they are far enough advanced to become liable to injury from frost. On account of the mildness of the autumn last season, it was very late comparatively before the old stems could be cut away. Many people, again, do not cut away the stems until the annual clearing up in the spring. This certainly is bad practice, causing the beds to remain in a cold, sodden state throughout the winter. With the cutting off of the old stems in the autumn ends the work of the growing season, and the beds should not be again touched until early in the following spring. Covering the beds early in the winter with manure is bad practice, although on very light and sandy soils the evil may not be so apparent. The very nature of the roots is against this practice, and the drier these can be kept in reason the more successful will be the succeeding growth. A. Y. A.

BROAD BEANS.

IT is a matter of common observation that whilst Broad Beans are robust, yet they are much shorter than usual, or, what is the same, are blooming much lower down the stems. We have plants in luxuriant bloom at about 20 inches high, and if the same average height is maintained throughout the season there will be little need for topping, and the stems will remain more erect than usual. Broad Beans are not very popular as vegetables, the area sown being usually very restricted, and seldom do we find more than a couple of sowings made. Our market growers sow sparingly. Many out of 100 acres of vegetables do not sow any, as the demand seems to be always of an uncertain nature. It may be, perhaps, that being somewhat coarse and strong in flavour, we get farther away in our diet from foods of that description now that we have a wealth of other subjects to select from. But Broad Beans suffered most, perhaps, because coming in with Peas, and these, it would seem, we shall never tire of; indeed, they rather grow in popularity, whilst the Bean is declining. We have but two types of Beans which seem to have chief favour, so far as general growth is concerned, the Longpod and the Broad; but whilst the best form of the latter is found in what is known as the Harlington Windsor, a type which is presumed to show three Beans in a pod, we have several diverse Longpods. The best for general cultivation hitherto has been Johnson's Wonderful, but which seems now about to be displaced by Bunyard's Exhibition Longpod, certainly a very fine robust form; whilst the Seville Longpod, also well known as the Levathan, has had, if it does not still enjoy, the highest favour as an exhibition Bean during the summer. The Seville is of a somewhat tender type, and the few long heavy pods which the stems carry tend to pull them over on to the ground very much. I have always found this variety lacking the stoutness and productiveness which characterise old Longpods or Windsors. The Seville a few years since sported here into a semi-broad Bean, of which a selection was made and is being grown again this season, as selections take some time to fix. This gives a broad pod of the Windsor type, but contains some four or five Beans. Ordinarily the longest pods of the Seville do not contain more than six or seven Beans, but placed at somewhat extended intervals from each other, so that the pods are somewhat de-

ceptive in production. I am growing Mr. Bunyard's new Bean for the first time here. It attracted my notice at Maidstone, where it presented a very fine appearance. Here on our stiff clay soil it will get perhaps a severer trial, especially in company with special selections from the Harlington Windsor and the broad type of the Seville. So far this season, Beans are not affected with the black dolphin, but there is ample time for the appearance of this pest. Still the continued dripping weather does not favour it, and the stronger the stems become the less harm it will do. Those who want to save Beans for seed can hardly sow too early; that is to say, any time in February or March. It is surprising to find often how imperfectly late-sown Beans, although they seem to have a long season before them, mature their seed. The plants evidently do not like heat, and always thrive well in a cool damp season. Still, too much wet is harmful, producing blanched and shrivelled pods later. In saving seed stocks, it is well to rogue hard if quality is held to be of chief importance. The performance of this work is very much a matter of time for busy people, but where the securing of pure seed stocks is concerned, it should not be neglected. To start well it is desirable to go back to but a few selected pods, and rigidly select from the product of these for a few years until a strain is thoroughly well set; then with ordinary observation it may be kept pure, even in very large breadths. A. D.

Tomato disease in Teneriffe.—Having recently read paragraphs in THE GARDEN on Tomato planting and growing, it struck me that you or some of your readers might be able to throw some light on a so-called disease which attacks the plant in the Canary Islands, where the Tomato is very largely grown. A friend who is farming there writes me as follows: "The Tomato, which is by far the best paying crop, is subject to a disease (it is called so here) if the weather is bad. Now I have gone very thoroughly into the question, and have noticed that this so-called disease only comes on clear, bright, cold nights when there is no wind and a falling dew, and the plants completely shrivel up, but since the hot weather has come on all the plants have sprouted again and are giving plenty of fruit." My friend goes on to argue that if it were really a disease that attacks the plant it would be impossible for it to recover, and gives as an example a diseased arm or leg; whereas a limb that was simply lifeless from cold would be brought back to life, as these plants have been, by the return of warmth. The loss from this so-called disease is very great, I am told. Do you think that a light covering over the plant would be any remedy? Should you be able to assist me, or give me any suggestions on this subject, I should be much obliged.—G. C.

Wireworms in Asparagus bed.—In an article on Asparagus in THE GARDEN of June 6, J. W. Shaw asks for information respecting the movements of wireworms. I do not know of any investigations having been made on this subject. It is indeed "hard to believe that they come under the foundations of walls and through hard trodden roads and paths," and I do not think that there is any reason for imagining that they do so. From their shape they can and do, no doubt, make their way from one plant to another with greater ease than many grubs, but they probably never make much of a journey unless their supply of fruit falls short. In light open soils they can of course move more freely than in stiff ones, and after a hard frost when the soil is more open and porous than in a mild winter when the earth is more compact. When it is said that "last year every wireworm that came to the bed was trapped and caught," I think there must be some mistake on this point, as it would be almost if not quite impossible to kill every wireworm in an Asparagus bed without disturbing the plants when they are in such numbers as they appear to be in J. W. Shaw's garden. I think it is obvious that the wireworms have bred on the Asparagus bed for some years. This would account for their being found of various sizes. The parents of the wireworms are the click or skip-jack beetles,

which are very common insects. They lay their eggs at the roots of Grass and other plants, and from these eggs the wireworms are hatched. One of the best preventives of attack from these pests is not to allow weeds, and particularly long Grass, to grow in a garden. A good dressing of gas-lime is very effective on ground that can be spared from cultivation for a certain time.—G. S. S.

RADISHES.

WHAT is the origin of our salad Radish? Authorities appear to differ somewhat, and probably it is a matter involved in much obscurity. As Messrs. Vilmorin and Co. observe in their "Vegetable Garden": "The question has given rise to many inquiries and discussions, and probably will give rise to many more, as the highest and most competent authorities on the subject hesitate to decide the point in a positive manner. Up to the present, in fact, no wild plant has been found possessing characteristics which would allow of its being regarded unmistakably as the progenitor of cultivated Radishes." That it is a native of South Asia is highly probable, but whether introduced to this country direct from there is problematical. Bullein, who wrote in 1562, says: "Of Radish roots there be no small store growing about the famous city of London; they be more plentiful than profitable. This shows the Radish has been cultivated in this country for many years, and indeed it was used at the table of Henry VIII. Ever since that time the Radish has been a popular article of food, and at the present time it is largely grown round London for market.

I have recently had an opportunity of inspecting a very interesting trial of Radishes at the Chelmsford seed grounds of Messrs. Hurst and Sons. The seeds were sown in drills about the 26th of March, the drills about 9 feet in length, thus affording a reliable test. What first struck the eye was the uniformity seen in the plants in the various rows, thus illustrating the correct character of the stock. Of the long varieties, which are few in number compared with those of the Turnip shape, Wood's Early Frame is a well-known type, intermediate in length, thick, tapering abruptly to a point, pale in colour, and nearly transparent—a variety much grown in frames for early work. Then there is the Long Scarlet Red or Salmon, a common market variety, and a great favourite with London folk. A very fine type of this, formerly known as Beck's Long Scarlet, can be met with; it is the longest of all. A noticeable Radish is the Scarlet Intermediate, intermediate in length between the long and the Olive-shaped types, taking the shape of the Early Horn Carrot, very bright scarlet in colour, and which may be described as a very early type of the Long Scarlet. This variety can be strongly recommended for early crops, and was, I think, originally selected by Messrs. Vilmorin and Co., of Paris. It comes to maturity in about twenty-five days. The Long White Naples Radish is a summer variety, though sometimes sold as a substitute for the Long White Winter. It should be grown only in the open air, and its qualities are not recognised as they deserve to be. It appears to be much more in use than formerly, as it can frequently be seen in the windows of the London eating houses. It is of fine flavour and the flesh tender. The Long White Winter Radish is exclusively a winter one. It is known as the Californian or Mammoth White. It should be sown early enough to enable the roots to form, as they occupy from two to three months to grow into size. The Rose China is another winter Radish, and should be sown at the end of August. It is oval in shape, pale rose in colour, the flesh crisp and pleasant, and the quickest of all the winter varieties in coming to maturity.

The Black Spanish Radishes form quite a distinct type. One is round in shape, and it can be seen in the greengrocers' shops during winter. Quantities of them are consumed in the East-end of London. A long form of the Black Radish is also grown. It is later than the Turnip-shaped variety in maturing, but both keep well.

The Turnip Radishes are very popular varieties.

For years we simply had the ordinary white and red Turnip varieties; then came the scarlet Olive-shaped, a selection from the latter, and later, in time, the white Olive-shaped, a selection from the white Turnip. Since then some very early varieties of the Turnip section have been obtained of a very useful character.

Now it may be said of all the Radishes, and especially of the Turnip varieties, that the better the stock of any the dwarfier and more compact is the growth of the top, but as soon as the stock degenerates a coarse growth manifests itself in the foliage.

The early scarlet forcing Turnip Radish is of medium size, with very dwarf close foliage, remarkably quick to turn in, and very pleasant eating; there is also a white counterpart of this. These can be had ready for use twenty days after sowing. The well-known French Breakfast Radish is of oval shape, bright in colour, and with a white tip at the root; it is very early, and should be pulled young and crisp, as the roots soon become hollow. The white-tipped early scarlet Turnip Radish has a

ORCHARD AND FRUIT GARDEN.

PACKING SOFT FRUIT.

PEACHES, Nectarines, Figs and Strawberries may all be classed as soft fruit and require very careful packing, or otherwise, when they reach their destination, no matter how short the journey may be, they are of little worth. Not only do bruises detract from their appearance, but they also greatly militate against their keeping properties, and in any case after so much trouble has been expended on the production of choice fruit no one ought to begrudge either a judicious outlay on boxes and packing material, or the expenditure of a little extra pains in packing. A great variety of boxes are in use among private gardeners, some suitable and others very unsuitable for the purpose. They may either be too deep or too shallow, too heavy or too light, and I hold boxes or trays made with separate compartments for each

closing the fruit well above the latter, this admitting of its being carefully lifted out of its bed of cotton wool or other packing material.

Opinions vary somewhat as to which is the best form of packing material, and probably always will do so. Cotton wool, Moss, bran, and wood-wool are all variously used, but after having given all a fair trial, I am strongly of opinion the two first-named are the best. Bran is too shifty, that is to say, it is liable to jolt down or otherwise get loose, no matter how firm it may be made, and it is almost needless to add that unless soft fruit remains exactly where originally fixed it travels badly. Wood wool again is too elastic, and also a little harsh, and I have seen fruit presumably well packed in it completely jolted out of position and bruised badly. It is also strongly scented, and long exposure to the air does not effectually get rid of the aroma. Unless, however, the latter precaution is taken, soft fruit is almost certain to be badly flavoured by the packing material, Peaches, Figs and Strawberries being especially liable to absorb any aroma with which they may come into contact. For this reason, it should also be added, judgment must be exercised in selecting cheap boxes from grocers and confectioners, soap boxes, though among the best that can be had, as far as construction is concerned, being altogether unsuitable for packing fruit in, but cocoa boxes may safely be used after a few days' exposure to the air. Common Moss, somewhat after the character of Sphagnum, and equally free of dirt and dust, is undoubtedly an excellent packing material, costing nothing but the labour of collecting and preparing it, and if it cannot be procured in the woods, it can frequently be had fairly good by raking mossy lawns with iron rakes. As it happens, however, the majority of gardeners cannot procure Moss fit for packing purposes, and, as in my case, must rely principally upon cotton wool. The latter, we are told, is absorbent of moisture and liable to heat, but if the fruit is properly enclosed in tissue paper it cannot be affected by the cotton wool, nor if the latter is kept properly dry will there be any heating. Cotton wool is the most expensive of all the materials named, but it can be used repeatedly, and on the whole is indispensable, being also the best for private use. I use the unbleached, but not the cheapest quality that can be bought, and for moderately large Peaches pull this into strips about 12 inches long and 8 inches wide, varying this slightly according to the size of the fruit. Each fruit is well enclosed in a square of tissue paper, and after the strip of cotton wool is folded once, skin side outwards, it is tightly wound round the Peach, the latter being kept point upwards and having sufficient wool to rest on below and the same quantity above for the lid to shut down on. If all are thus enclosed and fitted together tightly in the box, there is no necessity to fill in the crevices with more wool, as the fruit cannot shift, but if the boxes are somewhat deep for the variety of fruit being packed, place a layer of cotton wool in the bottom and another on the top, as the lids must close down tightly in every case. Nothing but light deal boxes should be used for sending this class of fruit either by post or rail, the same plan of enclosing in paper and then wrapping the fruit in folds of cotton wool being adopted in each case, neither the base, on which the fruit should always rest, nor the points coming into contact with the wool. If Moss is used, each fruit ought to be enclosed in soft paper and then completely and firmly surrounded by the former.

Much the same methods of packing may well



Flowering branch of the Mexican Orange Flower (*Choisya ternata*). (See p. 561.)

compact short top and a good bulb, but is not deep in colour, yet of a quite distinct character. What is known as the Ne Plus Ultra Turnip Radish is of a very deep bright crimson colour, intermediate between the Olive-shaped and the French Breakfast Short-top, and a good early variety. The white Turnip Radish was represented by a very good stock indeed in the Chelmsford trial.

Every care is taken by the great seed houses to have their stocks of Radish seed as true as possible. As the consumption of seed is so large, the seeds of Radish are grown by farmers and others by contract, and at that period of the year when the Radish crops are bulbing and some thinning is necessary, a selection is made of the earliest and best shaped bulbs with short tops and they are planted out by themselves in sufficient quantities to ensure about a bushel or so of seed, which is sown in due course for stock. When the seed crop is gathered, the stalks and seed-pods are made into ricks and the seeds threshed out during frosty weather. It is necessary frost should act upon the pods and render them brittle before they can be threshed out.

R. D.

fruit to be especially objectionable. When the boxes for Peaches are much more than 4 inches in depth it is usually necessary to use a considerable quantity of packing material both below and above the fruit, and this being somewhat elastic, heavy jolting is apt to completely reverse the position of the fruit, bruised points being the consequence. Should the boxes be less than 4 inches in depth, there is not sufficient space always for packing material either below or above the fruit, and it is liable therefore to bruise badly. For private use I find moderately strong deal boxes 14 inches long, 10 inches wide, and 4½ inches deep a very serviceable size, this holding a dozen fairly large and eighteen rather small fruit. These boxes prove equally handy for packing other fruit and cut flowers. Compartments for each fruit add considerably to the cost of boxes, are quite uncalled for, and are frequently the cause of much fruit being bruised either in packing or unpacking, and if used the least that can be done is to leave the corners of the paper en-

be adopted with Nectarines, only the boxes should be more shallow or smaller in every way, a depth of 3 inches answering well for most varieties. In this, as in the case of Peaches, the greatest care must be taken not to bruise the fruits when gathering them, Nectarine Lord Napier being one of the worst to come away from the trees. Mr. Coleman's plan of holding the fruit with a pad of cotton wool and detaching from the tree by means of a strong pair of Grape scissors is the best that can be recommended, and most certainly is far better than either leaving the fruit till they are ready to drop off or attempting to drag them off. Fruit to travel and keep well ought not to be fully ripe when gathered or packed, and it requires no great judgment to decide when it should be gathered. The general appearance of the fruit ought to be a good guide, and if slightly soft when pressed near the base they are fit to gather. For the markets they ought to be somewhat under rather than quite ripe, and in most cases be packed in a cool state. Should, however, the fruit be scarcely so ripe as desirable, and yet must be sent for immediate use, it ought to be gathered warm and packed in comparatively hot material, an outer covering of paper serving to further enclose the heat. Thus treated, the fruit will be forwarded considerably by the time it is unpacked, and, perhaps, be quite fit for use.

Figs travel badly, especially if quite ripe when packed, and yet they do not attain perfection unless left on the trees till they have cracked somewhat. These go well with Nectarines, not, however, in the form of a double layer, as there ought to be nothing but single layers of any kind of soft fruit, though there is no reason why trays should not be fitted into boxes to save having so many packages and lids. Each Fig ought to be wrapped separately in a square of tissue paper and well bedded in cotton wool in a sloping direction with the stems uppermost. They travel equally well in good soft Moss, always provided sufficient of it is used to well fill the box.

Strawberries, again, are of a very soft, perishable nature, and private gardeners must not attempt to imitate what is done by market growers, for the simple reason that small packages are handled by railway porters and carriers generally very differently to the large trade consignments. The aim in every case should be to pack the fruit sufficiently well for it to stand rough treatment, for such it is almost certain to experience in transit. Either shallow boxes or deeper boxes holding two or three trays are required for Strawberries. I prefer the former, and have them of various sizes, the depth of all being about 2½ inches, and they are both light and strong, so as to be suitable for either the parcels post or rail. They are well lined with cotton wool, the sides as well as bottoms being covered, over this being placed a sheet of soft paper. The Strawberries when packed are cool and not over-ripe, each being enclosed in a soft leaf, nothing answering better at this time of year than Lime leaves, and packed closely together, the leaves only dividing the fruit. More leaves are placed over the fruit, then more paper, and finally a layer of cotton wool, the lid shutting down tightly on this. Packed in this manner they travel a distance of 120 miles without sustaining any noticeable damage. Naturally, some varieties, or those with their seeds on the surface, travel much better than others, but those softer may also be sent a great distance if gathered before they are fully ripe, and most of them are all

the better in quality for being gathered thus early. W. IGGULDEN.

HARDY FRUITS.

AFTER the protracted winter and exceptionally late spring, culminating in one of the most disastrous successions of storms and frosts in the middle of May, it is difficult to write hopefully of hardy fruit culture as a profitable undertaking. A good deal is being done in some parts of the south coast, but the efforts seem mostly confined to glasshouse productions, such as Grapes, Tomatoes, &c. The natural climatic advantages seem to be much overlooked in anything like an attempt to supply the markets with really hardy fruits, notably Apples and Pears. Somehow Hampshire is not in much favour with fruit cultivators, who are attracted by what is supposed to be the superior advantages of Kent. After several years' experience, however, of this district, I greatly prefer Hampshire to Kent for several reasons. I grant that we cannot show the fruit trees in Hampshire that are to be seen in many parts of Kent, but this is one of the reasons why I prefer Hampshire. In the first place, Hampshire, taking it collectively, has a lighter, and consequently warmer, soil than Kent, and young fruit trees and bushes are very precocious in their habit of bearing, for they grow just strongly enough to form fruitful wood, but not strong enough to make the timber-like trees one finds in the deep rich, stiff soil in the valleys of Kent. My idea of fruit growing for market is that it should be done on trees or bushes as thoroughly under control as any other market garden crop, which these large forest-like trees certainly are not. I know full well how beautiful they are in flower or fruit, and what a crop they yield (sometimes), but my smaller bush trees yield me far more regular crops of finer fruit, and the extra number of trees makes the yield per acre quite equal, and certainly of more commercial value than the produce of these giants. If our markets are to be fully supplied with home-grown fruit, at least in our generation, I feel sure that it must be done from dwarf bush trees, for they are bearing splendid crops while the standard is forming a head. And with dwarf trees on light, warm soil there is no long, weary waiting for some return. It is hardly fair to take this year as any criterion to go by, for trees and bushes, old and young, cared for or untended, are alike well set with fruit; and before the destructive Whitsuntide frosts, it was the general remark that there would be too much fruit to be profitable. Then, again, the south coast came off well, for although Strawberries suffered severely, and some other fruits were thinned, there is still abundance. If any attempt were made on a large scale to compete with the foreigner on the south coast, I should say go in largely for good market Pears like Williams' Bon Chrétien, or else for late Apples like Wellington, for, no matter how abundant or cheap fruit may be, these popular fruits will pay well. At all events, with land so reasonable as it is now, it is a wonder that the attempt to supply an acknowledged want is not made on some of the farms that are yielding so little from corn on the coast of Hampshire and Sussex.

Gosport.

JAMES GROOM.

The Gooseberry caterpillar.—This season this has appeared in large numbers about the third week in May, and if allowed to remain undisturbed for a short time, it very soon strips the bushes of their foliage, leaving the fruit useless. Hand-picking is tedious and a great waste of time. The method I have adopted during the past two seasons is simple and very effective. I get some lime fresh from the kiln, and slake it the day previous to using. In twenty-four hours from the time of slaking it can be used with perfect safety. The best time to put it on is in the morning while the bushes are damp. If there be no dew, damp with the syringe, and thoroughly dust the bushes with lime. I gave one dressing last season which was effective. I have done the same this year, and on looking over the plantation of about 200 bushes to-day, June 10, not a caterpillar was to be seen. Some may think lime objectionable, but I can assure such that any lime that

may be on the fruit comes off as soon as put into water. I also use the garden hose on the bushes, which leaves them as clean as if no lime had been put on.—A. BROOKS.

BEST FORCING STRAWBERRIES.

ON all sides it is conceded that Strawberries have not been a great success this season, the greatest difficulty being experienced in getting the earliest, and therefore the best flowers to set properly. Nor, as far as my experience goes, has there ever previously been so much indecision as to which are the best varieties for pot culture. Newer varieties have been extensively tried in very many gardens with the effect apparently of undermining the growers' faith in the older sorts, without, however, really superior novelties being forthcoming to supersede them. As far as earliness, quantity, size and appearance of the fruit of Laxton's Noble are concerned, this is one of the best for pot culture, but when the test of eating is applied, it fails woefully; yet we are told that this large, soft, and tasteless variety is what gardeners in charge of large establishments have to grow most extensively, a taking appearance being everything now-a-days, and if it was only firmer or a better traveller and keeper, market growers would also be more disposed than at present to swear by it. The sooner, however, Mr. Laxton or someone else will give us an equally precocious, heavy-cropping variety of a firmer texture and of better flavour, the better it will be for all concerned. At present, I greatly prefer Vicomtesse Héricart de Thury for the earliest crops under glass, this having one fault only, viz., comparative smallness of fruit. It forces and sets well, ripens quickly, and the fruits are of a bright red colour, firm and rich in flavour, even when ripened in a strong heat. While, however, the rage for large fruit lasts the good old Vicomtesse will have to be placed in the background. In Auguste Nicaise we have a variety that cannot fail to please the lovers of the sensational in fruit, and on all sides we hear of as many plants being fruited in pots as the growers could procure. When well established in 6-inch pots and a good loamy compost it can be forced fairly hard, the fruit setting readily and being freely thinned out will attain an extra large size, surpassing in fact all other varieties in this respect, but neither the colour nor the quality is all that can be desired. For market growers James Veitch is a more desirable forcing variety than the last named, and is yet one of the best for private places. It is a sure bearer and early, the fruit swelling to a large size, colouring well, and the flavour is also fairly good. James Veitch is a good traveller and keeps well, two very good qualities in a forced Strawberry. La Grosse Sucrée is still a favourite forcing variety in some private gardens, but according to my experience with it the fruits are somewhat soft and not of particularly good flavour. Sir Harry is too much on a par with La Grosse Sucrée to please me, but it has its admirers, and my estimate of it may be faulty. It is a good bearer, forcing well, while the fruit is large, rather soft, of a deep red colour, and of fairly good quality. Why Sir J. Paxton should be wholly superseded by any other second early variety is somewhat of a mystery to me. Were I to force Strawberries solely for my own gratification, the only sorts that I should select would be the Vicomtesse and the last named, Sir Joseph being undoubtedly one of the best all round varieties in cultivation. It forces well and sets without much trouble being taken with it, the fruit attaining a fairly large size, while no fault can be found with either the colour, solidity, or flavour. It is the best traveller, and for this reason as well as its tempting appearance it is a favourite with salesmen and fruiterers. Occasionally instances are met with where Sir Joseph cannot be profitably grown, the best substitute being found for it in President. The last named is not an early variety, but it is a sure cropper, the size, colour, and flavour of the fruit also being satisfactory. Where the stock can be kept in the open, Sir Charles Napier is a grand Strawberry, and succeeds well for the later crops in pots, but it is anything but hardy,

and I cannot keep it. Souvenir de Kieff, Duke of Edinburgh, and Jubilee are of little value for pot culture, and the better known British Queen dies off on many soils, so that a stock of it cannot be kept. I have in years gone by been very successful with the last named in pots, but made no attempt to force it hard. As far as quality is concerned it has no equal. It is stated that varieties with British Queen blood in them are being rapidly propagated, and it is to be hoped they will prove serviceable for pot culture. I. M. H.

FIGS AND THEIR CULTURE AT CHISWICK.*

THE collection of Figs in the society's gardens at Chiswick is probably the largest and finest that is to be found in the country. They were for the most part collected by Dr. Hogg in the south of France, and for many years a considerable amount of attention has been given to their cultivation—especially in pots—and careful observations made as to their distinctive merits, &c., the Fig house at Chiswick forming, during several months of the year, a special feature of attraction to the gardens.

The home of the cultivated Fig would seem to be Syria and along the shores of the Mediterranean, through Northern Italy and Southern France and Spain. In this country, excepting along the south coast and in sheltered situations near the sea, Figs do not ripen their fruit without protection. At Tarring, Arundel, &c., on the coast of Sussex, many trees are grown in the orchards as standards and annually bear immense quantities of fruit, and on the walls in similar localities an abundance of large and fine fruit is obtained. In the Channel Islands Figs do well and the trees attain a large size, and, being trained in many cases as arbours, afford delightful shade and have quite a picturesque appearance. In the neighbourhood of London, Figs seldom ripen out of doors. The plant is, however, quite at home and makes a capital shrub in many parts of the City itself. The original trees introduced into this country may still be seen growing in the Bishop of London's garden at Fulham. Naturally the Fig grows as a low bush or tree similar to a sturdy Apple, but where supported or grown against a wall the branches are more slender and dependent.

MODE OF FIG GROWING IN FRANCE.

In the neighbourhood of Paris, Figs are grown in the open ground in a very unique manner. The winters being too severe for the plants, shallow pits, 4 feet or 5 feet in diameter and 18 inches or 20 inches deep, are formed in some warm situation, in which the trees are planted. The first year they are cut down pretty closely, so that they may produce a number of strong shoots, which are allowed to grow freely during the summer. When the leaves have fallen in autumn, four trenches, radiating from the root or stool in the form of a Maltese cross, are dug out, into which the shoots or branches, divided into four equal bundles, are bent down and covered with 10 inches or 12 inches of soil, a similar covering being placed over the crown. Here they remain until the danger of frost is past, when they are released from their winter's burial. In this way they are treated year after year, the shoots or branches being thinned where necessary, and they bear enormous quantities of fruit.

FRUITING OF THE FIG.

Differing from the majority of fruit trees, the Fig will bear two, and sometimes, under very

favourable circumstances, even three crops in one season. There is the "first crop," which is borne on the shoots of the previous year; the little round buds may easily be observed before the leaf-growth commences. The "second crop" is borne on the growing shoots of the current season. Some people are under the impression that the half-grown fruits which remain on the trees after the fall of the leaf are intended to form the next year's "first crop." But it is not so; they are simply late "second crop" fruit that failed to come to maturity through want of heat, &c. In the Fig-growing countries there are the recognised "first crop" and the "second crop" Figs, some varieties being suited for the one purpose, some for the other. In this country it is only the "first crop" varieties which come to maturity in the open air, the season of summer warmth being too short to do more; but under glass excellent crops both of the "first" and "second crop" Figs may be obtained where suitable varieties are grown. A singular point to be noticed is the markedly different shape of the fruits of the "first" and "second crops" off the same trees—the fruits of the "first crop" being long, nearly twice as long as those of the "second," which are frequently almost oblate.

THE SETTING OF THE FRUIT.

The fruit, or edible portion, of the Fig is very curious, being the common receptacle of a congeries of flowers, which consist of numerous small florets lining the internal walls or surface of the embryo fruit, so that they are not visible without cutting the fruit open. Some of these florets are male, some female. With regard to the manner in which the hidden flowers or florets are set, we know little or nothing.

CASTING OF THE FRUIT.

The casting of the fruit without ripening, which is of very common occurrence, is attributed to the non-setting of the flowers. That it is so may easily be seen by cutting open the fallen fruits and examining them, when it will be observed that the flowers are undeveloped. Many reasons have been assigned as to the cause of this defect. Some ascribe it to a sudden check, to coldness, to dryness at the root, or to the reverse—of too much moisture, &c.—all or any of which conditions may be injurious to the plant, and may tend towards the evil, but are certainly not the true or *prima facie* cause. It may be noted that some varieties are more liable to cast their fruit than others, and that under all sorts of treatment, whilst others, receiving exactly the same treatment, do not do so. It is generally with plants that seem to be in the best possible health, and it is almost always with the "first crop," and not the "second," that failure occurs in this manner.

CAPRIFICATION.

In many parts of Italy, Spain, &c., in order to prevent this "non-setting" feature, recourse is had to what is termed "caprification," which is firmly believed in by those who practise it, but condemned by most modern scientific writers who have studied the subject as an absolutely useless waste of time. The process is simply this: Young Figs of the Caprifig (a wild species which is planted in almost every collection) are taken and placed on the shoots of the Fig trees it is desired to set, and in these Caprifigs a certain insect is said to be generated which, it is alleged, enters the eye of the unripe, and as yet unset, fruit of the cultivated species, thus facilitating the entrance of light and fertilising vapour, thereby enabling the fruit to set and ripen. In some parts of the south of France it is said to be a common

practice for men who are termed *caprifiguers* to prick the eye of the fruit with a straw or quill dipped in olive oil. Brandy also is applied by dropping a little in at the eye or through a puncture in the skin, which is, moreover, believed to hasten the maturity of the fruit and to improve its flavour.

TRAINING AND FORMATION OF THE PLANT.

The training and formation of the plant are very simple matters. The prettiest and most natural form for Figs in pots is that of dwarf standards. These should have a clear stem of from 8 inches to 12 inches, and should on no account be allowed to produce suckers or to become many-stemmed, as such plants do not fruit so well. During the first season the plant may be allowed to grow with a clear stem to the required height, when it should have the point pinched out—an operation, if the season is not too far gone, which will have the effect of causing three or more of the top buds to break, and when these have grown 3 inches or 4 inches they should be again stopped in the same manner, and in the second and following years (if they have grown sufficiently) the same process of pinching out the points of the young shoots when 3 inches or 4 inches long should be pursued. The plant thus formed should at the end of the third year have all the shoots pruned back to about half their length, and ought the following season to become a fruiting plant. A great deal, of course, depends upon the cultivation and condition of the plants, &c. General principles only can be stated.

PINCHING THE SHOOTS.

Plants which have attained a sufficiently large size should have their shoots regularly pinched when about 3 inches or 4 inches long, which will induce the production of fruit in abundance at the axils of the leaves. Shoots not so pinched, but allowed to ramble, do not fruit so freely, the incessant pinching to which they are subjected seeming to encourage the production of fruit.

PRUNING.

Of pruning, little is required with plants grown in pots and well pinched. There is an old saying that "a pruned Fig tree never bears," which is scarcely true, as the Fig will bear any amount of pruning. It is true that if we cut off all the shoots in winter we can expect none of the "first crop" fruit, but hope for the "second." In pruning the Fig it is well to bear this in mind. Young plants, as already stated, require to be pruned or cut back to bring them into form, and with fruiting plants it is only necessary to prune back the straggling shoots, so as to bring the plants back into form again. In some cases it may be desirable to cut the plant quite hard back and commence to form a new head entirely.

POT CULTURE.

The Fig is exceedingly well adapted to pot culture, no plant more so, perhaps, and it can be cultivated to more advantage in pots than in any other way. One recommendation of this method is the great variety of sorts that may be grown in a given space. By a proper selection of varieties—early, midseason, and late—a continual supply for several months may be maintained. At Chiswick the crop begins to ripen in July, and continues until the end of November. Properly managed Fig trees in pots produce fruit in greater abundance and of better quality than do those which are planted out. When planted out they always, whilst young, grow so vigorously, that little fruit is produced; and although the remedy for this is

* A paper by Mr. A. F. Barron, Superintendent of the Gardens. Published in the Journal of the Royal Horticultural Society.

restriction of the root-space, it is found in practice difficult to regulate. When grown in pots the plants are perfectly under the control of the cultivator, and may receive whatever treatment may be required.

PROPAGATION.

The Fig is easy of propagation by cuttings, taken off when the plants are at rest, any time during the winter, and placed in a little heat in early spring. Suckers are also freely produced; these taken off and potted soon form plants, and may be potted on as required and grown freely. Whilst growing and forming plants, the Fig delights in a warm and moist atmosphere, with full exposure to the direct rays of the sun. No greater mistake could be made than that of placing Figs in the shade; no plant is benefited more by full sun-exposure. In potting the young plants, the first shift may be into 5-inch pots, and, as they grow, into larger as may be required, always giving an abundance of drainage, which, being kept

20 inches. The most convenient size is 12 inches in diameter, and the pots never need exceed 15 inches.

SOIL.

In regard to soil, the Fig is not very particular; it will grow in any kind almost. That in which the best results have been obtained is a sort of calcareous loam on a chalky sub-soil. For pot cultivation a somewhat richer soil is required, so as to produce large and fine fruit. We have found the following to answer well: two-thirds fresh yellow loam and one-third lime-rubbish, so as to give it porosity, with an admixture of burnt ashes, a few half-inch ground bones, and some well-rotted stable manure. During the growing season the plants should be frequently and liberally top-dressed, and this should be of a considerably richer character. Thomson's Vine manure answers remarkably well, or indeed any mixture containing ground bones, horn shavings, &c., mixed with the soil.

ATMOSPHERE, TEMPERATURE, &c.

The Fig whilst growing delights in a close, humid atmosphere and a high temperature—the hotter the better, so long as it is copiously charged with moisture. For young plants this high temperature is not of so much importance, but for fruiting plants it is so in the highest degree. During the summer months not so much fire-heat is required, as by judicious attention to ventilation, &c., a sufficiently high temperature may be maintained from sun-heat alone. A temperature of from 80° to 90° may safely be allowed in the morning before giving air, and by shutting up early in the afternoon and “bottling up the sun's rays,” the temperature may rise to 120° or more, which will ensure plenty of warmth until the following day—a low temperature at night being preferable to a high one. On cold days a little fire-heat may be applied, but the temperature from this source need never exceed 65°, and a similar temperature may be maintained when the fruit is ripening.



Aralia Kerchovei. (See p. 565.)



Aralia Chabrii. (See p. 565.)

sweet and pure, tends much to the success of the pot cultivation of all kinds of plants. Whilst young, some may require shifting twice a year, but larger plants will only require to be potted once, the object being to produce short, stocky, fruitful shoots, and not gross ones, which would be the case if an excess of pot room were supplied. Early in the autumn, or as soon as the fruit may be gathered, the whole of the plants should be thoroughly examined and repotted where required. For some it will be sufficient to turn them out of the pots, shaking away a portion of the old soil and reducing the ball by trimming off the stronger roots, and then replacing them in the same-sized pots; whilst others, which have attained the maximum size, may simply have a great portion of the top soil, roots and all, taken away, and be filled up afresh with new soil. Figs may be fruited in any sized pot, from a 4½-inch or 5-inch pot to one 18 inches or

WATERING.

Watering is an important matter with Figs. Whilst young and growing, if properly potted and the drainage in proper action, in a high temperature too much water can scarcely be supplied. They may be, and should be, syringed overhead two or three times a day, and the atmosphere kept continually moist. When the fruit is ripening water must be applied more sparingly to the roots, and a much drier atmosphere maintained. An excess of moisture at this time is apt to cause many of the fruits to split open, especially the larger varieties, and also spoils the flavour. A bracing, warm atmosphere and comparative dryness are essential to secure well-flavoured fruit. The fruit of the Fig ripening successively makes this somewhat difficult, as the treatment required by those in one stage is exactly the reverse of what is required by the other.

ENEMIES AND AILMENTS.

These are not so numerous or so formidable as in the case of most other fruits. Of enemies, red spider and thrips are the chief; and as these are encouraged by dryness and a dry atmosphere, they may be subdued by plenty of moisture and a free use of the syringe, which is at the same time very agreeable to the plants. Mealy bug is sometimes very troublesome, but may be destroyed by the timely application with a brush of a little diluted paraffin. A more insidious scourge we have suffered from at Chiswick is a species of scale received on some Figs from France, which spread so rapidly over the plants a few years ago as nearly to destroy the whole collection. Many varieties were lost in consequence of the repeated scrubbing and dressings required to cleanse them from the pest, which completely covered the young shoots and leaves. On submitting specimens to the scientific committee,

it was found to be a species of scale new to Great Britain, rejoicing under the name of *Mytilaspis ficus*. One inscrutable malady of the Fig is the dying of the shoots and branches—a sort of cankering—sometimes to such an extent as to almost destroy the entire plant, sometimes only a few small twigs, or it may be only a partial injury which is subsequently healed over. This has been attributed to the action of frost, but cannot be so, as the injury is most pronounced on the trees in pots which are not exposed, and is seldom noticed on outdoor trees.

WHEN AND HOW TO ENJOY FIGS.

Figs thoroughly ripened are amongst the richest and most luscious of fruits, but there is great variety. There are good Figs, and Figs which are not so good. Very few people relish them quite on the first acquaintance; they are what are termed sickly. The taste is no doubt an acquired one, like that for Olives or raw Tomatoes, but the taste grows till one acquires a decided relish for them. Figs to be eatable must be ripe; unripe Figs are simply nauseous and intolerable. If the white milky juice is seen at the end of the stalk after being gathered, that fruit should not have been gathered. A Fig that is ripe and fit to eat may be noted to droop a little, and to have a large "teardrop" at the eye; the skin cracked a little, with the juice exuding and standing on the surface like drops of dew; and beyond this, in fine dry sunny weather they sometimes dry up and increase in richness. There is abundance of variety amongst Figs to please all tastes and fancies, so that the following selections may prove useful to intending growers.

1. **SIZE.**—For large sorts the following may be named: Brunswick, an old, well-known sort; Nebian, or Grosse Verte, as it is sometimes called; and a new variety, named the Large Black Douro, lately received from Spain. For small-fruited sorts, White Ischia is one of the best, with De Lipari, Black Provence, and Reculver.

2. **FRUITFULNESS.**—As a rule, the smaller-fruited sorts bear the most profusely, such as the White Ischia, Œil de Perdrix, and Black Provence. Some of those, however, which bear both first and second crops give a large return. Of these, White Marseilles, Brown Turkey, and Negro Largo are good examples.

3. **SEASON OF RIPENING.**—The earliest of all is Trifer, closely followed by De la Madeleine and White Marseilles. For the main crop we would select varieties possessed of good quality, such as Brown Turkey, Bourjassote grise, Violette de Bordeaux, Grise Savantine bifère, Gouraud noir, Poulette, and, for the latest, Col de Signora Bianco, Nebian, and d'Agen, which is the latest of all.

4. **FLAVOUR OR QUALITY.**—For high quality and constancy there is none to surpass Bourjassote grise; even the half-ripened fruits of this variety are excellent. Col de Signora Bianco, Nebian, Grise Savantine bifère, and Poulette are all varieties of great excellence.

5. **COLOUR.**—This is not a material point, except in a matter of classification. They are readily divisible into three classes—(1) green, white, or yellow; (2) tawny; and (3) black, or dark. As examples of the first class we may take De la Madeleine, White Marseilles, Dorée, and Nebian; and of the second, Brown Turkey, Bourjassote grise, and De l'Archipel; and of the third, Violette de Bordeaux, Black Ischia, Negro Largo, and Gouraud noir.

6. **VARIETIES WHICH BEAR BOTH FIRST AND SECOND CROPS.**—This is a very important

quality. White Marseilles, De la Madeleine, Trifer, Brown Turkey, and Brunswick.

VARIETIES OF FIGS.

Adam.—Fruit medium size, pyriform; skin dull brown, tawny; flesh dull red, second quality. Good cropper.

Angélique noire.—Fruit below medium size, roundish or oblate; skin dark; flesh bright red, rich. Strong grower and moderate cropper.

Arbal.

Agen.—Fruit medium size, roundish; skin bright green, cracking longitudinally when becoming ripe, thereby showing very prominent white bands; flesh deep red, very rich. The latest of all Figs, requiring heat. Great cropper.

Barnissote grise.—Fruit below medium, roundish or oblate; skin dull brown or tawny; flesh red, juicy, and rich.

Biberaeo.—Fruit medium size, oblong; skin dark purple; flesh dull red, moderate quality. A free cropper.

Bifère de la Malmaison.—Fruit below medium size, roundish; skin light brown and purple streaked, with a light bloom; flesh red, very rich.

Black Douro.—A new variety from Spain.

Black Ischia.—Fruit medium size, pyriform; skin dark purple; flesh red, second quality.

Black Provence.—Fruit small, pyriform; skin dark purple; flesh red, second quality. Very prolific.

A Bois jaspé.—Fruit medium size, ovate; skin bright mahogany, netted; flesh bright red, medium quality.

Boughton.—Same as Brunswick.

Bourjassote blanche.—Fruit small, round or turbinate; skin dull green, inclining to tawny; flesh pale rose, sweet and rich.

Bourjassote grise.—Fruit medium size, roundish and flattened, almost oblate; skin dull brown or tawny, with patches of purple; flesh deep red, very rich and luscious. The most constantly good Fig we have grown, and a good cropper.

Bourjassote noire.—Fruit medium size, roundish, ribbed; skin purple; flesh deep red, rather solid, and not rich.

Boutana.—Fruit medium size, pyriform; skin pale greenish yellow, with russet; flesh dull rose, sweet, but not rich.

Brown Turkey.—Fruit medium size, pyriform; skin dull brown and tawny; flesh dull red, medium quality. A free cropper and reliable sort. The Fig most generally cultivated.

Brunswick.—Fruit very large, long, pyriform; skin dull tawny brown; flesh dull red, second quality. A great cropper, and a variety largely grown.

Castle Kennedy.—Fruit very large, long, pyriform; skin pale green and dingy brown, resembling the Brunswick. Second quality. A shy cropper.

Care (Hogg).—Same as Brunswick.

Col de Signora Bianco.—Fruit medium size, pyriform, with a rather long distinctly ribbed neck; skin green, changing to yellow; flesh deep red, very rich and luscious. A strong grower; late.

Col de Signora Bianco panachée.—A variety of Col de Signora Bianco; very prettily striped with broad bands of pale yellow.

Courcoule le brune.—Fruit below medium size, roundish oblate; skin dark purple, much cracked, and covered with a thick bloom; flesh very dark red, very rich and excellent.

Courcoule garotte.—Fruit small, round; skin dark brown, with prominent lines, much cracked; flesh dark red, rich and excellent.

Crave (Rivers).—Resembles Violette de Bordeaux.

Datte.—Fruit medium size, pyriform, with a long, tapering neck; skin greenish yellow and dingy brown, which cracks as it ripens; flesh dull red, juicy, but not rich.

De Lipari.—Fruit small, roundish, with a very short stalk and neck; skin pale yellow; flesh pale rose, not very juicy or rich. A great cropper.

De l'Archipel.—Fruit above medium size, obovate; skin light tawny; flesh very pale, juicy, rich, and excellent. A great cropper.

Dorée nobis.—Fruit small, pyriform; skin deep yellow; flesh pale, very sweet and good. Distinct.

Dorée.—Fruit above medium size, pyriform; flesh dull red, very rich and good.

D'Or bifère.—Fruit below medium size, long, ovate; skin dull brown and greenish yellow; flesh blood-red, very rich and juicy.

Douro Febra.—Same as Biberaeo.

Drap d'Or.—Fruit below medium size, almost round, no neck; skin pale greenish yellow, shaded with brown; flesh delicate amber, thick, juicy, and well flavoured.

Du Roi.—Fruit small, roundish, pale yellow.

Figue d'Or.—Same as Brunswick.

Figue de Dalmatie (Paul).—Fruit very large, long, pyriform; skin pale green, covered with a soft pubescence; flesh dull red, moderate quality.

Gouraud noir.—Fruit medium size, oblong; skin dark purple; flesh red, sweet and rich.

Gouraud rouge.—Fruit medium size, pyriform; skin reddish brown; flesh dull red, moderate quality.

Grassale.—Fruit small, pyriform; skin pale green; flesh dull red, moderate quality.

Grise Savantine bifère.—Fruit below medium, short, pyriform; skin dull brown, ribbed, with a thick grey bloom; flesh dull red, thick, syrupy, and luscious.

Grosse Marseilles.—Fruit medium size, long, pyriform; skin greenish yellow shaded brown; flesh dull red, second quality.

Grosse Monstrueuse de Lipari.—Fruit large, turbinate, much flattened at the apex; skin dull brown or tawny, shaded with purple; flesh dull red, thick, second quality. A certain first crop Fig.

Grosse Verte.—Same as Nebian.

Grosse Violette de Bordeaux.—See Violette de Bordeaux.

Hardy Prolific.—Same as Brunswick.

Hirta du Japon (Rivers).—Fruit medium size, roundish, with long stalks; skin very dark; flesh pale opaline; foliage almost entire. Very distinct.

Lampa (Tait).—New variety from Spain.

Large Black Douro.—Fruit large, long, pyriform; skin dark purple, somewhat cracked; flesh dark red, very juicy, not rich.

Large Wild Fig (Tait).—Variety used in Spain for capriciation.

Lee's Perpetual.—Same as Brown Turkey.

Maris No. 2.—Same as Gouraud noir.

Martinique.—Same as Angélique.

Monaco Bianco.—Fruit above medium size, roundish oblate; skin green; flesh dark red, juicy, and exceedingly rich. Free cropper.

Nebian.—Fruit very large, obovate; skin deep green; flesh bright red, very rich and luscious, somewhat apt to split open. Free-bearing; late.

Negro d'Espagne.—Fruit large, oblong, broad at the apex; skin dark purple, and covered with a thick bloom; flesh deep red, thick, not rich. Very commonly grown in the south of France.

Negro Largo.—Fruit large, pyriform; skin dark purple; flesh dull red, juicy, but not particularly rich. A very free bearer and strong grower.

Negronne.—Same as Violette de Bordeaux.

Nigra.—Fruit small, pyriform; skin dull yellow, shaded with purple; flesh bright red, juicy, not rich.

Œil de Perdrix.—Fruit small, round, the stalk a little on one side; skin dark chestnut, almost black; eye very large and prominent; flesh thick, dark rose, second quality.

Osborn's Prolific.—Same as Brown Turkey.

Pastilière.

Peau Dure.—Fruit above medium size, pyriform, a little one-sided; stalk long and slender; skin greenish yellow, very thick and hard; flesh bright rose, thick and fleshy, not rich.

Pied de Bœuf.—Fruit large, long, obovate, much ribbed; skin dark brown, or reddish purple; flesh very pale, second quality.

Poulette.—Fruit above medium size, roundish; skin deep green, streaked and mixed with purple; eye bright red; flesh deep red, very juicy and rich.

Quarteria (Tait).—Fruit medium size; skin pale green, netted; flesh deep red, firm and juicy.

Recousse noir.

Reculver.—Fruit small, roundish, like the Black Provence; skin black; flesh red, thick, not rich.

Ronde rouge.—Fruit medium size; skin dull tawny red; flesh shell red, second quality.

Royal Vineyard.—Fruit above medium, pyriform; skin reddish brown; flesh dull red, thick, not rich. A pretty Fig.

Small Black.

Small Wild (Tait).—From Spain. Fruit very small, pale yellow. Variety used in Spain for capriciation.

Toulousienne.—Same as Grise Savantine bifère.

Trifer.—Fruit medium size, pyriform; skin pale green; flesh pale, thin, and watery, not rich. Very early, and a sure cropper.

Trois-récoltes.—Fruit small, ovate; skin dark tawny or copper coloured; flesh dull red, with but little flavour. Early and a free bearer.

Verdal de Valence.—Fruit below medium, roundish, turbinate, slightly ribbed; skin dull tawny red, with a fine bloom; flesh thick, dull red, second quality. Very prolific.

Versailles.—Fruit small, pyriform, with a long stalk; skin dull green, slightly russeted; flesh pale red, juicy, not rich.

Vigasotte Bianco (Tait).

Violette de Bordeaux.—Fruit small, long, pyriform; skin rugose, dark purple; flesh dull red, thick, but not rich. A very prolific fig, and not liable to rot.

White Ischia.—Fruit small, round; skin greenish yellow with russet; flesh pale, occasionally tinged with red, juicy and rich. A very prolific variety.

White Marseilles.—Fruit medium size, pyriform; skin pale green; flesh pale, very juicy, but rather watery. A very hardy and prolific sort, and early.

SHORT NOTES.—FRUIT.

Fruit crops in Kent.—The Black Currant crop in Kent this season will be a failure. Reports from nearly all the plantations show that the recent cold winds, combined with spring frosts, have caused the Currants to fall off to an alarming extent. Gooseberries will also be a poor crop.

The earliest Strawberries.—The *Standard*, June 3, contained an announcement of the fact that several East Kent fruit farmers were gathering Strawberries grown out of doors, and I should be glad if some reader of THE GARDEN will supply us with a few more particulars. Were these Strawberries grown in the open fields, or were they protected or forwarded in any way?—W. I.

The Cherry crop in Kent.—The Cherry prospects in Kent are extremely bad. Although there was such a profusion of blossom, the cold winds and late frosts have played sad havoc in the Cherry orchards. The fruit has run off tremendously, and the ground in almost every plantation is strewn with young Cherries decayed at the stem. From all quarters similar complaints are reported. Only half a crop is expected.

Muscats failing.—I have been lately interested in the failure of a Muscat vine in this district, the border of which was renewed about the end of October. The Vines were lifted and planted with great care in a well-prepared border. In the second week in February the house was closed, and thereafter the buds began to swell a little, when suddenly the Vines came to a standstill, and from then till now, with the exception of one Vine, they have not moved in the least. A Vine was lifted the other day, and both roots and wood are in a quite fresh condition. Can any reader assign any cause for the above? I may mention that every attention has been given to damping, heating, &c.—LANARKSHIRE.

Strawberry James Veitch.—This is the favourite variety for pot culture at Rood Ashton, near Trowbridge, Wilts, and Mr. Miller succeeds remarkably well with it. During the forcing season he has gathered heavy crops of exceptionally fine fruits, or such as would fetch the very highest prices in Covent Garden Market. It is found to force well, a good set being usually effected, and the fruits, in addition to being extra large, are also of good quality, or superior to any Auguste Nicaise I have yet tasted, the colour also being rather better, but Auguste Nicaise is the better traveller. Mr. Miller also considers James Veitch one of the best for open-air culture, and according to my experience it is a few days earlier than Sir J. Paxton, though scarcely so good, either as regards colour or firmness of fruit.—I.

Peach Waterloo.—Once more I have to chronicle a disappointment owing to not being supplied with a Peach true to name. Last year I fruited a strong young tree of what should have been Waterloo, but it was most disappointing. Instead of the Peaches being large and very richly coloured, they were nearer the size of Early Beatrice, and of no great value accordingly. Thinking that a change to an earlier house might improve the size of fruit, the tree was carefully shifted last autumn and has since been forced gently. It was only permitted to bear a light crop, but there was no improvement whatever in the size of the fruits that were recently gathered. The variety is quite distinct from Early Beatrice, the fruit being somewhat flat and for an early Peach well coloured, while the quality was also very satisfactory. I cannot identify it, but it is not Waterloo.—M. H.

Sowing seeds outdoors and under glass.—The present season has fully justified the advice so often given, that wherever practicable flower or even small vegetable seeds be sown under glass in

the spring in preference to out in the open ground. I am quite sure that did I depend entirely on the open ground sowings I should rarely find many seeds germinate at all. We had one or two warm days recently, but accompanied with harsh dry winds and very dry parched soil. When rain did come it was associated with hail, cold northerly winds, frosts at night, and generally very low temperature. No wonder, then, that seed germination outdoors has been very slow and imperfect. Weeds even have grown slowly; indeed I have rarely seen so few weeds on the ground at the end of May as this year. But seeds sown under glass in frames or in a cool house have come up remarkably well. Asters, Marigolds, Dianthus, Lobelias, Stocks, Balsams, Petunias, Pentstemons, Antirrhinums, Cauliflowers, Celery, Lettuces, these and many other things have come up well and given plenty of strong plants to go out now, whilst other seeds outdoors sown as early make but a poor show. How often are seeds blamed for the fault of the gardener who commits them to uncongenial soil early in a cold ungenial season. It will always pay to have a few close frames at disposal for the raising of seed of various descriptions in the early spring. Frequently these frames may be utilised for other purposes through the year, but at least the raising of seed should always form for them a prominent feature. Some may be filled up to within 6 inches of the glass with soil in which the seeds are sown. Others may have a bed of ashes, upon which may be stood in close order pans and boxes all filled with soil and small seeds. Wooden frames are so easy of removal, that no sooner are the plants raised in them ready for being hardened off than the frames can be shifted elsewhere, and if on manure beds utilised for Cucumbers, Melons, or even Tomatoes.—A. D.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC.

JUNE 17.

THIS exhibition, although not a full one, contained many attractive features. The society is greatly indebted to the large trade growers for the very comprehensive groups of plants and cut flowers which they staged on this occasion not for competition. These exhibits enhanced the effect in the large marquee to a considerable extent, and partially redeemed the falling off in several of the competitive classes. In these classes amongst plants there were some good things shown, but taken as a whole the standard of exhibits was not up to the average.

For stove and greenhouse plants in the nurserymen's classes Mr. Mould, of Pewsey, Wilts, took both first prizes. His best plants consisted of a very fine specimen of *Dracophyllum gracile*, fresh and full of flower; a good plant of *Statice profusa* in capital condition; *Erica exquisita*, a very healthy plant and well flowered; and another good *Erica aristella*, with smaller plants of *Erica Cavendishi* and *Hedera tulipifera*. Mr. James, of Norwood, took second in both cases with smaller plants, the best being a good piece of *Allamanda nobilis*, with two well-flowered examples of *Anthurium Scherzerianum*. In the amateurs' class for six plants, Mr. Warren, Handcross Park, was an easy first with fresh plants, the most noticeable being a very fine plant of *Azalea Brilliant*, which is still about the best of late kinds; *Ixora Williamsi* was in good condition, so also was a small but healthy plant of *Erica ventricosa magnifica* and another of *Aphelexis macrantha purpurea*. Mr. Eason, Hope Cottage, Highgate, was second with smaller plants.

In the competitive classes for Orchids there were only two exhibits, Mr. Douglas taking the first prize for a collection without any restriction to numbers. This formed an attractive group of fresh, well-grown plants, consisting of *Cattleya Mendeli*, *C. Mossie*, and *Lelia purpurata* in good variety with some fine plants of *Cypripedium Lawrenceanum* and one of *C. Elliotianum*, a healthy plant with two flowers upon one spike. *Calanthe veratrifolia* was in good condition with several spikes, and

a small but capital example of *Aerides crassifolium*, bearing one spike with five blooms.

Mr. James was first in the nurserymen's class for twelve plants, his best being the lasting *Cymbidium Lowianum* and *Cattleya Warneri*. Four classes devoted to Orchids, viz., for a collection of *Masdevallias*, for a general collection (nurserymen), for twelve Orchids (amateurs), and for twelve European varieties, found no competitor.

Mr. Charles Turner, Slough, was strong in *Pelargoniums*, taking first for shows and fancies with fresh plants not over large; the best of the former were Duke of Norfolk, Comtesse de Choiseuil and Gold Mine; of the latter, Ambassadors, The Shah, and Fanny Gair. Mr. Phillips, of Langley Broom, Slough, occupied the same position in the amateurs' classes with plants hardly so large as Mr. Turner's. Hermit and Magistrate with *Delicatum* and The Shah were the best. With six zonal varieties the latter exhibitor again took first, with plants freely flowered, but with the trusses tied down in an unnatural manner.

For fine-foliaged plants, Ferns, and variegated plants, Mr. Offer took the first prize. Amongst them were three huge Palms with good *Crotons* (*C. angustifolius* the best) in the first named; in the second he showed fine plants of *Davallia polyantha* and *Cyathea dealbata*, and in the last three beautiful plants of medium size of *Crotons Mortii*, *picturatus* and *volutus*, with neat examples of *Maranta Makoyana* and *Dieffenbachia magnifica*. Mr. Douglas followed with six good Ferns. *Fuchsias* were fairly good; so also were the best six *Coleus*, both coming from Mr. Eason.

In the cut-flower classes, Roses, which should have been conspicuous features in the average of seasons, were this time but sparsely shown, owing no doubt to the lateness of the season. In the six classes there was but poor competition. Mr. Rumsey, Waltham Cross, had a very fine box of *Niphetos*, which gained him the first prize for any one colour, one variety only. He also showed two other boxes of this well-known Rose which formed a most attractive feature. To these and another box were awarded a large bronze medal. Mr. Osman, of Chertsey, was first for yellow Roses with *Gloire de Dijon*, and Mr. Mount, of Canterbury, for six fine scented, three of each, with flowers of medium size.

Messrs. Paul and Son were exceedingly strong in the class for twenty-four trusses of hardy herbaceous flowers. Amongst them were very fine examples of *Hemerocallis flava*, *Campanula glomerata dahurica*, *Doronicum plantagineum*, *Lupinus polyphyllus* and its white var., *Geum coccineum fl.-pl.*, *Aquilegia Paul's New Yellow*, *Centaurea montana*, *Pyrethrum Acelum* (single) and *Pericles* (double). This exhibit was set up in large bunches in an attractive and light manner. Mr. Thos. Ware, Tottenham, was second in this class with some choice kinds; the best were *Heuchera sanguinea*, *Lilium colchicum*, *L. pyrenaicum*, *Pyrethrum Duchess of Portland*, and *Delphinium nudicaule*. For twelve trusses Orchids Mr. Douglas was first with fresh examples, having *Cymbidium Lowianum*, *Cypripedium Lawrenceanum*, *Oncidium ampliatum*, and *Lelia purpurata*. These were set up in Maiden-hair Fern, and thus arranged looked well. Mr. James was second in this class. Mr. Turner staged a choice assortment of cut *Pelargoniums* (show) in large bunches, taking first prize; and for zonal varieties, Mr. Phillips was first with good trusses of the best singles in capital variety. For collections of Iris, not less than twenty-five varieties, two strong collections were staged, the best coming from Messrs. Barr and Son, and the next from Messrs. Paul and Son. Amongst these two collections were the best of the German Irises—*sibirica*, *grandis*, *orientalis*, *graminea major*, *White Lady*, *Purple King*, *virginica*, *versicolor*, and others.

Fruit.

The display in the fruit classes was not extensive, the most meritorious exhibits being the Black Hamburg Grapes, which were in many instances all that one could wish in size of bunch, in berries, and in colour, and in these the competition

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

KITCHEN GARDEN.

MULCHING AND WATERING VEGETABLES.

DURING a dry time, and especially during the months of July and August, vegetables are much benefited by copious supplies of water. The advantage will now be felt where the ground has been deeply worked and well manured and otherwise brought into a well pulverised condition, as the crops will be better able to withstand drought. On badly worked soils, and especially those of a light or gravelly staple, vegetables quickly feel the effects of drought. Even during a moderately dry time the Pea haulm will ripen off long before the crop is fit for gathering, and if any Peas come to maturity they are quickly over. Lettuces, Turnips, and Spinach also run to seed long before their time. The above is in marked contrast to those vegetables growing on well worked soils.

There is not the least doubt that in many gardens the watering is performed very indifferently, and in some instances the crops will be a deal better without such applications. For instance, the daily dribblets often given are perfectly useless; these, besides drawing the roots to the surface, so harden the soil that the crops quickly become soil-bound. The daily applications of water also lower the temperature of the ground considerably, and many people are at a loss to understand why their crops are almost at a standstill, although they may be sprinkled with water daily. In soil that has previously been well worked, mulching is the best conservator of moisture, and although it may be necessary to apply water occasionally, this need only be at weekly intervals and the crops would be greatly benefited. Upon the approach of a dry time and where the materials are at command, the mulching should be put on as early as possible in order to conserve the moisture in the soil. Amongst the crops which are greatly benefited by mulching, Peas take the first place, the material being placed along each side of the row to the width of 2 feet. Runner and French Beans must also receive their due share, although the latter will withstand a tolerable amount of drought where growing on well worked soils. After mulching and if the weather should be at all dry, the Peas would still be greatly benefited by weekly applications of water, a thorough soaking being given at each application. Following on the watering, liquid manure or diluted sewage would be of marked benefit, for when applied at the time, the soil on account of its moist condition takes in the liquid more freely. If mid-season and later crops of Peas are sown in trenches this water goes direct to the roots. On heavy soils the haulm does not suffer so quickly, but where the soil is light or of a gravelly description, and if a dry time should ensue, heavy waterings, both of clear water and liquid manure, are necessary, the crop holding out much longer, the quality also being much more satisfactory with this needful assistance.

Runner Beans very quickly feel the effects of drought, and on dry soils the crop is either quickly over, or the blooms fail to set. The plants if growing in well prepared trenches may be heavily watered, the liquid following on immediately afterwards. With due attention

to a mulching along the outer edges of the rows the crop cannot but turn out satisfactorily, and a succession be kept up till late in the season. On heavy soils watering is rarely necessary unless during a very dry time, the mulching being sufficient to carry the crop through. The difficulty in applying sufficient moisture both to Runner Beans and Peas is much felt during a dry time where the plants are growing on the level. In these cases a ridge should be drawn up on each side of the rows before applying the mulch. This will enable the water to go more direct to the roots. Celery, again, can hardly have too much water, but according to my experience this can be fed up too highly with liquid manure, a weekly application following on watering being sufficient in the majority of gardens where this extra assistance is known to be needed. In many instances the Celery has the monopoly of liquid manure, with the result that it grows far too large and coarse to enable it to successfully withstand frost and damp. A thorough watering twice weekly will be quite sufficient. The best time to apply water to growing vegetables is either in the evening or early morning—the former for choice. The evaporation at this time of the day is not so great, and the crops have also the advantage of the cool night in which to recuperate their energies.

Where water and mulching material are scarce, surface-stirring is the best means to adopt, this conserving the moisture in a surprising degree. With all low-growing crops this surface-stirring is of the greatest importance. A. Y. A.

Tomato Abundance.—This is a very fitting appellation for a variety raised by Mr. C. Herrin at Dropmore, and which I saw recently fruiting there. A span-roof house devoted to the variety had in a 20-inch bed on either side a double row of plants angle wise, which were, as is usual, trained up under the glass roof. The crop of fruit was literally a remarkable one, well justifying the title given to the Tomato. It is evidently a first-rate setter, as the fruits were borne in large clusters. These are of good size, red, round, slightly sutured, and with very solid flesh. The variety is being tried at Chiswick, and doubtless will be heard of later on.—D.

Early market Peas.—Although I hear of early Peas being sent into the market from the Surrey side of the Thames, yet in this district, where immense breadths are grown, the earliest gathering was on June 19, and that from a field the soil of which was rather poor, the haulm rather short and the podding thus all the more precocious. On breadths which have made the usual strong growths, and Peas generally are strong this year, the earliest gathering was made on the 22nd, rather a late date, but one in consonance with the general lateness of the season. This improvement, so far as relates to West Middlesex at least, will enable gardeners who have the aid of warm enclosed gardens and south borders to discern how far in point of earliness they possess advantages over those of the market grower, who has his Peas out in the open fields. We expect, in spite of some drawbacks, an enormous Pea crop this year. Even the Marrows, which almost everywhere came up thinly, have branched and filled out wonderfully, and the exceeding value of thinner sowing of these varieties has once more been amply demonstrated. The early round blue Eclipse seems to be even earlier than Sangster's No. 1. It is a rather curious fact that two large breadths of these growing in the same field showed Sangster's to be first in bloom, and it is still the later. Eclipse bloomed profusely, but the body of bloom has at the moment of writing visibly declined, whilst Sangster's seems blooming as much as before. Yet the Eclipse will give the first pods. Curiously enough, too, the white Pea gives the darkest foliage, the

blue Pea the lightest. Eclipse has become a great favourite with the growers about here, not only for its earliness and excellent cropping qualities, but also for the colour of its pods and Peas. The bluer relatively these are the better they sell. It seems certain that the later sowings of better class Peas will be in some time before the later gatherings from the early rounds are over.—A. D.

WHITE TURNIPS.

I CERTAINLY was puzzled when I found it stated that the sowing of white Turnips for autumn and early winter use should be completed by June 25. That the date was early enough for autumn crops all will admit, but I could not understand why the limit should be fixed at the 25th. What renders any limit of date in such cases so absurd is that we sow for winter pullings up to the third week in August; therefore, it is obvious for the production of succession crops for pulling from early in September until the following spring we may sow at any time from the middle of June until late in August, just as it may be convenient. Whilst it is well to have certain rough rules as to seasons or times for sowing seeds, it is obvious that no rule of thumb can be tolerated. That there is some necessity to advise against too early sowing of Turnip seed is evident, as one of my neighbours who sowed at the end of March found all his plants run off to flower, whilst a market gardener, who, having a thin piece of Cabbage plants, had the intervening ground well horse-hoed and sown about the middle of April, had a capital plant, and now plenty of bulbs. He made a mistake in sowing a strong-growing field kind when he should have sown Snowball or American Strap-leaf. Somehow market growers do not seem to know the existence of many precocious kinds of vegetables, but go on sowing varieties quite unfitted for their purpose. The chief enemy of white Turnip plants is found in the fly or beetle, which seems to be ever present, but more so, of course, in hot dry weather. All sorts of cures are recommended for the saving of the plants from these destructive pests, but they are hard to destroy. It is a very good plan to have the seed bed light and loose, so that a roller may be run over it occasionally after the plants are small, that will help to destroy some beetles. Very liberal dustings with grit, soot, lime, or any similar compound are also good aids to insect destruction, or, at any rate, to saving the young leaves from consumption. A very old method of trapping the fly is to have a long board, to each end of which a stout piece of cord is attached, by which two persons can carry it over a breadth of Turnips, a few inches above the plants. The board should be thickly and fresh tarred on one side, and that side held to be somewhat inclined over towards the ground. It is well known that when disturbed the flies rise or leap up into the air, and many are in such case caught on the tarred board. It is very probable that the newly introduced spraying machines or engines can be utilised for moistening the leaves of the young plants with some noxious liquid. In any case when the fly abounds it is absolutely needful some action should be taken to save the plants, or otherwise all will soon disappear. New seed is productive of quick growth; so also are well-manured soil and a well-pulverised surface. Quick growth helps the plants to get beyond the power of the fly to harm them materially, but if the weather be very hot and dry, and especially in the fields, growth can hardly be rapid. The practice of sowing in drills is not always to be commended, although it may be in some cases. Turnip seed needs to be evenly, but thinly distributed, and that can hardly be the case when it falls entirely into narrow drills. Were two drills to occupy the same width one does, and the same quantity of seed be distributed between the two, the result would be very much better. An expert hand-sower can invariably distribute Turnip seed remarkably even, and if the soil be fine and loose it will germinate very evenly also. A. D.

Transplanting Celery.—In order to have good Celery there ought to be no serious check to the growth of the plants from the time they are

pricked out till their full size is reached. Home prepared plants will always excel any obtained from a distance, for the simple reason that they can be transplanted to the trenches without flagging badly. Where many err is in too long deferring transplanting. Either the trenches are not ready, no ground being available, or else a stress of other work hinders the getting out of Celery, and the consequence is the plants crowd each other, the leaf-stalks soon becoming long and weak. Supposing they are pricked out 4 inches apart or rather more on shallow beds of soil, they ought to be moved to the trenches directly or soon after they touch, and seeing that all can be lifted with a good ball of soil and roots, the former being thoroughly moist at the time, there ought to be no flagging, even when the work is done in the hottest weather. They will stand up stiffly, and with a little assistance from the watering pot will scarcely cease growing. With very little further trouble they will form large sturdy plants, with solid leaf-stalks and the best of hearts, contrasting in all respects most favourably with those less well treated. Any left too long in the beds where pricked out are certain to move badly, and are very slow in recovering from the check given. Not unfrequently the bed of short manure and soil in which the plants are pricked out is too deep, only a small portion of it moving with the plants. A depth of 3 inches of manure and one of soil is ample, the balls in this case moving cleanly off the hard bottom on which it is placed.—M. H.

ONIONS ATTACKED BY GRUBS.

IN many old gardens it is difficult at this date and in some cases later in the season to prevent loss of crop from the attacks of grub or Onion fly, and as this pest generally begins operations in the early summer, now is a favourable time to prevent it as far as possible. From experience I find the best preventive is to change the quarter yearly, never having the beds in the same locality if possible. Even this does not prevent its attacks; still, much can be done to minimise it. The best remedy I have found is to give the bed a dressing of guano in showery weather about every three weeks. In the case of dry weather the guano should be used and a thorough watering given afterwards. I have used a mixture of guano, soot, and wood ashes, well watering in afterwards, and in dry weather it is a safe remedy for this pest. Previous to applying the mixture it is well to go carefully over the beds and pull up and burn those not badly attacked. I find the best way to prevent it is to keep the young tender plants growing vigorously, as the slightest check in any way is the time for the fly to commence operations. Another simple remedy which can be used by those growing only a small quantity is to saturate the bed with soot and water; this is far more efficacious than sprinkling the soot over the surface, as it reaches the bulbs or young plants better. The watering with guano, as advised with soot, does great service, as the soot washed down kills the larvæ and the guano builds up new growth. Watering with other liquids, such as farmyard manure, fish manure, and others, all tend to give strength to the young plants at a critical time, as often the roots may not have gone down far into the soil and reached the manures and feeding materials. A great impetus is often given to the fly by sowing Onions close to other affected crops, or in soils that have had little preparation. Much can be done in the winter months to get rid of them, and I find gas-lime one of the best remedies. I spread it rather thickly over the surface for a few days previous to digging it in, and find by so doing it kills the fly better and also removes any doubt as to injury to other crops, as gas-lime used in large proportions is very powerful and injurious to root crops when used too strong. I also sow the seed in wood ashes and soot; this is a great preventive. Another point often overlooked is making the beds firm. This is of importance, as when a hard rooting surface is made the fly finds more difficulty in getting to the base of the young bulbs, as is the case in a loose soil. Thin sowing is also best, as then

the bulbs are not so much disturbed by thinning, and those kept for a crop are left loose, giving the fly every opportunity to get to them. A small bed may always be sown thickly, so that the Onions may be drawn in a young state. G. WYTHES.

SHELTERED BORDERS V. OPEN GROUND FOR EARLY CROPS.

SOME little time ago I took note of an instructive correspondence in the columns of THE GARDEN upon the above subject. Since then for several weeks I have been carefully watching the relative progress of two separate crops of early Lettuce. In each instance good cultivation had been provided, so that from that point of view there was not any deficiency, nor cause for the difference in the two crops. One crop was in a walled-in garden, well screened from cold east and north-easterly winds, having in these respects everything in its favour; the aspect is a westerly one; a more southerly one would no doubt have been rather better. The plants in this instance were of good planting size when put out in September of last year, making a nice growth afterwards, and even with the very severe weather of the past winter the majority came through without injury. The variety was the Bath or Brown Cos, which is much grown for this purpose. The other crop was in an open field of some fifty or more acres in extent, and exposed to the winds, which screened the others, and then in the most severe manner. The plants when put out were smaller than the autumn ones quoted above, and for a time made but little progress. They would have been planted about the middle of April on the average, some earlier, some later, there being several acres of this particular crop. The variety in this case was that usually grown by the market gardeners, a form apparently of the Paris Green Cos. The first named crop grew on steadily from the advent of finer weather; the latter crop, as stated above, at first grew but very slowly. When, however, these latter had become well established, they simply grew by leaps and bounds. I never saw a crop, I think, come on faster. There must be a reason for this, and I think one has not far to seek for it. The crop last referred to, during the last two months, has been getting the full benefit of the sunshine, receiving the maximum amount possible, with a free circulation of air (even if cold and apparently uncongenial), which had a hardening or strengthening tendency to the constitution of the plants. Those protected by the wall first alluded to did not receive such a large proportion of sunshine, nor did such an amount of air circulate amongst them. These two crops were both fit to pull about the same time, both now being about finished. Where, however, may I ask, is the advantage? Certainly not, I think, with the autumn-sown plants, protected by a wall, when the spring-sown planted in the open are fit at the same time. Since observing those results I have also taken note of two crops of French Beans in the same garden. One crop is upon the border of a Peach wall, the other in the open plot, fully exposed. The latter are now the forwarder, both having been planted about the same time. H. G.

Late Peas.—Although to a certain extent these are at the mercy of the weather when sown at this date, yet a few dishes of late Peas are very acceptable. Mildew and small birds are equally destructive; the former, however, may be warded off by good cultivation, and the latter will depend upon the ways and means at disposal, as covering the rows with nets will most certainly have to be carried out if the crop is to be retained. Ne Plus Ultra may still be sown, and where room and stakes are not scarce this variety may be depended upon. There are other good recognised varieties I could name, but the above with Sturdy, British Queen, Veitch's Perfection, and Omega are suitable for late sowing. Peas, like many other crops, are, however, very erratic, and do not succeed alike in all seasons and districts. The earliest varieties are well adapted for sowing at this date, but I prefer the dwarfier varieties on account of their better

quality. Being very dwarf growers, the rows need not be more than 30 inches apart, and these are also easily protected from birds. The more open the site selected the more likely are these late Peas to succeed. A liberal dressing of burned garden refuse and wood ashes will supply the needful potash if this is known to be deficient.

Protecting Globe Artichokes.—These are at times recommended to be protected for the winter months, and I have adopted the plan frequently. During the past winter the Artichokes were quite overlooked. I concluded that it was all up with them, but instead I find they are looking as well or better than usual. The soil is a fairly dry one; this may have had a favourable tendency towards their preservation. I fancy, however, the protecting material where used has, by retaining the moisture around the crowns, had more to do with injuring the plants than many imagine. When snow is falling some will, as a matter of course, penetrate into the crowns inside of any protecting material which may happen to be used. Then when a frost follows after perhaps a thaw, then all is frozen together. After my experience of the past winter, I shall not in future cover up at all.—A.

Cauliflowers.—Although Cauliflowers are some days later than usual, they are now forming heads rapidly, and, like other crops at this season of the year, they come in with a rush; consequently there is apt to be a glut. If allowed to remain longer uncult than when just fit for use, they soon lose their compactness and also lose colour very quickly. Although certainly not so good as when cut from the open air, the heads will remain fresh for any ordinary purposes if the plants are dug up as soon as the heads are fit for use and hung head downwards in a cool and dark cellar. Many heads of Cauliflowers are spoiled by being allowed to become exposed to the weather, the colour in these instances soon changing to a dirty white. To prevent this, the plants should be examined every morning and have a few of the outer leaves broken over the heads so as to exclude sunlight. The heads are also in a much firmer condition if cut in the early morning whilst the dew is on the foliage. Attention to the above few simple details makes all the difference between having coarse and discoloured heads and those firm, fresh, and pearly white in colour with delicate flavour.

Cabbage Lettuce Golden Queen.—This early variety is undoubtedly an excellent one, and where Cabbage Lettuces find the most favour it should be grown in quantity. It does not grow large, thus there is but little waste. Being a small and compact grower, the plants can be put out at 6 inches apart each way; thus upon a small plot of ground a large number may be obtained. I consider that in planting this kind closely there is a decided advantage; it checks any tendency towards a stronger growth, with larger leaves and sometimes not so solid hearts. For pits or frames it is most valuable for the earliest use, and in such places may be planted even closer together. In the open ground it turns in very quickly, being fit for use almost before one is aware of the fact with very firm and solid hearts.—J. HUDSON.

* * Mr. Hudson sent us some heads of this Lettuce which were very solid, and of which every part could be used. A very valuable variety.—ED.

SHORT NOTES.—KITCHEN.

Radishes.—In many gardens the sowing of Radishes is given up after this date. By sowing on a cool site, the soil also being rich and water plentifully supplied, the quality should be as good now as at any time during the season. Sowing in exposed positions and on dry lumpy ground causes the quality to be very indifferent in many cases. The soil must be both rich and light, and an east border is as suitable a position as could be chosen. A small sowing every week or ten days is better than sowing at longer intervals.

Onion The Queen.—Where the stock of old Onions runs short, this is a most desirable kind to grow to supply the deficiency. It turns in so rapidly, forming nice-sized bulbs before the main crop kinds are fit for any other use but salads. By growing The

Queen, the main crop kinds need not be used so early nor to such an extent, but be left until they attain a more reasonable size. Thus the keeping sorts are reserved for their more suitable season. The Queen not keeping so well should be used up freely during the summer months when it is at its best.—H. J.

Thinning Carrots.—Being much troubled with the grub or wireworm in my Carrots, I resorted to the remedy of leaving the seed-bed unthinned; this has had the desired effect. I can now secure a good crop with scarcely a failure. By chance part of the crop last year was through accident thinned in the usual manner. Very soon afterwards the plants left showed signs of distress; later on hardly any were left to tell the tale. If by omitting the thinning a good crop can be had, I think it is advisable to do so. Parsley for the same reasons I leave unthinned with equal success.—A.

FERNS.

THE FERNERY AT PICKERING LODGE.

AMONGST the many Orchid houses at the residence of Mr. Hardy there is a fernery very tastefully arranged in a perfectly natural manner with large boulders of tufa. Some tall Tree Ferns occupy the central and prominent positions. *Nephrolepis*, *Woodwardias*, and various other things are also well represented. There are, however, numerous places which look bare and inelegant both on the surface of the stone and under it. This should be remedied—such Ferns as *Davallias* planted on the upper parts. *Davallia Tyermanni*, *D. elegans*, and *D. canariensis* would be very suitable for prominent places. The temperature would not be sufficiently warm in the winter for such beautiful kinds as *D. Mooreana*, *D. fijiensis*, or many other kinds that could be named. The lower places and the dark corners would be found most suitable for Filmy Ferns, a little care being necessary in choosing the most suitable kinds. Amongst *Hymenophyllums* I would recommend *H. demissum*, *polyanthos*, *dilatatum*, and *scabrum*. There are many others of smaller size, but these are all robust kinds which will grow strongly and make a feature. The following kinds of *Trichomanes*, viz., *elongatum*, *pyxidiferum*, *reniforme*, *radicans*, *scandens*, *Luschnatianum*, *fimbriatum* would also do well. To these may be added the various species of *Todeas*. *T. hymenophylloides* is a valuable plant for such surroundings. *T. Wilkesiana* also is a beautiful species. *Selaginellas* also might be used with considerable advantage if the right kinds are selected—*S. Kraussiana*, *helvetica*, *Mariesi*, *denticulata*, *serpens*, *stolonifera*, *Poeppigiana*, *Ludoviciana*, *apus*, *californica*, *Poulteri*, *caulescens* and *pubescens* being all sure to thrive in such a temperature. Some of the larger and finer kinds might be also included, but I do not think they would withstand the temperature in the winter. In the summer it would be warm enough. To enable these plants to thrive well, the spots selected to receive them should be well drained and some turfy peat and rough fibrous loam put in, mixed with sand and some nodules of charcoal of moderate size. For plants with creeping rhizomes the soil should have some blocks of sandstone or tufa set in and about it, so as to enable the plants to fix themselves upon it. W. H. GOWER.

Lonchitis.—This is a genus not much grown. The few plants that from time to time appear in Fern collections have usually to suffer from neglect, and they are pushed on one side and called coarse growing. That they are strong growing I will not attempt to deny. *Lonchitis* is a genus which was established by Linnaeus, and it still maintains its position, although it has been put into the genus *Pteris* by Mettenius, from which it differs in having reticulated

veins, and the sori are always placed in the bag formed at the base of the pinnatifid lobes, thus forming a marginal crescent. *Pteris* too is quite large enough as a genus. *Lonchitis* comes near to *Litobrochia* in its venation, but from this also it differs in the disposition of its sori, and I am very glad to find it is upheld in its position as a distinct genus by Mr. Baker. If we are to accept the statements made by travellers this genus appears to have been collected upon a few occasions in America and the West Indies, but the headquarters of the genus appear to be Africa and the African Islands. When the plants in the country traversed by Stanley come to be better known, I am of opinion we shall have an addition made to this genus. These plants are easily grown into good specimens. They require plenty of heat and moisture, and should be potted in peat and loam, made sandy, and mixed with a few stones of unequal size.—G.

ROSE GARDEN.

POT CULTURE OF THE ROSE.

THE time for Roses blooming in pots is nearly over, and it may be thought by some that it would be better to forget them for the present. This, I fear, is what many cultivators of Roses for forcing are apt to do; the plants are no longer ornamental, and they are pushed to one side. Not in that way can good flowers of pot Roses be obtained next year. The beautiful Roses exhibited in pots by Messrs. Paul and Son, of Cheshunt, W. Paul and Son, of Waltham Cross, Turner, of Slough, and others have been greatly admired during the past season, some of the largest and most handsome specimens having been shown at the exhibition held in the Inner Temple Gardens under the auspices of the Royal Horticultural Society. Those who have admired these beautiful Roses at exhibitions are naturally anxious to have such specimens and equally good blooms in their own garden, not perhaps considering that suitable arrangements should be made for their cultivation. It is a fact that only those who have every convenience and appliance, attain to the highest degree of excellence in the culture of any class of plants they undertake to manage; and those who have won the highest honours know well that not even the most minute details of their work must be neglected. The Rose is well known to be a plant of easy culture, and even as a pot plant it is easily managed; but it likes a pure, free air and perfect cleanliness in all its surroundings. When an entire house, or even two or three glass houses, can be set apart for the cultivation of Roses, there is no difficulty in obtaining good results, and those who can afford such luxuries are well able to pay for experienced men to look after them. It is in ordinary gardens where the greenhouse has to accommodate a miscellaneous collection of all classes of plants more or less hardy, and the only means available to force a few early things are the early vineries or Peach houses. It has been well said that necessity is the mother of invention, and the fact of a gardener having to keep up a continuous supply of fruit and flowers all the year round, with but little thought of the means at his command, for the production of all these fine things in season and out of season tends to sharpen the intellect and set the mind scheming as to ways and means. Let us consider the Rose as a pot plant, and the flowering season being over, the question arises, where shall we place our plants and what ought to be their subsequent treatment? I remember visiting a grower of Roses in pots on a very ex-

tensive scale when the flowering period was well over, and found the large specimen Hybrid Perpetuals, Hybrid Chinas, &c., out of doors, and all the *Teas* in a light airy glass structure. I suggested that it would be better for the plants if they were placed out of doors for two or three months, but he did not agree to it, and said he kept them in the greenhouse all the year round. It was a very large well-ventilated glass house of the span-roofed description, and it contained nothing else but the Tea-scented Roses; they were perfectly clean and healthy, as they might very well be under such favourable conditions. We place all our Roses out of doors in an open position, where they are well exposed to the sun and have the air all around them. The large specimens do best placed upon two bricks laid side by side, with a space between; in that position the roots are aerated by the air getting underneath and up amongst the roots; the larger pots are also furnished with holes in the side at the base, which further aids the ingress of air and supplies a freer outlet for the water. In hot, dry weather the plants should be syringed daily, applying the water well underneath the leaves; this will keep them quite free from red spider or green-fly, as even if these pests could exist if soused daily with water, the mechanical application of it knocks them off. The plants require repotting once a year, and I have found it most convenient to do this in August; by that time the young wood is well matured, and there is ample time for the plants to become well established before the winter. Young vigorous specimens that have well filled their pots with roots should be shifted into a pot about 2 inches or 3 inches wider without disturbing the roots much, except to free them from the drainage and to loosen the soil at the outsides a little with a pointed stick. Larger specimens and such as have not rooted very freely may have the ball of roots and soil considerably reduced to admit of the plants being returned into a pot the same size, or at least but little larger than that they were growing in previously. The best potting soil is good yellow fibrous loam, to which has been added a fourth part of decayed stable manure, as much leaf mould, and a quart of bone dust to each barrow-load of the compost. It may also be necessary to add a portion of coarse sand to keep the compost in a sufficiently porous condition. Firm potting and good drainage are essential to successful culture.

Before the heavy autumn rains set in the plants should be placed in some airy glass house, and they must be kept moderately dry at the roots, but not dust-dry at any time, as overdryness causes many of the active rootlets to perish. Those plants that have to be forced into flower in March should be pruned in October, and it is best to do the pruning when the soil is dry, and not to water for a week after; this will probably prevent bleeding from the cut portions. Some growers use a styptic applied with a brush to the cut parts. If there is a suitable light forcing house it will not be difficult to manage the plants, but if such is non-existent, the earliest vinery or Peach house may be utilised for them. I never in my experience had better Roses than at the time when I built up a substantial heap of manure and leaves to form a hotbed inside the vinery. The humid atmosphere caused by this arrangement was the more necessary when the old-fashioned flues were in use to counteract the dryness caused by the heated bricks. The manure was excellent for anything requiring early forcing, as we could easily maintain a bottom-heat of 90° or so, and the growth of such things as Roses was very vigorous, for the

roots were pushed on a little faster than the buds, and the moisture throughout the night was such that the serratures of every leaf were studded with pearly dewdrops, and it is not difficult in such conditions to keep the leaves clean and healthy; indeed the delightfully fresh green leaves upon the Rose bushes early in the year are extremely beautiful, even if no flowers of brilliant crimson, pale rose, or softest apricot were to follow. The temperature of the forcing house must be low to begin with. We start the early vinery or Peach house at 45° as a minimum, and this is right for Roses; in two weeks it should rise to 48° or 50°, and when the buds are seen to be moving gradually increase the temperature, but not too rapidly, until the days have lengthened. In all the stages of growth, place the plants as nearly as possible to the roof glass, and admit air as freely as possible, according to the state of the weather outside. The plants should be placed in the greenhouse or conservatory as soon as the first flower-buds open. The flowers soon pass away in a forcing house, but they last long in a greenhouse where the atmosphere is dry and the temperature low. When under glass fumigation with tobacco smoke is the best way to destroy green-fly, and if any trace of mildew appears upon the leaves, use flowers of sulphur to destroy it.—J. DOUGLAS.

—Where pot Roses are cultivated it is more often than not with the object of procuring a few flowers from Christmas onwards until those from warm walls provide a few blooms from the open air. Pot Roses are easily managed, but few plants are so disappointing when badly grown. Too many amateur growers are apt to try and keep their plants growing too long, doubtless thinking that the more wood they make the better. This is the wrong idea with the varieties mostly grown for forcing in pots. A less quantity of wood, and that well matured, is all that is required. It is in ripening the growth that amateurs so often fail. The Tea-scented Roses are generally used for forcing, and as these will grow more or less all the year round if kept in a growing atmosphere, they require a little careful treatment to ripen them early enough for introducing into heat by November. This can be done more effectually by removing the plants to the open air at once, and giving them full exposure to the sun. At the same time, they should not have more water at the root than is necessary to keep them from shrivelling. Frequent syringing night and morning will prevent this in a great measure. If the plants are not ripened during August and September, they will not respond satisfactorily to the extra heat when housed again at the end of November.—R.

AMONG THE ROSES.

THE Roses have benefited greatly by the hot warm days of the middle of June, and are now (June 20) bursting forth in great profusion, the Teas considerably in advance of the best Hybrid Perpetuals. The growth has been very healthy and clean, and, curiously, green-fly has given no trouble whatever up to the present, but measures must shortly be taken to combat it, as the Carnations between the Roses are infested and it is spreading. The maggot has been conspicuously absent, and blooms are better and more numerous in consequence. Certainly the first Roses were never more welcomed than in this present season, and they seemed indeed a reward for long weeks and months of patient watching and anxiety. Roses are now abundant, and this means a great deal to us when Roses, particularly the Teas, are relied upon as the leading feature of a summer flower garden. When such is the case many varieties can be grown that the grower for exhibition would not give place to, and some of these have been the first to greet and gladden us. For example, Mme. Joseph Schwartz has a flower made of a few shell-like petals, but the white buds and blooms are fringed and suffused with the tenderest peach colour, and it is quite a

pretty Rose when grouped rather closely. *Marquise de Vivens*, too, is another. The flower soon becomes open and loose, but not till we have enjoyed a bud of beautiful shape and exquisite tints, white at the base of the petals, deepening into flesh-pink and glowing carmine-rose. It is only by open-air culture in sunny suitable positions that we can truly test some of these lovely Tea Roses, and find out their charming variations of colour. They are generally colourless in comparison when grown under glass and in the earlier months of the year, the full exposure and the sun being responsible for a great amount of extra colouring, and this always in shades that enhance the beauty of an otherwise beautiful flower. This is noticeable at the present time in *Rubens*, the buds and the blooms upon the edges of their petals having a deep rose colour such as I never saw them have before. The good old *Adam* is amongst the early ones; to-day a great bud, to-morrow a greater open bloom of a tender flesh colour. *Primrose Dame* is finer now than it was throughout the whole of last season. Although this is its third season, the bushes are only about 1 foot high, and it does not appear to be likely ever to attain even to moderate stature. In point of bloom it leaves nothing to be desired, flowers being free and fine, large buds upon slender twigs of good form, and externally a cream colour, but more of a primrose-yellow internally, deepening into apricot suffused with rose as the bloom ages. An early bloom or two is most welcome upon the good old *Souvenir d'un Ami*, whilst its white counterpart, *Souvenir de S. A. Prince*, although only planted last autumn and the plants rather weak, is promising well. *Souvenir d'un Ami* referred to is another living, but unhappy example of the utter unsuitability of the *Manetti* as a stock for Tea Roses. This is now the third season of this group and the plants are not a third the size they ought to be. I was at a loss to understand the reason why, but a sucker has revealed the cause. It is strange that some nurserymen persist in using an unsuitable stock, as it is neither to their own interest nor to that of the purchaser. From previous experience with this variety, I am sure that had plants upon the Brier stock been in that position for the same length of time, they would give us a dozen blooms where now we shall only get one. *Jean Pernet*, which is regarded generally as an uncertain Rose, is most certain with us, and a group of this has more flowers upon it than any other, some of the blooms being of matchless form and lovely colour, pale fawn externally, growing gradually deeper into and towards the centre of the flower. It is a Rose that wants a good position. *L'Elegante* has pretty buds profusely borne, and is a valuable button-hole Rose, with flowers of a peach-pink colour fading to white. It is early and continuous. *Princesse de Sagan*, with deep dark crimson buds, is very rich; the fully expanded flowers are open and loose. Although this is called a Tea Rose, it would hardly be known from a Monthly if placed among them. If we get a few kinds like this we shall not know where the Teas and the Monthlies begin, both sections being perpetual bloomers in the fullest sense of the word.

A. H.

ROSES IN VASES.

HARDLY any flower lends itself so well for decoration as does the Rose in its numerous varieties, both in form and colour. No matter if an unusual number of vases may have to be filled, there is no difficulty in making them quite different. The Tea Roses alone afford such varied shades of colour, being particularly rich in the softer ones, which are not so much found in others. The blending of two colours together, or two shades of the same predominating colour, affords ample variety. Crowding the flowers together should be cautiously guarded against; this will not if persisted in give proper artistic effect. It is always an assistance when a good length of stem can be secured, particularly if the vases be at all deep; this is also better for preserving the flowers. Trusses cannot always be cut advantageously, the secondary flowers or buds being thereby sacrificed. The first flower can often be taken with sufficient stem to it for placing in

water in specimen glasses; this is much better than spoiling three or four more where the clusters are large. Some kinds unfold much better than others after they are cut if they are taken in a somewhat early stage. In this respect I consider the Hybrid Perpetuals have an advantage. The Roses which are generally the first to open in the garden are *Gloire de Dijon* and the many kinds of summer-flowering kinds, as *Charles Lawson*, a truly noble Rose upon a vigorous tree with large globular flowers of a pleasing shade. *Paul Perras* is of a deeper colour, and *Coupe d'Hebe* much paler; otherwise they resemble it in strong growth. Then there are the French or Gallica Roses, of which the flowers may be cut freely enough, produced as they are so profusely. Amongst these Roses there are shades which one hardly finds in any other class. For a pure white, with its Moss-like buds, there is scarcely a Rose to equal *Mme. Plantier*, with its pale green foliage. I think it one of the best in its way for vases. The cluster varieties of the strong growing climbers are most useful, and for large or bold arrangements where long sprays can be cut they are very effective. Then there are the Scotch and Austrian Briers, *Harrisoni* and *Persian Yellow* of the latter class being particularly effective in their colour. If these latter are ever associated with any other flower, nothing surpasses the common white *Water Lily*, with centre of which their colour blends so well. The Moss Roses, again, are a most valuable class of themselves; these, like the Gallicas, may be freely cut in trusses; the proverbial character of their buds, with a little colouring in their petals, always makes them attractive; these usually open fairly well after being cut. By growing a fair quantity of the summer Roses a considerable saving is effected in the earlier flowers of the Teas and Perpetuals. The variety of foliage amongst the Rose family affords sufficient greenery to go with the flowers. For large bowls of Roses, the foliage of *Rosa rugosa* (the Japanese Rose) can be used, or as a substitute, that of the bronzy *Berberis*. Then there are strong growing Tea Roses, some of which, *Rêve d'Or*, for instance, produce a quantity of shoots, some of which may be spared. The Sweet Brier will also be useful, and other kinds with miniature foliage as well. In a few instances the long shoots of climbers are valuable when there is any stem to clothe, or where they can hang suspended. For decoration the single Roses are not to be despised, but these are preferable for arranging by themselves with a good quantity of foliage. The common Brier even gives a pretty effect, and can be turned to good account. Amongst what are termed botanical Roses, one variety has recently taken my attention; this is called *rubrifolia*, which has reddish wood and leaves. I think this will be valuable for these distinctive features alone, particularly for arranging with light-coloured Roses, or as affording variety in the garden itself.

A word or two as to the cutting of Roses; this is frequently done at an unsuitable time of the day. If cut with the sun shining full upon them during the heat of the day, they never last half so long and the colours also fade more quickly. Rose exhibitors know full well the importance of this, and always as far as possible cut at daybreak, or whilst the dew is still fresh upon the flowers. When these times are not so suitable, then at nightfall is the next best time. Even if the flowers are not immediately required for use when cut early in the morning, they should still be cut. I have cut thus early in the morning, kept the flowers in a cool, dark cellar, and then arranged them upon the dinner-table in the evening with the dew still fresh upon them.

ROSA.

The copper and yellow Austrian Briers. What lovely objects these are when seen in large bushes, full of bloom and growing in a free unrestricted way. These Briers and single Roses have a charm and beauty quite their own, and it is to be regretted they are not more frequently seen than they are in our gardens. Again, they are by no means new, neither are they expensive to obtain. Some years ago I remember seeing large bushes of these growing freely in an old-fashioned garden at Yately, Hants. The sight I have never forgotten.—J. C. F.

TREES AND SHRUBS.

NEW HARDY AZALEAS.

SOME years ago it was said that if hybridists could combine the large flowers and delicate tints of the Japanese *Azalea mollis* with the fragrance and elegant growth of the American, or what are erroneously called Ghent Azaleas, we should possess a splendid new race of hardy shrubs. For years our Belgian friends have been endeavouring to accomplish this desirable combination, and some highly satisfactory results have attended their work,

shrubs. One has only to see at the present moment how susceptible to injury by spring frosts is *Azalea mollis*, for during May the sharp frosts cut off the bursting flower-buds to a disastrous extent. But this is not, I think, owing so much to the inherent tenderness of the species as to its early-flowering character, as it is not often that the plants are winter-killed. With the old American varieties it is different; they are not often overtaken by late frosts when the buds are well advanced, so that one can always calculate upon a bright display of bloom. I was at the Knap Hill Nurseries a few days ago

let and glowing orange-yellow through every conceivable shade to pure white, is only to faintly describe what one sees among the thousands of these magnificent new seedlings. Considering the material with which Mr. Waterer had to work upon, it is really astonishing that he has been able to achieve such results in a few years, having regard to the fact that it is three or four years before he can see the seedlings in flower. But it shows one what can be done by carefully and systematically intercrossing varieties and by judicious selection of only the very finest for future breeding. One may actually see the



A vase filled with hardy Azaleas.

as may be seen by M. Vuylsteke's new seedlings from *A. mollis* and the old American varieties. While the Belgians have been striving for this new hybrid race, Mr. Anthony Waterer has been quietly working away for years for the improvement of the original varieties, those that were bequeathed to us by the last generation of *Azalea* raisers, as he knew full well that however successful the intercrossing with *A. mollis* might be, it would be a difficult matter to infuse into the hybrids that absolute hardiness possessed by the old American sorts, and which is of supreme importance in all open-air trees and

and saw *Azalea mollis* in full bloom, and though, as one sees it in masses there by the acre, it cannot compare with the American kinds for brilliancy and diversity of flower tints, nor for size of flower and elegance of habit.

The strides that Mr. Waterer has made during the last ten years in the improvement of the old sorts can only be appreciated by those who go to see for themselves the difference by actual comparison. To say that the flowers of the newest seedlings are three or four times larger than those of the old sorts and possessed of tints ranging from fiery scar-

gradations of improvement in the course of two or three generations of seedlings. One set I noticed particularly; the seedling from the first cross had flowers about 2 inches across, but finer than the old sorts and of a rich yellow like the old *altaclarensis*; the seedling from that had finer foliage and with larger flowers, but the third remove, a seedling flowered first last year, has blossoms 4 inches across, with thick petals spread out widely, of a rich apricot-yellow and with broad healthy-looking foliage fully developed at the time of flowering, and yet Mr. Waterer does not consider this superb variety the

climax of his work among the Azaleas. He wants to get the scarlets and other high colours with flowers as fine as those of the yellows, but even now there is not a great difference between them in size of bloom. As to colour, I do not see how he can advance unless he can get the purples of the evergreen Rhododendrons into these deciduous Rhododendrons. The scarlets and crimsons seen in such massive trusses put scarlet Pelargoniums to the blush, and to match those which have a mixture of scarlet and gold in the flowers you would have to go to the Gool Mohr (*Poinciana regia*) of the tropics.

Year after year this work of intercrossing and selection has been going on, the latter being carried out by Mr. Waterer himself, who has got to be very fastidious in his ideas as to what constitutes a first-rate Azalea. A seedling to be one of the "select" must have a perfect flower, large and well open, and the truss must be good, and the colour must either be very distinct or pronounced, or it must be of a tint that is not represented in the nursery. The habit of growth is no less important; it must not be straggling or weak, but compact and with a tendency to flower at every branch; the foliage, too, must be good. This latter character is highly important; indeed one of the chief points of contrast between these new sorts and the old is that of the new kinds bearing abundant foliage at the time of flowering; whereas in the old the flowers are often produced on leafless branches. If the seedlings do not possess these good points they are discarded, that is they are not bred from or named. Considering the multitude of good seedlings, it is surprising how very few have received names—very different from the old days, when every slight variety was duly named, generally in Latin, as one may see in any old nursery catalogue. Loudon gives in his "Arboretum" a long list of the named sorts as grown by Loddiges sixty years ago. What would he think if he saw so many fine nameless sorts in a nursery?

When one sees these latter-day productions, one wonders what they will be like when in future they will have grown to such enormous bushes as one sees in this nursery of the old sorts that used to be the delight of the former Waterers, Loudon, and many others. They are somewhat slow in growth, and when they have reached maturity they do not seem to alter in appearance year after year.

It is often said that the Azalea is a neglected shrub, and perhaps there are a dozen Rhododendrons planted to one Azalea, but the taste for them is developing more and more, and where Rhododendrons can be grown there we most generally see the Azalea in company, and both are being grown more than formerly, since it has been proved that a heath soil is not a necessity in their culture. A light loam enriched by plenty of decayed leaf-mould will grow these fine American shrubs to perfection, and this soil is generally available in districts even where chalk abounds

and which these shrubs abhor. In speaking in praise of the Azalea there is no need to disparage the Rhododendron, and perhaps at Knap Hill one might prefer the display of the "queen of hardy evergreen shrubs," but the artistically incline no doubt to consider the graceful Azaleas the most beautiful. I have confined myself to the single Azaleas, but the double forms are asserting themselves now in a very prominent way, there being a great diversity of tint among them compared with the older kinds, and the fact that they last longer in perfection and hence are more suitable for cutting has made them very popular. What more beautiful than a bowlful of freshly cut Azaleas of dazzling brilliancy and reeking with spicy fragrance? A handful is sufficient to perfume a large room, and they last for days in beauty, particularly the double-flowered kinds.

Later on the present glowing display of Rhododendrons and Azaleas will give place to the more chaste tints of the late Azaleas, the new race derived from the Californian *A. occidentalis*, and which carries the flowering season on till August. The Azaleas will be fine at Knap Hill for the next fortnight, and with the Rhododendrons create a sight such as could not be seen on any other square mile in the world. W. GOLDRING.

Weigela Abel Carriere.—This is, as far as I know, the finest of the rose-coloured Weigelas in cultivation, the flowers being larger, more massive, and of a rather brighter colour than in the old rosea, while it forms a bush of vigorous growth and graceful outline. With space but for one Weigela I should select this, and as a white companion to it *W. hortensis nivea* would be my choice, as its style of growth is somewhat like that of Abel Carriere, though it does not attain the same dimensions as that kind. A very good white Weigela, totally different in habit from *W. hortensis nivea*, is *W. candida*, which is more upright growing than most members of the genus, while the leaves are also longer and narrower. The flowers, which are somewhat tinged with green when first expanded, become much whiter afterwards, and after the first wealth of blossom is past, a scattered succession is often kept up till the end of the summer.—T.

A new species of Lilac.—Amongst the novelties in plants which have been collected in Thibet and Western China by M. Bonvalot and Prince Henry of Orleans, MM. Bureau and Franchet describe a new species of Lilac to which they have given the name of *Syringa tomentella*. This, it seems, is a very floriferous species, and is clearly allied to *S. pubescens*, Turcz. (*S. villosa*, Decaisne, not Vahl.), but differs from it in having longer and comparatively narrower leaves and a more abundant and denser pubescence, especially on the under surface of the leaves, where it becomes velvety. The calyx also is truncate at the upper part, the teeth being hardly visible. In *S. pubescens* the teeth are triangular. *Syringa tomentella* (Bureau and Franchet) is a native of China, in the province of Se-tchuen, between Tatsien-lou and the frontier of Yunnan.—*Revue Horticole*.

Rhododendron ferrugineum.—This is one of a group of small growing Rhododendrons that occur principally on the Alps and Apennines, in some parts of which they form a most beautiful feature when in flower. This species, which is known as the alpine Rose, usually assumes the character of a low, somewhat spreading bush, thickly clothed with small Box-like leaves, dark green on the upper surface and rusty beneath. The flowers, which are of a bright rosy pink hue,

are borne in such profusion that the entire plant is at that time quite a mass of colour. These dwarf Rhododendrons, other examples of which are *R. hirsutum* and *myrtifolium*, may be employed in the garden in various ways. Thus, for instance, in common with several other of the smaller growing Ericaceae, it may be used as an edging, or rather to tone down the somewhat monotonous appearance presented by heavy masses of the large Rhododendrons, as by means of such as this the spaces between single specimens of Rhododendrons could be made as interesting and attractive during their time of blooming as the Rhododendrons themselves when in flower. *R. ferrugineum* is also a first-rate shrub for the rock garden, where partially falling over a ledge it is perhaps seen to greater advantage than in any other position. Of course a fairly moist soil is necessary to its well-doing; indeed its requirements are much the same as that of the other Rhododendrons, and, in fact, most Ericaceae. From the elevated positions in which they grow all of this group are perfectly hardy everywhere in this country, which is a great point in their favour. For permanent beds on the Grass, such shrubs as these are well suited, as they are always fresh and green, of neat growth, will flower well every year, and are more effective in a mass than where planted singly.—T.

JAPANESE BAMBOOS IN AMERICA.

THE Bamboos, the noblest of all the Grasses, have not only the merit of utility, but the growth of many varieties is so graceful and distinct, that they are among the handsomest ornaments of gardens and plantations. Lately much attention has been given to some of the Japanese varieties, among which may be found widely distinct habits, ranging in height from 3 feet to 40 feet, and with foliage varying both in breadth and colour. In a small state many of these varieties are useful, grown in pots, for indoor decoration—a use to which they are much put by the Japanese. Florists will find these useful additions to their stock of decorative plants, as they are not only light and graceful in effect, but they will help to break the monotony of the Palms. But their beauty is better shown when grown in large masses in the open air; where rightly placed, they will produce very striking effects in the landscape. *Bambusa Metake* has been long known in gardens and is of undoubted hardiness, but there are numerous Japanese varieties which are now obtainable, and many of them will be of great value if they prove entirely hardy. Most of these are said to come from the warmer parts of Japan, but I have been much encouraged, in testing a small selection of varieties last winter, to find that many of them are hardy in this latitude, and require scarcely any protection. The varieties tested were planted early last spring, and, while apparently well established, they made no great vertical growth. They were in rather stiff loam, where no stagnant water could remain at the roots. They remained during the winter without any protection to the stems and with no mulch over the roots. Six of the seven varieties exposed passed the ordeal safely and are now making vigorous growth. There was, however, an apparent difference in their resistance to severe weather, but this may have been due to less-matured growths. The past winter was not extremely cold, the thermometer only once dropping to zero, but was a fairly average one as to temperature and moisture. They having lived through this without the slightest protection, there seems no reason to think that they will not pass safely through an exceptionally severe winter if the roots are well protected by mulching. It might also be well to provide wind-breaks, though the foliage of most of the varieties could not probably be preserved during an ordinary winter under any protection in this climate. Such a variety as *B. Ragamowski* may be an exception in this regard, since it has hard, firm leaves, which would be retained if protected from scorching. *B. Simoni* also has persistent foliage. In detail, the varieties tested are given in the order of apparent hardiness.

B. Simoni, leaves quite persistent, and plant un-

touched. *B. viridi-glaucescens* and *B. aurea* lost their leaves, but the stems were untouched. *B. Ragamowski* had its leaves scorched. *B. (Arundinaria) Quiloi* lost its leaves, and its stems were slightly touched. *B. (Phyllostachys) nigra* (Kochiko of Japan), too killed, but now pushing from the roots. This black-stemmed variety is said to attain a height of 30 feet, which would indicate more vigour than it has shown with me.

B. angulata (variety with knotty joints) was entirely broken up, root and branch, by the frost. *B. Castillonii* (Kimmeichiku of the Japanese) was grown in the house, but is apparently as vigorous as the hardest ones. Bamboos do not often show their distinct characteristics before the second year, and should be planted in permanent quarters. They form thickets by pushing out horizontal short-jointed stems in every direction. These emit roots, and break at every joint, so that a well-established plant soon becomes the centre of a large clump.

Of course, as these plants grow tall, conditions may arise which would prevent their being hardy in this latitude. For instance, an exceptional winter might cut the top growth severely if not matured, but the root-action is so strong, that there seems little doubt that the damage would be confined to the tops even in the worst seasons.—J. N. GERARD, *Elizabeth, N.J.*, in *Garden and Forest*.

Viburnum plicatum.—This is certainly one of the most beautiful of all the Guelder Roses, and at the present time it stands forth as a very effective shrub, being completely laden with its large snowball-like blossoms. In habit it is totally different from the common Snowball tree, forming as it does a somewhat spreading flat-headed bush clothed with distinct plaited foliage, while the globular masses of ivory-white flowers are borne for a couple of feet or more along the shoots. Apart from its beauty as a shrub in the open ground, this *Viburnum* may also be regarded as a very useful plant in many ways, for trained to a wall it will both grow and flower freely, while few if any hardy subjects are better suited for the cool conservatory than the plaited-leaved Snowball. For this latter purpose one great point in its favour is, that it will thrive for years in a large pot or tub, provided a reasonable amount of attention is bestowed upon it. It can be increased by means of cuttings taken towards the end of the summer, inserted firmly into sandy soil, and protected by a frame, but the usual mode of propagating it is by means of layers, which soon produce a quantity of roots. The spreading habit of the branches even to the lowermost ones are all in favour of layering, as it is so easy to place them under conditions favourable to the production of roots without detracting at all from the ornamental features of the specimen. This *Viburnum* is a native of Japan, and was, I believe, one of Fortune's many introductions from that country.—H. P.

Limonia trifoliata.—Although doubts have been expressed as to the thorough hardness of this distinct and peculiar shrub, it has around London not only passed through the winter without injury, but in most cases flowered very freely. The flowers are a couple of inches or thereabouts in diameter, and composed of five pure white petals, arranged in a star-like manner. They are very conspicuous by reason of the almost leafless character of the specimen, for though individuals vary somewhat in density, at no time are they thickly studded with foliage. It is a near ally of the Orange family, and indeed is by some authorities itself included in the genus *Citrus*. The usual habit of this *Limonia* is to form a freely-branched sturdy bush, thickly studded with stout spines, that present a most formidable appearance. The bark of the shoots, spines, and branches, except the very oldest, are of a rich deep green colour, so that in the winter when totally devoid of foliage it is almost as effective as an Evergreen, while even in the spring and summer leaves are but sparingly produced. It would, I should think, form an almost impenetrable hedge. This *Limonia* is a native of Japan, and has been known in this country for many years, but it is even now a very uncommon shrub. It is not

difficult to strike from cuttings taken during the summer months and kept in a cold frame till rooted.—T.

SHORT NOTES.—TREES AND SHRUBS.

The early Dutch Honeysuckle.—If we get all the best varieties together, the season of the Honeysuckle is a long one, and we never seem to tire of its fragrance. The early Dutch is especially valuable, and it ought to be freely planted, not necessarily upon walls, but allowed to ramble at will upon some of the commoner trees and shrubs.

Leaves of Plane trees blistered.—Can any reader of THE GARDEN suggest a reason for the exceptional blistering this year of the foliage of the common Plane and the Lime? We have had them affected in previous years, but never so bad as this. To look at some of the trees, it would almost seem that when the blistered leaves are off, they will be almost bare of foliage altogether.—E. B., *Claremont*.

FLOWER GARDEN.

NOTES ON HARDY FLORISTS' FLOWERS.

THE TULIP.—What need is there to write about the Tulip now that the flowering period is over, may be asked by someone who can see nothing interesting in any class of plants in a state of decay? The flowering period with us has been a very short one, as we do not protect the blossoms, and they are far too fragile to stand against heavy showers with bright sunshine alternating with cold east winds at night. Some northern growers complain that the flowers are very much out of character; this might have been expected considering that the flower-buds where not protected were exposed to a temperature of from 10° to 15° of frost. Our own here that were close to the thermometer which recorded 5° only suffered considerably; in some instances the stems close to the flowers were fatally injured and the buds failed to open. The bizzarres suffered least; the rich reddish-maroon or blackish-maroon on the clear yellow ground came out well; bybloemens were not so good, and the roses were the worst. I am writing now of quite unprotected flowers. One grower sends me a list of varieties which succeeded well with him and they are nearly all bizzarres, a very few bybloemens, and it contains no roses. The self-coloured flowers, "breeders" as they are termed, are unquestionably hardy and flowered fairly well. It is a curious physiological question this relative hardness of varieties of the garden forms of a single species of plant, but every observant cultivator must have noticed it. The leaves of a self Tulip are of a uniform dark green colour, but by-and-by the leaves appear streaked or variegated with a paler green, and we know that a similar transformation will take place in the flowers; they also will be streaked or variegated with white or yellow. This transformation is termed "broken" or "rectified," but the plants will not now be so hardy as they were before, and the more refined a flower is, the less hardy will it be. We know well that this is caused by the want of green colouring matter in the leaves, and probably the yellow-coloured bizzarres are in the same way harder than the lavender or purple bybloemens, while the rose colours are more tender than either. As soon as the flower-stems will bend without breaking and the leaves assume a yellow tinge, the bulbs may be taken up; in doing this it is better to choose a dry day, and yet it is a grave error to allow the bulbs to lie on the ground exposed to the fierce rays of the noonday sun; it is the best treatment to let them dry slowly. I merely remove the flower-stems and the soil clinging to the roots, and at once place the bulbs in a clean flower-pot. These are placed on a hand-barrow

and are at once carried away and arranged on the shelves of an airy fruit room or open shed where the bulbs dry gradually. The ground where the Tulips were growing being well manured and deeply worked, may be utilised to plant Asters or any similar plants to flower in the ensuing autumn. We plant ours with seedling Carnations which will flower next season, so that one year the bed is Carnations, next year Tulips, the beds being changed year by year. Of course, it is well known that change of soil is beneficial to every class of plants, and if Tulips have to be planted on the same ground year by year, it is necessary to remove some of the old exhausted soil and replace with new rich loam.

PANSIES.—These simple sweet-scented flowers, with their rich colours and the handsome form of their flowers, never fail to obtain many admirers. They do not always succeed in the south of England, owing to the heat in summer and rather arid atmosphere. Last year they succeeded admirably, and they have done equally well this year because the weather has been cooler than usual; the late rains have also been very favourable to their free growth. They usually do better in the midlands and in the north of England than they do in the south. A Pansy society has been formed in Birmingham and a Pansy exhibition was announced by this society to be held on June 10, when suddenly an announcement was made to the effect that the exhibition was postponed for two weeks. This was surely an unnecessary disturbance with existing arrangements. I have been a Pansy grower all my life and cannot understand where the difficulty came in. Our own collection was well in flower in May and at the very best on June 10. If these local exhibitions are to be permanently successful there must be some guarantee that the published dates will be adhered to. I could have exhibited well on June 10, but will not be able to do so on the 24th, as the early and therefore the best blooms will have passed away. The large societies never think of altering their dates, nor should any society presume to do so that appeals to the general public for support. The Pansy is at its best as a garden flower, and may be cultivated as freely and well in the garden of the cottager as in that of the prince or peer. I think the flower is most delightful in May; the best blooms are to be obtained in that month from plants set out in September in rich deep soil; they ought to be propagated in July, and must be strong healthy plants to begin with, clean and free from insect pests. A reddish tinted aphid attacks the young shoots in hot dry weather. I have seen them smothered with this pest in July, and it is quite necessary that it should be destroyed before planting the cuttings. I dip them in a soft soapy solution with some tobacco liquor added, lay them down in the potting shed for an hour, and wash the insects off in a pail of clean water. The best cuttings are the slender young growths which are produced freely from the centre of the plants; these can readily be pulled out with a portion of white stem and roots attached to each. Plant them in rows on the north side of the garden wall or fence, whatever it may be, in fine sandy mould, and they seem to do quite as well in the open air as they do when covered with glass. The protection of any kind of hardy plants with frames or glass cases for propagating purposes is a necessary evil, which should be dispensed with as often as it is possible. Seedling plants of the Pansy make a brave show early in the year, and for early flowering the seeds may be sown about the end of the present month or early in July. Prick the

young plants out in rows first about 3 inches or 4 inches asunder and 6 inches between the rows; they will thus form nice sturdy plants to be planted out in September where they are to flower. I allow 14 inches or 15 inches between the plants, and in deep, rich soil they will by midsummer of the following year have grown into quite large tufts crowded with beautiful blossoms; they will not have the uniform high quality of the best of the named varieties, but the flowers lack nothing in fragrance, and all of them will be different. The most pleasing varieties may be selected to take cuttings from, and so the stock may be increased to any required extent. An irregular mass of a self-coloured variety, white, blue, black, or yellow, is preferred by some; others like to admire the individual flowers for their rich colours and bold markings. The great attraction of the plant is its easy culture and continuous blooming character.

J. DOUGLAS.

PLANT CULTURE IN ITALY.

AT the foot of the Alps and at the outlet of two important passes of the Simplon and Gothard nestles a highly favoured nook, sheltered from northern winds and constantly maintaining an equable southern temperature in consequence of the depth of the waters by which its shores are washed, and which are to it a perennial source of warmth. I speak of the district which surrounds the Bay of Intra, on the Lago Maggiore, and especially of the Borromean Islands and the town of Pallanza. As the Borromean Islands have already been described in THE GARDEN, I shall here confine my observations to Pallanza.

Nearly half a century ago, a gardener of Isola Bella named Rovelli founded an unrivalled establishment in the most sheltered, warmest, and most favourably situated spot in the neighbourhood of Pallanza. He commenced with a nursery, in which, from the entirely siliceous nature of the soil, he was enabled to grow on a very large scale a class of plants known as "Heath-soil plants." His knowledge of botany and horticulture, however, soon led him to introduce into his nursery the rarest plants from every warm climate in the world, huge specimens of the most interesting species, of which, as well as of some of the finest trees of the temperate zone, may now be seen there. His three sons, following in their father's footsteps, introduced into their establishment, which is of great extent, every known species, so that they have now an arboretum and a botanic garden which possess the very highest value, not less from an artistic than from a scientific point of view. In fact, art predominates here, as everything is planted in accordance with the rules of natural good taste, and I was astonished to see at Pallanza English ideas of the picturesque garden practically carried out by nurserymen.

From amid the native rocks, which in many places here emerge from the surface of the soil, one may see Agaves, Aloes, Ficus repens, Ferns, and innumerable interesting climbing plants growing. Here one may also see—and I would particularly commend this to the attention of Mr. Williamson *à propos* of the wintering of delicate alpine—alpine plants growing in Sphagnum Moss alone and fully exposed to the sun. I am at present making some experiments in this direction in our alpine garden here at Geneva, the results of which I shall communicate at some future time.

Messieurs Rovelli cultivate great numbers of Camellias, Palms, and exotic Conifers. Nothing is more interesting than the method by which they propagate Pseudo-Larix Kämpferi, a Conifer which is very rare, indeed hardly to be met with anywhere, as it has been found almost impossible to get the seeds to germinate. Messieurs Rovelli have very cleverly solved this difficulty by sowing the seeds in the natural compost formed by the decayed Pseudo-Larix leaves under the trees themselves. Here the seeds germinate freely and abundantly,

and the seedlings are transferred at the proper time to the nursery quarters.

Much might be written about this grand Eldorado of plants in which the specimens of *Jubaea spectabilis*, *Cocos australis*, *Frenela australis*, *Eucalyptus*, *Arundinaria falcata*, &c., remind one of the pleasant shores of the Riviera, but I prefer to recommend readers of THE GARDEN who may at any time travel from Switzerland to Italy by the Simplon or Gothard route to make a slight *détour* of a few miles to Pallanza and see for themselves.

Close by the nursery of Messieurs Rovelli there is another horticultural establishment of the highest order, which I had not time to inspect thoroughly, but which impressed me very favourably from what I saw there. This is the nursery of Messieurs Hillebrand and Bredemeyer, two Germans who are not many years established there, but who have now a very promising future before them. These gentlemen devote their attention specially to novelties and bulbous plants. Leaving hothouse plants and other nursery business to the Messieurs Rovelli, they have taken up the special department of the culture of Cape bulbs and of perennial plants. They also cultivate such herbaceous house plants as *Primula sinensis* and the like. One novelty, of the very highest merit, which they have just sent out is *Primula sinensis* var. *Pallanzae*, an important form of *P. s. fimbriata*, or *cristata*. They are also the introducers of that very curious prolific-flowered form of *Convallaria majalis* which Prof. Wittmack has described in the *Gartenflora*. It is very interesting to see the manner in which *Freessias*, *Ixias*, *Lachenalias*, *Sparaxis*, *Amaryllises*, and all kinds of bulbous plants which cannot withstand the winter in Holland are grown here on a large scale. In the early part of April I received from these gentlemen a collection of Daffodil flowers of great beauty, amongst which I recognised the greater number of the varieties described by Mr. Hartland and by English amateurs, in addition to some new forms raised by Messrs. Hillebrand and Bredemeyer themselves. At the time of my visit, by far the most interesting thing to me was the collection of perennial plants which are extensively grown by these gentlemen. *Delphinium nudicaule* is here grown in thousands, and bears more brilliantly-coloured flowers than are seen on plants of it in our climate. The colouring of the flowers of *Primula rosea grandiflora* is also more vivid here, and there are innumerable other subjects of interest. The culture and improvement of the varieties of the genus *Tritoma* are particularly attended to here, and in the climate of Pallanza some wonderful results have been obtained. Here where Nature seems more smiling, under a warmer sun, on the shore of a blue lake of fresh water, at the foot of the icy Alps the flowers from every part of the world, brought together in these two gardens where they are carefully cultivated, appear finer, fresher, and sweeter than they are with us whose climate is less propitious. The lover of flowers and gardening should see this place, the sight of which alone would well repay him for visiting the Lago Maggiore.

H. CORREYON.

Geneva.

Verbascum phlomoides.—This is one of the smallest members of a family of giants, and it is valuable for several reasons. Its first great merit is its earliness, and its comparative dwarfness allows us to grow it in many situations where the taller forms are inadmissible. Then it has a charming variety of colour, and the predominant hue of the Mullein family, namely, yellow, is the one not found in this species. The flowers come in many shades, from deep purple to purest white. There are very novel shades of red sometimes produced, but perhaps the most charming forms of all are the pure white, flesh colour, pale pink and salmon forms. These are very beautiful, and a strain of this flower selected chiefly from such kinds should become popular, even if we had to raise a batch of plants each year. Mulleins are nearly all biennials. This one in borders of light warm soil lives through the winter and, springing up again, is more beautiful the third year of its existence than it was in

the second. The leaves spread flat upon the ground in a rosette, and the spikes grow from 2 feet to 3 feet in height. They bear many flowers and last a long time. In light sandy soils this would prove a valuable plant for the early summer, but if possible it should be given an eastern aspect, as the bright noonday sun causes its flowers to close. If planted where only the rays of the morning sun reach it, the flowers remain open throughout the day. Seed sown at the present time will give good flowering plants for next year.—A. H.

NOTES ON HARDY PLANTS.

Tropæolum speciosum.—I can readily believe that the plan advised by "A. H." (p. 522) might answer well for such seed-raised plants as those I spoke of. At the same time the reason given for his suggestion does not really exist in practice with the seedlings here, for since my last note the seedlings have been singled out into 2½-inch pots, and not only did they not fail in the least, but the roots were so active as to cover the little balls of soil in a very few days as with a patch of cotton, and the plants are now stout, sturdy, and strong, and I am in a position to say that seed-raising is a successful and ready way of propagation, and that the plants are superior to those raised from fibreless pipe-like roots, which, after growing well for a time, I have often seen collapse, simply, in my opinion, because the top-growth had outgrown the sustaining roots or fibre development. In reply to "A. H.," I have put into pots the thick roots of this plant at all periods of the year, from November until the parent stock has shown growth a foot high, and I can say that I have proved them to start well at all periods. Nothing could be more easy and simpler than raising this plant by such a method; hundreds, perhaps many thousands, have been so dealt with without any loss worth mentioning. I must now repeat that my two points were not the raising of young plants merely as such, but the establishing of the Flame Flower as an open-ground specimen, and that such ends might be better gained by seedlings with their roots practically all fibre and full of vigour. I wish "A. H." had told us what experience (and the results) he had had from seed-raising of this plant, for however willing we may be to take a lesson as to the superiority of a given plan, we hesitate to accept it as such when we have no evidence that our teacher has himself tried the alternative method. I, of course, admit the importance of good seed, ripe, yet fresh, but that, I believe, applies to all seeds. These come to me from Aberdeen friends, and sown at once have given no more trouble than a box of *Nasturtiums*. I do not wish to invite the laugh of our Scottish friends (with whom this plant grows like Couch Grass and without care) by boasting that I have successfully established many specimens in as many English gardens, but for the possible help of more southern gardeners, I may say that in doing so I have always considered it essential to start with a strong pot plant, with plenty of fibre in friable soil very deeply worked and well broken up. A study of the roots of old specimens, their deep, thick, fibreless parts, and their thinner ones nearer the surface (which have plenty of fibre), all to my mind point out the lesson.

Polemonium Richardsoni (piliferum) album.—So far as I know, this is a genuine and new white form of this first-class species—that is, there is no mixture of *cœruleum* blood. There is certainly no resemblance in the flowers to those of the white form of *cœruleum*, which is simply a common weed in many gardens. I by no means wish to imply that there is anything uncommon that a white form of this kind should occur, but there is one point at least on which I would venture to be most emphatic, and it is that a distinct and truly beautiful white *Jacob's Ladder* is now put into our hands, and of its genus it is at once the largest flowered, showiest plant, and the best for cut bloom. It originated accidentally in the garden of my friend Mr. Ferguson, of Duns, and he gave me a bit whilst his own plant was still small, and though Mr. Ferguson saw he had a choice new variety, I believe he did not realise until now that

it is a plant of far more than common merit. All who have seen my plant could at once be sure that it was far removed from the white form of *cœruleum*, and saw that it was something new. The whiteness is remarkable for its purity.

Myosotis rupicola and **M. rupestris** from Ben Lawers.—The latter form is very near to the Swiss *rupicola*. I have not the shadow of a doubt as to the true identity of both plants in my garden. Both were collected from their habitats and reached me direct from the collectors. The Ben Lawers variety is larger in all its parts and of a little paler blue, but a more reliable feature of distinction is the more spoon-shaped form of the leaves. I well know that these plants are so altered in their features by local conditions that it would be hard to fix the identity of a single plant of each, more especially if they had not been under the same conditions for at least a year. I have, however, founded the above opinion on observations made on two large groups—one of each—treated alike and growing side by side. Both are gems for the rock garden.

Codonopsis ovata=**Glossocomia ovata**=**Wahlenbergia Roylei**.—I wish one could be quite sure which of these synonyms could be most properly employed to the exclusion of the others, either on the score of latest classification, common usage, or intelligibility to the greatest number of gardeners. There may be many brighter flowers, but few more beautiful when looked into, and that is just the thing you must do—literally look into the flowers.

Geranium lucidum is but a humble British plant of annual duration. I wonder, however, if you could find a more decorative bit of deep glossy green herbage of pretty shape for dishes or bowls for the table, and though colour is hardly proportionate in the small, but numerous rosy-purple flowers, the red stems and leaf-stalks quite make up for it. So freely does this plant grow from self-sown seed, that it does not give any trouble only to thin out. The best way is to take a whole plant by its roots for table decoration. I have been trying for a whole year to find a perennial substitute for it, but have not yet met with its equal. Grown, too, in dry sunny places, the latter half of summer many of its leaves are almost scarlet. Grow it on dry rockwork or old wall, and then its coloured foliage comes in splendidly for decorating dishes of green fruits.

Atragene alpina is now having more of the attention it so well deserves. If the flowers are not so gay and glaring as those of the Clematis, to which they are so nearly allied, in many minds they are more interesting and even beautiful. They have a charming modest droop, and the thick and soft purple sepals with the white lines showing on their edges when posed bell-like render the plant distinctly attractive. Its flowers are more numerous and lasting, and the leaf habit also is better than that of most Clematises. It does well if not set too near dry, hot walls; the roots love moisture. If left unpruned it naturally keeps an even growth of leaves and flowers from top to bottom, a form by no means easy in which to keep many Clematises.

Woodville, Kirkstall.

J. WOOD.

Munstead White Columbine.—A large group of this Columbine has been magnificent for some time past. The plants were sent me as seedlings, and only two rogues appeared, these being weeded out before they flowered. All the plants are a yard in height, individually full of flower, whilst the effect of the group is very fine. The varied strains of Columbines are pretty, but such fine forms as the Munstead White have a greater value. They are more effective when grouped, and provide flowers in quantity for cutting.

Campanula glomerata dahurica.—It is very doubtful if any plant can outdistance this lovely Campanula at this season of the year; the more so when seen in large patches 3 feet to 4 feet over, with many dozen heads of its rich, deep purple flowers. The heads or clusters of bloom are larger than a man's fist. It grows from 1 foot to 2 feet high on strong stems, and is most excellent for cutting from for vases, &c. We have some patches of it now

in a long border, as described above, and they contrast beautifully with large masses of the double white Rockets, Shirley Poppies, &c. It is to be regretted that so fine a border plant should not be more frequently seen in gardens. It is quite hardy and grows freely.—J. C. F.

ANEMONES IN ABERDEENSHIRE.

SOME years ago my friend Mr. Lindsay, President of the Botanic Society of Edinburgh, kindly presented to me a packet of seed of *Anemone hortensis* which he had got from "St. Brigid," of the Hill of Howth, to whom all lovers of this beautiful flower are greatly indebted for its improvement. At that time I resided at Paxton, in Berwickshire, where the climate is much drier than it is here, and the Anemones, even when sown in February, did not bloom profusely until the following spring. The seed was selected by me from the best flowers yearly, and on the 14th of March, 1890, a bed in my garden here was sown with the produce of the summer of 1889.

The little plants did not appear above ground for upwards of a month, and for some weeks afterwards made little progress in the way of leaves, but when fully established



Bed of Anemones (much reduced). From a drawing by Mrs. Muirhead.

they grew rapidly, and by the end of August were very strong and throwing up their flower-stems.

In the second week of September they were in full bloom, and as many of the double blossoms were 4 inches or 5 inches in diameter, and of the most brilliant hues of crimson-scarlet, pink, rose, blue, and purple, the effect, when the sun shone and the flowers opened their petals widely to its rays, was very fine.

The accompanying engraving, much reduced, shows the bed as it appeared on the 12th of September last.

GEORGE MUIRHEAD.

Mains of Haddo, Aberdeen.

Some good Tree Pæonies.—It is a great pity that Tree Pæonies are not more commonly planted in our gardens. The only difficulty (or rather drawback) is their precocity and the danger they are in of being cut off by late spring frosts. There are scores of gardens, however, where risks of this description are reduced to a minimum by favoured situation or some other thing. A bed devoted to them could be made in some spot chosen with a view to their after success. The kinds enumerated below are flowering in such a bed—a sunny nook at the bottom of a lawn, somewhat

sheltered, but not overshadowed by surrounding trees. There has been no more treacherous spring than the past one, but the frost did not hurt these plants. It rarely does so if they are planted where the early morning sun cannot reach them while the frost is still upon them. There are now so many different kinds of Tree Pæonies, that a note on one or two very good ones may assist some intending planter. The following are all first rate, combining distinctness and freedom of bloom in plants of vigorous habit of growth: *Caroline Blanche*, salmon-white, deepening into rose at the base of the petals; *Reine Elizabeth*, a deep rose colour, a massive flower, and quite one of the best; *Bijou de Thusan*, a pure white and a most lovely kind, only semi-double, but enhanced in beauty in consequence, as it shows in the centre of the flower a cushion of rich yellow stamens; *Mme. Stuart Low*, of a rather bright salmon colour, is a very fine flower; and *Louise Mouchelet*, a most charming pink-flowered kind. This last, according to THE GARDEN of June 13, appears to have obtained a certificate from the Royal Horticultural Society, awarded doubtless because of the flower's striking merit, as it is by no means a new kind.—A. H.

SINGLE NARCISSUS POETICUS BECOMING DOUBLE.

A STATEMENT about this is made on page 579, and as it is a subject which has interested me for nearly twenty years, perhaps I may be allowed to give a concise summary of the conclusions at which I have arrived.

1. As regards the whole genus *Narcissus* with rare exceptions, in which individual bulbs sport into double flowers, double Daffodils have been double from their birth, that is, were produced double from seed. Poverty or coldness of soil, or other accidental causes may change them for a time from double to single, but they always retain the power of reverting to double again when the conditions of cultivation are suitable to this form of flower.

2. The double *Narcissus poeticus* belongs to one variety, and one only of *N. poeticus*, which is called in old writers on Daffodils *N. patellaris*. It has a strong, well-formed flower with a broad, regular, and shallow crown like a saucer. Wherever I have known *N. poeticus* to be naturalised in Great Britain, this has been the variety. It is found long established in many parks, meadows, and orchards both in England and Scotland. In many cases single and double flowers are found mixed. Whether they have produced seedlings, or whether some that were originally double have become single, I cannot tell. I only know that the genuine single form of this variety is very scarce in gardens, and the double form very common. I have had bulbs sent me from many parts of the kingdom where they are reported to be wild, and these show and in my garden retain very different degrees of doubling besides some which are persistently single. But in other gardens I know that these bulbs which may show when wild hardly a sign of doubling will become in a season or two perfectly double. But if Mr. Taylor or anyone else thinks that by cultivation he can convert *N. patellaris* from a truly single stock into a double-flowered stock, I shall be glad to send him a few bulbs to try on condition that he will report the result.

Edge Hall, Malpas.

C. WOLLEY DOD.

Poppies.—How much finer both in plant and in flower are the Poppies when seed is sown in the autumn. It seems to matter little how small the plants are which have to endure the winter; perhaps the smaller the better in one respect, but the growth

made in the spring is very robust, the plants, if thin, come of great size, and they bloom gloriously. Just now I have in bloom a long row of many plants of that grand giant Poppy, *Papaver orientale*. How splendid do the plants when profusely blooming look, and it is no wonder that seen from the high road they command warm admiration. Whilst scarlet is of course the prevailing colour of the flowers, they vary in shades, some being orange-scarlet, whilst others approach to crimson. Then some are of huge dimensions and have surplus petals, giving a semi-double appearance. These seem to endure longest, and certainly are wonderfully brilliant in colour. This grand Poppy, like all others of the family, seeds freely, and is very easily reproduced in that way. If seed be sown in the spring the plants bloom a little the first year, more so the next, and then go on as it were for ever. Strangely contrasting in habit and dimensions from the giant Poppy are the pretty forms of *P. nudicaule*. Perhaps for vase or house decoration these rank amongst the loveliest, especially to those who prefer orange, apricot, and yellow tints in flowers.—A. D.

THE SAXIFRAGES.

(Continued from p. 565.)

S. ESCHSCHOLTZI (Sternb.).—A native of the western hills of North America. This species forms dwarf, dense tufts of foliage. Leaves elongated in shape, imbricated, and fringed with long hairs. Flowers yellow. Not in cultivation.

S. HEMISPHERICA (Hook. and Thoms.).—A native of the alpine regions of the Eastern Himalayas, at an altitude of 5000 metres to 5400 metres. This species forms dense pincushion-like tufts of foliage. Leaves short, ciliated, closely crowded, and of a light green colour. Flowers small, yellowish, and closely sessile on the foliage of the tufts, like the flowers of *Silene acaulis*. Not in cultivation.

S. TENELLA (Wulf.).—A native of the Eastern Alps, at an altitude of 1000 metres to 1600 metres. A pretty little species with very narrow linear leaves of a greyish-green colour and encircling the slender branching stems which carpet the ground, forming rather loosely set tufts of foliage. Flower-stems thin and slender, each bearing two or three small white flowers. Culture, the same as for *S. moschata*.

S. ASPERA (De C.).—A native of the mountains of Southern Europe. A caespitose species with linear-lanceolate leaves, which are strongly ciliated and almost spiny at the margin, encircling the branching stems which carpet the ground, and from which arise the flower-stems, each bearing from one to three comparatively large white flowers, the petals of which are dotted with deep orange. These species likes a dry position, plenty of sunshine, and a light and rather sandy soil, but it will not thrive or succeed if planted in calcareous soil. We grow it in a compost of peat, leaf-mould, and loam. Multiplied by sowing the seed or by division of the tufts. The varieties *elongata* (Gaud.) and *intermedia* (Heget.) are only to be met with in herbariums.

S. BRYOIDES (L.).—A native of the mountains of Central and Southern Europe. This species comes very near the preceding one, but is distinguished from it by its leaves being shorter, not so much ciliated, much more closely set, being, in fact, imbricated, and forming rosettes from which issue the flower-stems, which usually bear a solitary flower on each. The flowers also are larger than those of *S. aspera*. Same culture.

S. BRONCHIALIS, L. (syn., *S. spinulosa*, Adams).—A native of the arctic and northern regions of Asia and N. America. A pretty species with small, narrow leaves, fringed at the margin, and forming elegant rosettes of foliage, which are borne on short, branching, leafy stems. From these rosettes issue the flower-stems, each bearing five or six white flowers, the petals of which are clothed with red. Culture, the same as for *S. aspera*. The varieties *multiflora* (Ledeb.) and *cherlerioides* (Don.) occur in herbariums.

S. TRICUSPIDATA (Retz.).—A native of the arctic and northern parts of North America, forming stout and handsome tufts of deep green foliage. Leaves rigid, tridentate, thick. Flowers small, white, dotted with yellow, numbering from five to seven on each flower-stem. Culture, the same as for *S. ajacifolia*. The variety *S. t. micrantha* (Sternb.) only occurs in herbariums.

S. BRACHYPODA (Don.).—A native of the sub-alpine regions of the Northern and Western Himalayas, at an altitude of 3000 to 4800 metres. A caespitose species with greyish-green, rigid, spinulose, erect, closely-set leaves, forming stout tufts of foliage. Flowers brilliant yellow. Not in cultivation.

S. FIMBRIATA (Wall.).—A native of the alpine regions of the Himalayas, at an altitude of 3300 to 4400 metres. This species resembles the preceding one, but is distinguished from it by its leaves being broader and furnished with stouter spines. Not in cultivation.

S. AIZOIDES, L. (syn., *S. autumnalis*, L.).—A native of the mountains of Europe and of the arctic regions of America. A well-known species, which has been grown in gardens for a long time past. Leaves glabrous, of a glistening green colour and dotted at the margin. Flowers of an orange-yellow colour, sometimes passing into a bright brick-red hue, produced in umbels. This species likes a cool, moist soil and plenty of sunshine. We grow it in sandy loam. Multiplied by sowing the seed and by division of the tufts. The varieties *atrorubens* (Bert.), *crocea* (Gaud.), and *bidenticulata* (Engl.) occur in some herbariums, but are not in cultivation. In cultivation, however, we find a form, viz., *atropurpurea* (Hort.), which comes very near *atrorubens*.

S. FILICAULIS (Wall.).—A native of the temperate regions of the North-western Himalayas, at an altitude of 2200 to 3300 metres. This species resembles the preceding one, but is distinguished from it by its erect, woody, and stiffer branches, by its narrower leaves, and by the colour of its flowers, which are of a brilliant yellow. Not in cultivation.

S. UMBELLULATA (Hook. and Thoms.).—A native of the alpine regions of the Eastern Himalayas, at an altitude of 3300 to 4400 metres. This species is distinguished from those which precede it by characters which are purely botanical. Not in cultivation.

S. HISPIDULA (Don.).—A native of the alpine regions of the Himalayas, at an altitude of 4000 to 4600 metres. An interesting species, with erect stems, bearing smooth glossy leaves, fringed with white hairs. The flower-stems bear each a solitary flower of a fine golden yellow colour. Not in cultivation. The variety *S. h. Doniana* (Engl.) occurs in herbariums.

S. BRUNONIANA (Wall.).—A native of the sub-alpine regions of the Himalayas, at an altitude of 2300 to 3800 metres. An interesting species, forming a tuft of small rosettes of ciliated leaves, from which long creeping filaments or "runners" are emitted on all sides. Each of these runners takes root and produces a new plant, which flowers in the following year. This species, accordingly, is a stoloniferous one, like *S. sarmentosa*. Flowers light yellow. Not in cultivation.

S. PILIFERA (Hook. and Thoms.).—A native of the alpine regions of the Eastern Himalayas, at an altitude of 4500 to 4800 metres. This is also a stoloniferous or sarmentose species. Leaves rigid and imbricated. Flowers yellow. Not in cultivation.

S. FLAGELLARIS (Willd.).—A native of the arctic regions of Europe, Asia, and America, the mountains of Central Asia, and the Rocky Mountains. Another stoloniferous species. Leaves ciliated at margin and forming handsome rosettes. Flowers light yellow, on purple stalks. Culture, the same as for *S. aizoides*. The varieties *S. f. spinulosa* (Royle) and *setigera* (Pursh.) are not in cultivation. The variety *S. f. mucronulata* (Royle) is grown at Kew. This bears more floriferous panicles

of bloom and has the leaves more abundantly ciliated than the type.

SECTION ROBERTSONIA (Haw.).

This section contains few species, but a pretty considerable number of forms and varieties. They are chiefly natives of the Pyrenees, Alps, and Apennine ranges of mountains. The plants have broad leaves and their flowers are produced in slender, graceful panicles. Many of them are very popular garden plants.

S. UMBROSA (L.).—A native of the Pyrenees, the Sierras of Spain and Portugal, and also indigenous in Ireland. The plant forms broad tufts of dark green foliage, from which spring numerous slender panicles of small white flowers, the petals of which are dotted with pink. Leaves thick, toothed, crenulated at the margin, often brownish-red underneath, and arranged in broad rosettes, suggesting the idea of cups of verdure. This species grows well in light soils that are rich in humus or leaf-mould, in a half-sunny position. Easily multiplied by division of the tufts or by sowing the seed. Two varieties are in cultivation which have leaves more deeply incised or of different shape, viz., *S. serratifolia* (Mack) and *S. Melvillei* (Hort.).

S. CUNEIFOLIA (L.).—A native of the sub-alpine regions of the mountains of Southern Europe. A pretty little species with dull, deep green, glabrous, cartilaginous, elegantly-cut leaves crowded together on stoloniferous branches. Flowers small, rosy-white, in very slender panicles. The plant requires a light soil and a half-shady position. The variety *polypetala* (Sternb.) is not in cultivation.

S. APENNINA, Bert. (syn., *S. subintegra*, Ser., and *S. capillipes*, Reich.).—A native of the Southern Alps and of the Apennine chain. This is a form of the preceding species, which has narrower and less dentate leaves, fewer flowers, and closer panicles. The Saxifrage which is grown in gardens under the name of *S. dahurica* (Schleich.) does not appear to differ in any respect from *S. cuneifolia*, and these two names should be considered as synonymous.

S. GEUM, L. (syn., *S. hirsuta*, L.).—A native of the Pyrenees, the Sierras of the Spanish Peninsula, and also indigenous to Ireland. A very ornamental species, forming strong and handsome tufts of deep green foliage. Leaves reniform-cordate, covered with hairs, and arranged in fine rosettes or cups from which arise the purplish rose-coloured, hairy flower-stems bearing panicles of white flowers, the petals of which are dotted with purplish-red. Culture, the same as for *S. umbrosa*. The varieties of this species are numerous. *S. G. elegans* (Mack) and *S. G. modesta* (Reichb.) are not in cultivation. In our alpine garden we grow the varieties *polita* (Link.), *dentata*, Link. (syn. *punctata*, Reichb.), and *Milleri* (Ten.). The Saxifrage which is named *S. cochlearifolia*, Schrad. (syn., *S. hybrida*, Vill.), is a hybrid between *S. Geum* and *S. rotundifolia*. This is not in cultivation.

SECTION EUAIZOONIA (Schott.).

This section contains the crustaceous species with thick, imbricated leaves arranged in rosettes. The plants are mostly natives of the Alps, Caucasus, and the mountains of Southern Europe.

S. LONGIFOLIA (Lap.).—A native of the Pyrenees at an elevation of 600 metres to 2500 metres. The plant forms a rosette of foliage which is sometimes very broad (we have some growing in our alpine garden which measure over a foot in diameter). Leaves of a glaucous green and greyish-white colour, long, narrow, convex, and margined with a line of small calcareous dots. This species is usually monocarpous, that is, the plants, although they may live many years in the rosette form, generally die when they have once flowered and ripened their seeds. Exceptions to this natural law are, however, not uncommon. The flowers, which are numerous and of a yellowish-white colour, are borne in an erect pyramidal spike with a purplish-red stem and sometimes 2 feet high. In order to grow this species successfully the plants should be set perpendicularly on the steep face of a calcareous rockery or on the side of a wall. Multiplied by sowing the

seed and by division of the rosettes, when this can be done.

S. LINGULATA (Bell).—A native of the Alps of Southern France and of the Apennine Mountains. This species somewhat resembles the preceding one in the character of its leaves, but differs from it very appreciably in its habit. It forms rosettes of greater or less width, the leaves of which are crustaceous and narrow and of various lengths, some of them being much longer than others. The flowers are borne in a long erect panicle with a purplish-red stem. The plant readily forms tufts of several rosettes collected together. We grow it in a compost of loam and peat, to which are added some pieces of limestone broken small, and fully exposed to the sun. It naturally affects a somewhat inclined position among calcareous rocks.

(To be continued.)

THE WEEK'S WORK.

FRUIT HOUSES.

FIGS.—Much of the fruit on trees in pots moderately hard forced will have been gathered, and if there have been no mistakes made, a second crop will be well advanced. Being exceptionally gross feeders at the roots, the leaves also giving off much moisture, the trees will now require to be watered at least twice during hot days, liquid manure being given frequently. The pots being partially plunged and mounded over with loamy compost or even decaying manure and leaves, this must be kept constantly moist in order to sustain the numerous roots that will have found their way into it. Overhead syringing should be given every morning and again when the house is closed early in the afternoon, this being especially necessary where red-spider is troublesome. Keep the branches well thinned out and ventilate freely, a little air given late every evening acting beneficially. Thus liberally treated, the second crop may even be better than the first, and from those started extra early a third crop may be taken without detriment to future prospects, the Fig being naturally the most continuously productive fruit tree in cultivation.

FIGS PLANTED IN BORDERS.—When the trees are trained up fairly long roofs there is less likelihood of their growing too strongly to be fruitful, but with limited head room, smaller borders are necessary. In all cases the young shoots must be kept well thinned out, or otherwise they will grow to a great length and be soft and unfruitful. Standards and bushes stand particularly in need of frequent thinning out, plenty of air and sunshine being needed to consolidate the wood. Where forcing has been resorted to the more forward fruit will be ripening fast, and the ventilation must be more liberal, or otherwise some of the fruit may decay at the points, and the rest crack badly. The former occurrence is at times somewhat difficult to prevent, but may usually be stopped by maintaining a drier atmosphere, the heat being turned on and air given freely on dull as well as bright days. Premature dropping of the fruit is more often brought about by poverty at the roots than from any other cause, and in order to prevent this, as well as to increase the size of the fruit, keep the borders uniformly moist, mulch with partially decayed manure, also giving liquid manure freely to the older or well established trees. A second crop will be produced without stopping the young shoots in heated houses, while in the case of trees in unheated structures stopping is unwise. Instead of stopping freely, thin out, and the sturdy well-matured shoots will next season, most probably, produce fruit at nearly every joint. Ventilate freely and close the house early, well syringing the trees at the same time.

NECTARINES CRACKING.—Nectarines are far more liable to become scarred and to crack badly than are Peaches, this being especially the case with the later crops, or when there is no heat in the pipes. The cause in most cases is traceable to the syringing, the water clinging to the fruit and evidently damaging the skin, and this failing to expand with the pulp, cracking is the natural

consequence. Sometimes the skins are only injured sufficiently to scar, cracking not taking place, but this is nearly as bad as cracking, fruit thus disfigured being of far less value than any with perfectly clear skins. Sudden exposure of well-advanced fruit to strong sunshine is also liable to scar them badly, and where, therefore, any difficulty is experienced in keeping Nectarines with their skins uninjured, this is to be attributed to one or both causes named. The best preventive measures are the early exposure of the fruit, this being done long before the final swelling takes place, and the discontinuance of over-head syringing when this, the final stage, is reached. A bad attack of red spider is also most detrimental to the smooth-skinned Nectarines, the fruit as well as the foliage being discoloured by their attacks. The discontinuance of syringing naturally favours the spread of this little pest, and the only way out of the difficulty is to well coat the foliage and fruit with flowers of sulphur. This can best be done by working a good handful of the sulphur through a muslin bag into a 3-gallon can of syringing water, and failing the muslin bag make a paste of the sulphur, and then mix it with the water. Two syringings are usually necessary in order to well coat the leaves with sulphur, after which syringing should be discontinued. The sulphur will not injure the fruit, and can be wiped off when the Nectarines are gathered. A very thin shading of limewash, or fish nets drawn loosely over the glass, is beneficial to Nectarines and also Peaches in all cases where the houses are lightly built and much exposed, this not hindering colouring if the fruit is well bared.

MELONS.—The earliest fruit having been cut and the plants remaining in a fairly clean healthy state, a good second crop can be obtained from them without much further trouble. Thin out the haulm and otherwise favour the rapid growth of fresh shoots from those reserved. This can usually be done by the maintenance of a brisker heat and a moister atmosphere than hitherto, also removing some of the loose and dry surface soil, and after a soaking of liquid manure has been given, top-dressing with a rich loamy compost. Before the young shoots over-run each other stop them, and the breaks that follow will all show fruit. Stop early at the first joint beyond the fruit, and if there are no bees at work, attend closely to the fertilisation of the female flowers. It may be desirable to give rather less water while the fruit of young plants is ripening, but there ought to be no systematic drying off, the best flavoured Melons being cut from plants with good healthy foliage. If from any cause plants early cleared of fruit cannot be kept in or restored to a healthy growing state they may be rooted out, the soil freshened up by the addition of a little fresh loam and bone meal, and fresh plants be put out in it, these affording good fruit in September. Now is a good time to sow more seed, the plants obtained to be fruited in large pots or otherwise, the crops being available in October and later. Melons during hot, dry weather require a lot of water, and if treated in other respects somewhat similar to Cucumbers, this including frequent top-dressings of rich soil and occasional light border surfacings of pulverised night soil or some other fairly strong nitrogenous manure, they will yield a long succession of fruit, some of all ages hanging on the same plants.

PRACTICAL.

ORCHIDS.

WHEREVER there is anything like a large collection of Orchids comprising a selection of plants in all the divisions, it is necessary that they be minutely examined periodically, in order that the very first indications of thrips may be detected. Just before sitting down to write these notes I made an inspection of the Cattleyas, and although they were to all appearance clean, I found a few indistinct traces of thrips, and on carefully looking over the last formed pseudo-bulbs when the sun was shining upon the plants, a few of the insects themselves were found. It is the most terrible enemy the Orchid cultivator has to fear, and unless constant attention is given to the washing and

cleaning of the plants, the pest will soon make itself felt. There is no doubt but that the cause of the thrips appearing is owing to the much higher temperature by night and day; this is necessary now, as nearly all the plants are making their growth. *Cattleya labiata* var. *Warneri*, for instance, does not make its growth as soon as the flowering period is over, like *C. Trianae*, *C. Mossiae*, *C. Mendeli*, and others. The resting period of *C. Warneri* begins when the flowers pass away, and the cultivator would do well to withhold water. It is necessary to give enough to prevent the bulbs from shrivelling, but the right treatment is to allow the soil to become to all appearance quite dry before giving any water, once in two weeks may be often enough, but no definite instructions can be given in such cases; the cultivator must to a certain extent use his own judgment. All the plants will require rearranging, and care must be taken to place each individual specimen where it will be likely to make a good flowering growth. It is better to arrange the large specimens in one place, and the small ones also by themselves. It is a mistake to mix them up together. I like to arrange the plants so that the new growths in course of formation are turned to the sunny side of the house; this is more important in the case of the shy-flowering Cattleyas, such as *C. gigas*, *C. Sanderiana*, and *C. imperialis*. The young growths of the last-named are now in course of formation, and the flowers will be produced when growth is completed. We are now repotting *Cattleya Mossiae* and *C. Mendeli*, beginning with the former named, as it has passed out of flower, while the others were quite three weeks later, taking them in the bulk. *Lælia purpurata* flowered at about the same time as *C. Mossiae*, and most of the plants needed repotting. Those that were not repotted have been surface-dressed. The plants do not require repotting annually, except perhaps those that were imported the previous year, the roots of which were stuffed into very small pots; these may get a fairly good shift this year, and they will not need to be repotted again for two seasons. Large specimens may remain for three years in the same pots, but it is well to surface-dress them annually and to replace with new material the decayed top portion at the time the others are repotted. In every collection there are plants in different degrees of health. Some have their pots packed quite full of roots; the plants so firmly anchored to the sides, that they can be removed only when the pots are broken to pieces and picked from the roots bit by bit. Such plants as these require a good shift into well-drained clean pots. Other plants may not have done so well and have but few roots, owing to various causes; one of them may be bad potting material, or they may have been injured and checked in their growth by a previous wrong course of treatment. It will be necessary to consider whether the soil had not better be washed clean from the roots and the plants obtain a fresh start in good fibrous peat, a little clean picked and washed Sphagnum intermixed with potsherds and broken-up charcoal. All these sickly plants will require more care during the remainder of the season, but I would also warn the inexperienced cultivator against giving his plants too much water at first. I advise maintaining a moist warm atmosphere, which will cause an active formation of young roots, and when these are seen to be running freely into the new material water may be applied. A temperature of 65° as a minimum may be kept up in the Cattleya house with more moisture than usual to cause a clean growth. Fumigating with tobacco smoke does not injure Cattleyas and it destroys the thrips, which should be turned out of the sheaths by dusting a little flowers of sulphur into the crevices. They may be seen after this running about on the leaves and the fumigation kills them, although some will escape, and the operation must be repeated.

Although I advise the maximum temperature to be reached during July and August, it should not be obtained by a close atmosphere. This is injurious to most epiphytall Orchids. Their native habitat suggests a free circulation of air, tossed as they are by the winds on the tops of high trees or clinging to Moss-grown rocks in exposed places. Angu-

loas will also be repotted. I have during the last twenty years repotted these early in the year, as soon as they started into growth, and also at midsummer, or as soon as the flowering period was over, and upon the whole I believe they do as well, if not better, repotted now. For Cattleyas the pots are filled about half full of loose drainage, but for the Anguloas about one-third. A number of other Orchids will be better for being repotted or surfacedressed. Amongst them we have about a score of *Odontoglossum citrosum*. These have nearly all been repotted, as most of them were not done last year. There is this advantage in favour of repotting any Orchids at midsummer, that the roots soon run freely if they get the right course of treatment. Our plants of *Vanda teres*, of which there are some good specimens in the Cattleya house, are of the *Andersoni* variety. It produces flowers freely, but seldom with us until the middle or end of June. When the flowering is over the plants are taken from the Cattleya house, placed in the warmest house we have, and well exposed to the light. They are usually placed close to the roof glass with the *Dendrobiums* when making their growth. They remain there until the end of September, when we place them again in the Cattleya house.

J. DOUGLAS.

PLANT HOUSES.

GREENHOUSE.—FUCHSIAS.—Those who have carried out the instructions as to general treatment, stopping the shoots in particular, will by this time have some useful plants. The most promising of these should now be allowed to flower. Up to this time the growth of the plants has been of the most importance; now some if allowed to come on to the flowering stage will soon supply a vacancy. In a few weeks *Pelargoniums* and the rest of the early summer-flowering plants will be past their best, then these *Fuchsias* will fill their place and provide a pleasing change. Do not allow all to be in flower at the same time. This can be easily managed by regulating the stopping; there is no wisdom in having a mass in flower at one time, and then an interval in respect to these or any other plants. Those selected to flower now will, as the buds are seen, require some assistance, either in the way of liquid manure or by the moderate use of an artificial kind. This will wonderfully assist them as the pots become full of roots. Do not allow any of the plants to suffer for want of water; the *Fuchsia* when in full growth is a moisture-loving plant. The syringe should be freely used to encourage the plants to make as much headway as possible, as well as to keep down all insect pests; of these green-fly, red spider and thrips are most likely to give trouble. Plants which are still being stopped will most likely require another shift; this will induce further growth. In training avoid by all means a stiff and formal style. In my opinion a free and easy form of pyramid is the best to adopt; bush plants may be advisable in some cases, but in this way the plants never look so graceful when in flower.

ZONAL PELARGONIUMS.—A batch of these in flower will soon be needed to supply vacancies. These should receive generous treatment; if allowed to get dry at the roots some of the leaves will soon turn yellow. The plants will probably be either in pits or the open air; if in the former, ventilate freely and avoid a humid atmosphere, which is not at all congenial to this plant. In the open air a more sturdy growth will be made, which is preferable, but as the plants come into flower it will be better to bring them under glass. Those intended for winter blooming must not yet be allowed to get pot-bound; when and where there is any indication of this, shift into one size larger pot at once. This would probably be into 6-inch pots if struck this spring in 3-inch ones and shifted as soon as well rooted into one size larger. All flowers should be kept pinched off and the shoots stopped also to form bushy plants; the best plants are those of compact growth with the greatest quantity of shoots of flowering size. Avoid affording any inducement to the making of gross, sappy shoots at all times.

TUBEROUS BEGONIAS.—The more forward of

these will now be in flower or nearing that stage. Such plants will be all the better preserved in good condition by now giving them a drier course of treatment. I have noticed them at times show a disposition to damp off at the base if kept in too moist an atmosphere. It does not occur where there is room to specially afford them all that they need. By growing a large quantity this special attention can be given. Those in baskets must not be allowed to suffer at the roots; in this manner they dry up much more quickly than the others, although the rest also will take a liberal supply, provided the plants are not over-potted, which is an evil to be guarded against at all times. It is a mistake to suppose that by extra potting a corresponding gain will be secured either in size or quality.

CHRYSANTHEMUMS.—Those who make the cultivation of this flower a specialty will ere this have potted all of their stock into the blooming pots. Such growers do not need any reminder of this work. There may be some, however, who have from pressure of work in other directions been thus far unable to perform it. The best advice to such is not to defer it any longer, or the time at disposal will be all too short to obtain even fairly good plants. In all cases of late potting it is better to err on the side of small pots than to go to the other extreme. Do not forget, however, to pot firmly. I would rather see a few pots cracked in the performance of this than that the soil should be at all loose. The soil should not be too rich; in respect to this I think many growers make a grave mistake. It is far better to feed the plants when they really require it at a later season. It is not too late yet to put in cuttings for small dwarf plants to flower in 6-inch pots. The best sorts to choose for this are such as are known to be of fairly good or dwarf habit. These cuttings should be put in three or four in a 3-inch pot, then when well rooted be given one shift. A cold frame with shade from sunshine with plenty of moisture to prevent the cuttings suffering is all that is needed. Several of the Japanese and all the pompons with nearly all the single kinds are adapted for this kind of culture. For use as decorative plants in the house, these plants when in flower will be the means of saving choicer things. A sharp watch should be kept against any injury from black fly now. The taller growers, if not already secured to their stakes, should not any longer be left to the mercy of the first high wind or heavy rain, otherwise injury will ensue. The late summer kinds or what are termed the early flowering sorts will by this time take a plentiful supply of water. I note that some are now showing bloom.

J. HUDSON.

THE KITCHEN GARDEN.

LETTUCE.—The present is the time when there is generally a considerable falling off in the production of good Lettuce, unless in those gardens where due provision is made for keeping up a regular supply. Given good ground with a liberal water supply there should not be any difficulty in maintaining a supply through the months of August and September, at which time, as a rule, salading is in great request. The seed at this season is generally very slow in germinating on account of the dryness of the soil, but if the precaution is taken of sowing on rich soil in rows 9 inches or 12 inches apart, the drills also being previously soaked with water, the seeds will quickly germinate if sown early in the following morning before the sun has power to dry the soil. Sowing in the drills where the plants are to remain is the usual mode adopted, the thinnings being planted out as soon as ready. When planting out is done during a dry time, I find it a good plan to cover each plant for a few days with a small flower-pot until the roots commence to take to the soil. By sowing on rich ground and also thinly in drills, the plants are not so apt to run to seed. The Cabbage Lettuces are those generally sown at this season. The *Cos* varieties, however, being generally the most appreciated, will not run to seed more quickly than the Cabbage if given liberal treatment and care taken not to crowd the seedlings in the rows. A favourite position for

Lettuces is on the ridges between the Celery trenches, as here they invariably do well. Certainly the plants do not run to seed so quickly as those planted on the level, and in the case of later crops they are not so apt to suffer from damp. In the routine of Lettuce culture, tying the plants is adopted by some people as an aid to blanching, but considering the improved types now introduced, this operation may be entirely dispensed with. With the market grower, tying a day or two before pulling is indispensable, for the simple reason that it prevents damage to the heads by the continual moving about the Lettuce is subjected to in the ordinary course of business. The above is the only instances where Lettuce need be tied, otherwise it is only labour wasted.

ONION FLY.—The present is about the time when the larva of the Onion fly commences its attacks, and on some soils, and especially those of a light description, this grub, unless taken in time, jeopardises the whole crop. If only a few of the young Onions are affected, it is very unwise to allow them to remain. There cannot be any mistake about the presence of the grub, for the young foliage quickly assumes a sickly yellow colour. Unlike the larvæ of many other destructive insects, the grub quickly changes into the pupa state, and in a few weeks the winged fly appears to lay its eggs, and another generation commences its attacks. All the young Onions which have a sickly yellow hue should be carefully dug up and burned, and to prevent any subsequent attacks of the fly, a little gaslime sprinkled among the rows is a good preventive, also dusting with charcoal dust. Paraffin oil, at the rate of a wine-glassful to three gallons of soft water, syringed lightly over the foliage will also prevent attacks. In all those gardens where this destructive pest is known to be present remedial measures should not stop by merely hunting in the summer, but the plot where it is intended to form the plantation in the following spring should have due attention by early autumn digging and dressing with gaslime and salt.

A. Y.

GARDEN FLORA.

PLATE 811.

BLUE-FLOWERED HARDY PRIMROSES.

(WITH A COLOURED PLATE OF OAKWOOD BLUE.)*

WHILST we have seen during the past twenty years abundant evidence of the remarkable development of the hardy Primrose in respect of colour and quality of flowers, it must be admitted that in relation to colour only, apart from other characteristics, it is indeed a far cry from the *Primula vulgaris* of the woods, with its pale sulphur flowers, to the beautiful violet-blue tint of the variety which is this day so admirably figured. We have heard a good deal concerning blue Primroses of late, and shall hope to learn much more concerning them in the future. We may not even yet have what can be truly termed a real blue, but we have got very near to it, and a few years hence we may see a form which in the colour of its flowers will satisfy the most exacting critics that it is a true blue. So far, however, the production of blue Primroses has been limited to a couple or so of raisers. The most successful of these is Mr. G. F. Wilson, who amongst many things has made the production of blue Primroses a specialty, being, it would seem, exceptionally favoured in natural situation, surroundings, soil, and those features in which the hardy Primrose may be said to delight. The exceedingly pretty and richly coloured variety figured to-day, *Oakwood Blue*, is neither the first nor the latest of the Weybridge seedlings. It is several years since Scott Wilson was certificated by the floral

* Drawn for THE GARDEN by H. G. Moon in Mr. Wilson's garden at Wisley, March 3, 1891. Lithographed and printed by Guillaume Severeys.



LEMPER'S OAKWOOD BLUE.

committee of the Royal Horticultural Society, but Oakwood Blue shows a very marked advance on that variety, not only in greater robustness of habit, but also in density of colour and of substance in petal. The artist has truthfully shown that the variety is pin-eyed, not of course a serious defect—in fact, not one at all to the ordinary observer, but the somewhat exacting florist would find fault with the, to him, deformity. We have not yet got to the stage when hardy Primroses, except on the exhibition table, must be judged by florists' laws, and in this particular instance especially we are far more concerned with the colour development, which cannot fail to command both attention and admiration; for it must not be forgotten that whilst much has been heard of blue Primroses from time to time, very little has been seen of them. The plants have rarely been seen from home other than at the meetings of the Royal Horticultural Society; hence, whilst they have been heard of by many, they have been seen by few.

Whilst Oakwood Blue was the only variety certificated last year, Mr. Wilson was more fortunate this season, as in April last out of a basket of four varieties all of blue shades a fine dark variety named Covenanter, the flowers of deep violet-blue, or blue shaded with violet, with large golden eye, and Mary Erskine, flowers of a soft pale blue, but having a blotch of purple at the base of each segment, received certificates of merit, and at an earlier meeting James Nimmo was also certificated. We are not sure whether these comprise with Scott Wilson all the Weybridge triumphs, but the strain at least has been highly honoured. It would be very interesting to learn from the raiser which were the progenitors of the blue forms he has produced. That the strain differs appreciably from that of one other raiser of blues there can be no doubt. That one other is Mr. R. Dean, of Bedford, who out of myriads of various coloured Primroses raised annually has produced one of special merit as a blue-flowered variety, named and certificated also by the floral committee in 1889. At Bedford there has not been any very strong enthusiasm for blue Primroses. The surroundings there are very different from those at Weybridge; the soil is cold, of a stiff light yellow clay, subject to excessive moisture in the winter and baking hard in the spring; also much exposed to wind and sunshine. These are hardly favourable conditions for Primrose culture, and yet somehow Mr. Dean has never been excelled in the strength of his plants, in abundance of bloom or richness of colour. But in so exposed a situation all flowers showing bluish tints proved more or less subject to burning or fading under frosts, whilst other colours remained unharmed. No wonder then that blues did not meet with special attention. The production of Blue Gem, however, showed that there were blue Primroses of such genuine fast colours as to withstand frost; hence there is in the variety the progenitor of what eventually may prove to be a very fine strain of Bedford blues. The flowers of Blue Gem are large, round, of good substance, have orange centres and thrum eyes, and certainly rank very high in the somewhat limited list of blue Primroses yet produced.

When Blue Gem becomes a liberal seed parent, a fixed seed strain of blues will probably be as common as pure whites are now. There is very much to admire in the lilac and mauve-coloured Primroses. A charming variety, which comes very near to a single form of the double Lilac, is lilacina. It used, and probably

still is grown at Castle Ashby, Northampton, where it once formed a most attractive spring massing plant. The variety named altaica had more mauve in its flowers than has lilacina, the flowers also being larger. It was a pin-eyed variety; hence its adaptability as a seed parent in cross-fertilisation. It may seem strange, but somehow dark blues seem to be more pleasing in Primroses than are pale ones, but in saying so much we include the pretty mauves and lilacs amongst the former, whilst specially referring in the latter to the sulphur or primrose hues found so abundantly in woods, or pale washy reds found sometimes in gardens. Pure whites are very pleasing, as indeed all white flowers are, and white Primroses bloom most profusely. Some day, perhaps, we shall see them grown in vast quantities in market gardens for flower bunching. The Primrose tribe has long since distanced the Polyanthus in its power to produce blue flowers. There was a time when it was thought as unlikely Primroses would be blue as that Dahlias or Roses would be. The Polyanthus once held out hopes that a real blue might at some time or other be produced. Whether the old so-called blue variety *elatior cœrulea* be a sport or a real seed production, it did at least show possibilities in the Polyanthus which have never been realised. Can it be that the exceeding freedom with which Polyanthus produce yellow, beautiful golden and orange-yellow flowers, too, militates against its production of blue tints? Certain it is that whilst Primroses seldom show yellows in good form, in Polyanthus they are exceptionally abundant. The two forms are closely allied—are indeed members of one now famous family of plants—but they have some very diverse features, one of which is found in the facility with which the Primrose form now produces blue flowers.

T. A.

CHRYSANTHEMUMS.

NEW AMERICAN CHRYSANTHEMUMS OF 1891.

IT is to be regretted that the American raisers and distributors of new Chrysanthemums do not adopt some more systematic method of announcing the new varieties for the year than that hitherto followed. With the exception of Mr. Spaulding, who has made a speciality of this flower, and Mr. Waterer, no other grower in the States issues, as the Continental raisers do, special descriptive lists of their new flowers for disposal in the spring of the year. At least if there is any other that does, the knowledge of the fact does not appear to have spread to this side of the Atlantic, and the only way by which a full list of the new American seedlings can be compiled is by picking out the names of them from odd corners in the general catalogues of the leading transatlantic nurserymen.

I was under the impression that the newly formed organisation, which has adopted the, as yet, undeserved title of American National Chrysanthemum Society, was going to take especial charge of this department, and that besides encouraging the cultivation and exhibition of the Chrysanthemum, the classification and nomenclature were both to be objects of much importance in the programme of the society. Until now, however, I have waited in vain for some sign of life from the American National Society, and considering the ever-increasing popularity of the Chrysanthemum throughout the United States and the reputed go-ahead quality of the American generally, it does appear strange that all the information we have obtained of the society is of a negative nature, and that, with the exception of an advertisement in one of the American papers, it seems to have no existence either in word or deed. From a perusal of the list of new Chrysanthemums

appended hereto, it will be seen that most of the new flowers are the productions of raisers already well known by name to readers of THE GARDEN, and that the same defect is noticeable this year as last, namely, the omission in most cases of the section to which the flowers belong. With regard to the choice of names given to these new flowers, there is good ground for congratulation. Our American friends have selected distinctive names, nearly all notable for their brevity, and in hardly any case has one of them been used before. Personal names can, of course, rarely be confined to a single word, but when nurserymen, be they American, English or Continental, apply to their gains such names as Colorado, Dawn, Delaware, Innocence, Jumbo, Minerva, Mistletoe, Ontario, Oswego, Sunray, and the like, they certainly deserve a word of thanks from those who are desirous of writing the name of each of their plants upon a label of ordinary dimensions.

It is noticeable that the prices of distribution for each new Chrysanthemum offered by the American nurserymen are much lower than those asked by the Continental growers. The latter for their seedlings this year have catalogued them as high as 12, 15, and even 20 francs a plant; but the American dealers in disposing of their new flowers ask in no case more than 4s. each. The yield of first-class exhibition flowers is likely to be quite as great among the latter as among the former, and the only difficulty the Americans have to contend with in doing business on this side is the packing and long transit. Their climate appears to be as favourable for ripening seed as that of the south of France for Japanese varieties, but we will await with some curiosity the time when true incurved Chrysanthemums may also be produced.

Most of those from America called incurved properly belong to the Japanese incurved class, according to our views of classification. As progress in Chrysanthemum culture becomes more marked, it may not unreasonably be hoped that a greater degree of attention will be paid to the improvement of the incurved section, which seems to be the one most particularly suited to the tastes of the florists of Anglo-Saxon nationality. Rumours are rife, however, that the American climate is not favourable to the production of good specimens of incurved blooms in the States, but when we come to examine the reports of the different exhibitions held there it is apparent that the growers have a large number of our best varieties in cultivation, and that they are steadily gaining ground in the eyes of many of the most successful exhibitors.

American Chrysanthemums are now becoming such important additions to our English collections, that a list like the following containing the new varieties of the season must necessarily be of considerable service to those persons in this country interested in the cultivation of that flower.

Alcazar (Smith).—Japanese incurved; bronze-red, shaded to yellow at tips, reverse old gold.

Anna M. Weybrecht (Spaulding).—Chinese; snow-white, broad petals.

Anna Dörner (Dörner).—Reflexed; outer petals striped deep carmine, centre creamy white.

Aristine Anderson (Smith).—Incurved; like Miss Mary Morgan, but deeper pink and larger.

Astoria (Pitcher and Manda).—Deep rose-pink.

Atlanta (Pitcher and Manda).—Delicate mauve.

Beacon (Fewkes).—Full double flower, outer petals tubular and reflexed, centre ones incurved, white.

Black Beauty (Hill).—Japanese; crimson-maroon.

Catacha (Pitcher and Manda).—Single; rose-pink.

Charles Canfield (Spaulding).—Incurved; claret-red, reverse silvery pink.

Charles Henderson (Spaulding).—Yellow and old gold, streaked reddish purple.

Chicopee (Pitcher and Manda).—Single; inside magenta, outer side fawn.

Clancy Lloyd (Spaulding).—Flesh-pink, changing to pure white.

Clara James (W. K. Harris).—Incurved; globular, white and pale pink.

Colossal (Pitcher and Manda).—Semi-double; inside deep pink, light Naples yellow on the outer side and edges.

Colorado (Pitcher and Manda).—Light chrome-yellow.

C. W. de Pauw (Hill).—Long petals, soft pearl-pink, tinged light lavender.
Daisy (Pitcher and Manda).—Single; pure white.
Dawn (Henderson).—Japanese; rosy blush.
Delaware (Pitcher and Manda).—Anemone; white, pale yellow near the centre.
Dr. Chas. Brigham (Pitcher and Manda).—Chrome-yellow.
Eda Prass.—Reflexed; salmon, changing to white, shaded blush.
Eldorado (Monahan).—Incurved; deep yellow, dwarf.
Elmer D. Smith (Hill).—Japanese; pleasing cardinal-red, reverse chamois.
Emily Dorner (Hill).—Incurved; orange-yellow, tinged crimson, broad petals, dwarf.
Evelyn Stein (Dorner).—Large bloom, colour white.
Flora Hill (Hill).—Incurved centre, outer petals recurving, white, creamy centre.
Frank Thompson (Hill).—Incurved; white.
Garden Queen (Henderson).—Japanese; deep violet, reverse silvery rose.
Golden Plume (Henderson).—Japanese; drooping petals, golden yellow.
Innocence (Dorner).—Incurved; pure white.
J. C. Vaughan (Thorpe).—Reflexed; plum-crimson.
John Dyer (Pitcher and Manda).—Chrome-yellow, petals striped red.
John Firth (Spaulding).—Deep Mermet pink, shading to silvery rose, petals cup-shaped.
John Goode (Hill).—Globular flower, outer petals lavender, inner ones clear lemon.
Josephine Schlicht (Pitcher and Manda).—White, edges pink.
Jumbo (Pitcher and Manda).—Single; fawn, light red at tips, tubular florets.
Kate Rambo (Harris).—Large double flowers, slightly incurved, pure white.
L'Angelus (Henderson).—Japanese; rich purple.
Lizzie Cartledge (Spaulding).—Incurved; bright dark rose, under row of petals reflexed, reverse silvery white.
Lilly Bates (Spaulding).—Broad flat petals, bright rich pink.
Louis Baumer (Henderson).—Japanese; amaranth, with reverse silvery pink, hairy petals.
Mariposa (Pitcher and Manda).—Semi-double; very free, light chrome-yellow.
Mary Waterer (Harris).—Reflexed; delicate rose, dwarf.
Matie Bruce (Dorner).—Reflexed; pink, shaded mauve.
Mattie C. Stewart (Spaulding).—High built bloom, large and double, petals broad and flat, golden yellow.
Mermaid (Dorner).—Incurved; globular flower, soft mellow pink, deeper shading on outer edge, cream at base.
Michigan (Pitcher and Manda).—Very free, rich magenta.
Minerva (Pitcher and Manda).—Single; light pink, tubular florets.
Mistletoe (Dorner).—Japanese incurved; deep silver and rich crimson.
Moravia (Pitcher and Manda).—Single; white and mauve.
M. P. Mills (Harris).—In shape resembling a Mushroom; orange-yellow, streaked red.
Mrs. Alpheus Hardy Improved (Pitcher and Manda).—Japanese; an improvement on the original white hairy variety, more vigorous and dwarfer.
Mrs. A. Rogers (Siebrecht).—Incurved; golden-yellow.
Mrs. D. D. Farson (Spaulding).—Large blooms, bright Mermet pink.
Mrs. G. B. Topham (Pitcher and Manda).—Semi-double; broad petals, white, edged lavender.
Mrs. Herbert A. Pennock (Harris).—Similar in shape to Violet Rose; large blooms, orange-yellow.
Mrs. I. D. Sailer (Hill).—Incurved; broad petals, soft shell pink, tinged lemon at tips.
Mrs. J. G. Whildin (Hill).—Light yellow.
Mrs. John Westcott (Harris).—Reflexed; large blooms, cream-pink, shading to cream-white.
Mrs. Kendall (Spaulding).—Japanese; rich Jacqueminot red, reverse copper-bronze, shading to gold from base to tips, free.
Mrs. Lay (Spaulding).—Incurved; white, faintly tinged blush on edges.
Mrs. R. J. Baylis (Spaulding).—Japanese incurved; clear yellow, striped red-bronze and old gold, petals $1\frac{1}{2}$ inches in width.
Oeta (Smith).—Incurved; outer petals striped rose, centre yellow, dwarf.
Ontario (Pitcher and Manda).—Incurved; chrome-yellow, free.

Orizaba (Pitcher and Manda).—Single; bright chrome-yellow.
Osirego (Pitcher and Manda).—Creamy white, tinged lemon-yellow in the centre.
Pandanus (Pitcher and Manda).—Pure white.
Philip Breitmeyer (Harris).—Short petals, golden yellow.
Progression (Spaulding).—Style of grandiflorum; pure white, late flowering.
R. Maitre (Hill).—Large double flower, pink.
Robert Flowerday (Smith).—Japanese; large flowers, crimson-lake, reverse silvery pink.
Santa Claus (Henderson).—Japanese; white.
Stella (Pitcher and Manda).—Single; soft rose.
Sunray (Henderson).—Japanese; yellow and light crimson.
Sugar Loaf (Hill).—Outer petals recurving, inner ones incurving; yellow, shaded bronze, tall and free, large blooms.
Target (Sarman).—Crimson, yellow centre.
Tremont (Fewkes).—Japanese incurved; lemon-chrome.
Tuscola (Pitcher and Manda).—Semi-double, tubular florets, light yellow.
Ulysses (Pitcher and Manda).—Single; inside magenta, outer side deep lilac.
Waban (Fewkes).—Japanese incurved; broad petals, pink.
Washta (Pitcher and Manda).—Semi-double; tubular petals, deep chrome-yellow.
Wichita (Pitcher and Manda).—Single; deep rose-pink.
W. W. Lunt (Pitcher and Manda).—Lemon-yellow.
Yonitza (Smith).—Incurved; very double and globular, colour white, rather late.

CHRYSANTH.

Chrysanthemums in Tasmania.—The Chrysanthemum show of the Northern Horticultural Society was held in the Albert Hall on April 23 and 24. Pot plants were very poorly represented, but the display of cut blooms was very good. The leading feature of the show was the competition for the National Chrysanthemum Society's gold medal. Last year it was carried off by a local nurseryman, but this time it was won by an enthusiastic amateur (Mr. T. Totterdell). The accompanying photograph may give some idea of the perfection attained by the Chrysanthemum out of doors in Tasmania. The size of the stand holding the twenty-four Chinese blooms is 30 inches by 22 inches, and the one holding the twenty-four Japanese blooms is 36 inches by 24 inches. It may interest your readers to know that the blooms are exhibited just as they are cut from the plants; in fact the practice of "doctoring" is very little understood or practised.—W. MCGOWAN.

* * The photograph showed very handsome and well-developed blooms in each class.—ED.

ORCHARD AND FRUIT GARDEN.

FRUIT GROWING IN TASMANIA.

Now that Tasmanian Apples will be again engaging your attention, it may be an opportune time for me to make a few remarks as to the mode of planting and the situation, together with the varieties found most suitable for export, so far as my experience has gone. The success attending the shipments of fruit to the London market has been the means of inducing a great number to plant new orchards, and on the most approved plans. Special attention is directed to wide planting, none being less than 18 feet apart. In the majority of cases the ground is well prepared; robust trees are selected, care being taken that they are all on blight-proof stocks, otherwise the trees soon become in a very unhealthy condition. The whole orchard is kept in a state of cultivation, generally in root crops, and from the necessary attention attached to such the ground is kept loose, thus preventing to a great extent the evaporation of the necessary

moisture. More attention might be directed to irrigation, especially in a young orchard, where the trees would be brought into bearing a year or two earlier; and any danger of becoming stunted or bark-bound avoided. In Tasmania we have seven or eight months in the year of summer weather, and during at least four months of that period water has to be applied copiously (if available) to gardens and lawns, clearly demonstrating the advisability of applying the same to fruit trees.

As to the situation of an orchard, the early settlers selected the best piece of ground they possessed; it generally followed that their choice fell upon a low-lying piece quite devoid of natural drainage; but fruit-growers of the present day are becoming alive to the fact that fruit trees can be planted in too good ground, which encourages the growth of too much wood. Experience has made quite a transformation in this direction; planters of new orchards now invariably select rising ground with a northern aspect varying from east to west, with soil of medium quality and good subsoil. But I am sorry to say that very little attention is paid to the subject of drainage. The few that have adopted drainage find it a very important matter in successful fruit growing. For my own part I am a very firm believer in drainage. An orchard on rising ground should be drained on an angle to ensure the proper sweetening of the soil; the distance between the drains must be regulated between 20 feet and 40 feet according to the nature of the subsoil.

It will scarcely be necessary for me to make any remarks on the special value of each variety of Apple here mentioned; the majority are well-known varieties. Perhaps one or two may be found synonymous on very close investigation, but they are all right for the growers' purposes. The following may be taken as a fair list of those Apples found so far to be the leading sorts for export: Of the Pippins there are eight—Ribston, Sturmer, Newtown and New York (both American), Wellington, Five-crown, Cox's Orange, and King of the Pippins; Adams' and Scarlet Pearmain, Scarlet and Old Nonpareils; French Crab, Crow's Eggs, Golden Russet, &c. I have avoided making any remarks on the culture of Pears, simply because I do not think it possible to overcome the many difficulties presented of placing them successfully on the London market; a certain amount of success may be achieved after a few years' diligence. Next month I hope to be able to send you a few notes on pruning and insect pests.

W. MCGOWAN.

Launceston, Tasmania, April 20.

A good late Strawberry.—I am forcing this year for the first time a Strawberry called Victory. It was raised some years ago by Mr. House, of Peterborough, and has been favourably noticed more than once in THE GARDEN as a good kind for open-air culture. It is a cross between British Queen and President. In appearance it somewhat resembles the Queen, but the fruit has more of the acid principle than the British Queen possesses. The chief value will be found in its immense cropping powers; even small runners potted late are bearing heavy crops of highly coloured fruit.

Started at the same time as British Queen and Sir J. Paxton, it will ripen within a day or two of these varieties. It is not subject to mildew or any other ailment. The fruits on my plants have not been thinned at all, and they are very numerous, but all are swelling off well. In this respect it is a very great advance on the Queen. We have Noble ripening in the same house, but for weight of crop Noble is far behind.—E. H.

PLUMS.

It has been some time since the Plum crop was so heavy. For several years it has only been partial. A few trees here and there have borne freely, while others have quite failed. This season, however, the crop is general and in some cases very heavy. There is no doubt that the spring frosts have been mainly responsible in past seasons for this failure, as a few trees that are on the Peach and Nectarine wall, and have received the benefit of spring protection, have invariably carried good crops. Plums do best with us on a south-west or west wall; aspects more to the south or south-east seem too hot for them. Only a very few varieties are at their best here. The latter remark is also applicable to a north aspect; the only sorts thoroughly at home here are some of the late cooking sorts, as Imperial de Milan, Belle de Septembre, and Coe's Late Red. It is hardly advisable to grow Plums in great variety, a few really good sorts in succession, both for dessert and cooking, will be found to answer all requirements, and I would suggest that the term "really good" should not only mean from an edible point of view, but those of good constitution, and which can be relied on to set freely and crop well. Thus, although a magnificent eating Plum, Washington can hardly be recommended, as in the majority of cases a very scanty crop is the rule with this variety. Four of the best dessert Plums are undoubtedly Transparent Gage, Jefferson's, Coe's Golden Drop, and Denniston's Superb, with July Green Gage and Ickworth Impératrice added for early and late work. Those desiring other varieties may add Reine Claude du Bavay and Kirke's, but these are contemporary in season with those earlier named sorts, and are therefore not essential in a collection that aims at first-rate quality in succession. Ickworth Impératrice and Denniston's do not crop so well with us in a young stage as the others, but improve with age. Coe's Golden Drop is, perhaps, about the heaviest and most consistent cropper of all the dessert Plums. I have just finished thinning two trees on a S.W. wall that set apparently every fruit. A few good Plums for cooking are Early Prolific (a great acquisition), Pond's Seedling, Victoria, and Belle de Septembre. Plums require, and the best of them at any rate should always receive spring protection, as without this a crop cannot be depended on. If a S.W. or W. wall, or portion of same, were devoted to the sorts named above and this duly covered at the blooming time, one could pretty well depend on an annual supply both for dessert and kitchen. A double thickness of fish netting is sufficient protection on all aspects ranging S. from S.E. to S.W., but on directly opposite sites tiffany or scrim canvas must be used. A few Plums on a N.E. wall were not covered, and hailstorms and subsequent frosts have destroyed all chance of a crop for the current season. Where the Plum aphid is troublesome, a lot of labour is necessary to keep the trees in good health, for this pest increases at a fearful rate if not checked immediately it is detected. I do not know of anything better as a destructive agent than Bentley's insect powder, and a little extra time spent at the first application to discover all leaves infested will be amply repaid by the clearance effected.

E. BURRELL.

Claremont.

Thinning hardy fruits.—In spite of the severe frosts in May, the Apples, Pears, and in some instances Plums have set thickly, and will be all the better for thinning. Where the trees are of a manageable size, to obtain good fruit the crops must be thin upon the trees. In this country thinning has rarely been carried out systematically, but

it will certainly pay to do it in the case of all trees near the ground, or that can be reached from a pair of steps, and the sooner the work is done now the better. All small, weakly, maggot-eaten fruit of Apples and Pears should be removed at once. It is possible, of course, that some of these may fall; those containing maggots will certainly do so, but in the meantime they are weakening the trees. After the thinning is done, a good dash with the garden engine will do much to cleanse the foliage; in fact, if the garden engine was used more frequently, if nothing but clean water was sprayed over the trees, much benefit will arise from its use. It is certain, I think, that many fruit trees are badly nourished, and would be much benefited by a mulch of manure, or manure and loam being placed over the roots. This mulch of manure will be a great help to any trees carrying a good load of fruit, and will certainly pay its way in adding to the weight of the individual specimens.—E. H.

STRAWBERRIES AS YEARLING PLANTS.

In many gardens it has now become the recognised system of planting a quarter of Strawberry plants annually during either the month of August or the early part of September, thereby securing a crop of fruit the first season. Where there are plants on the place for securing healthy and fruitful runners, this system of summer planting should certainly be adopted in all private gardens. The practice has everything in its favour, as in no other way can such strong plants be secured in such a short space of time. Runners which were put out during the latter part of August are now fine healthy plants. They have thrown up strong trusses of bloom, and the fruits are setting admirably. Under no other system can such large fruits be secured, and even with the same varieties there is quite a difference of a week in the ripening compared with two or three-year-old plants. This alone is no mean advantage. Even on those soils where Strawberry plants do not long retain their vigour, under the annual system good results may be secured. In one large garden that I served in, the plants would barely live over the first year after the fruits were gathered and runners secured, so unsuitable was the soil, yet I never saw plants grow so freely or fruit so well for the time they had been planted. The size and quality of the fruits were all that could be desired, and invariably secured first honours wherever exhibited. Yet these very plants would die off wholesale if left longer than one season. In this garden the annual system was adopted with the greatest success. The large market growers do not find it to their advantage to plant during the summer, on account of the labour entailed in layering the runners and the after-attention as regards watering to assist the runners in forming roots as well as for want of suitable space, but this should not deter private growers, with their limited number of plants, from planting during the summer. I also find that the younger plants are not so liable to suffer from the want of water during a dry time as do the older ones. It is astonishing why some people persist in leaving the same plants and depending on them for the supply of fruit year after year, when such satisfactory results may be obtained from younger ones. A period of two or at the most three years is the longest limit that Strawberry plants should be allowed to remain, as after this time they cease to be profitable. Destroying a portion of the plantation, or rather the oldest plants, and also planting a fresh set annually, should be the system adopted, the younger or yearling plants being depended upon for the earliest and finest fruit of the different sections. In my own case two years is the limit of the plant's duration,

as by this mode of cultivation I find I get much more satisfactory returns. Older plants, again, are also much more liable to be affected with mildew. Where satisfactory results have not been attained from summer planting the first season, the planting has either been done too late or else the runners were badly rooted or weak. Old plants give, or rather produce, very unsatisfactory runners, as besides being very weak in proportion to those from yearling plants, they are also very late in forming. The runners from younger plants have the advantage of quite three weeks compared with older plants. It is the practice of many gardeners to set out annually a number of plants solely for the production of runners, the trusses of bloom being picked out as soon as perceived, so that the whole resources of the plants are concentrated on their formation. For forcing purposes this is an admirable practice, the runners being secured very early, although in my own case I get the runners early enough from fruiting plants. The only difficulty is the runners are apt to be trodden during the gathering of the fruit if care is not taken in arranging the rows far enough apart. One runner only to a wire should be retained, and this the first one, as being more likely to make the strongest and most satisfactory plant. Layering the runners in small pots, filled firmly with loam and pulverised horse manure, is the usual mode adopted, although the old method of layering on squares of turf is now practised by many. The only disadvantage against layering on squares of turf is that unless care is taken in selecting turf free from coarse weeds, and also laid up together long enough to destroy all traces of vegetation, its use is apt to prove a nuisance in the coarse weeds appearing amongst the Strawberry crowns. Strong-rooted runners are what are needed, and these if duly planted out on good ground cannot but produce the best results.

The Strawberry is a very accommodating plant as regards the class of soil it thrives on, as, besides the deep fertile loams, there are instances where the plants revel in what are little better than beds of sand. But these soils are where iron is known to be present in large quantities.

A. YOUNG.

Abberley Hall.

POTTING UP STRAWBERRIES IN SPRING.

THE note in THE GARDEN (p. 555) on the above was valuable, showing how readily one can adapt himself to circumstances. I can fully bear out "W. I.'s" experience as to Noble, as two years ago I had some young plants that had been growing thickly, and I lifted them into boxes and treated them as advised. The result was all that could be desired, as we had fine fruits and plenty of them. I may say we treated them in rather a different way, keeping them slightly shaded and cool for a few days, and finishing them in a cool frame. By so doing I do not think we lost in size, as "W. I." did. Of course we got larger balls of earth, as ours lifted with a large mass of soil and roots, and we used ordinary bedding stuff boxes. Some years ago, when short of pots and labour, I used yearly to lift some good plants of Sir C. Napier and Sir J. Paxton and pot them into 7-inch pots. This was done early in March, and the plants were always layered the same as the pot Strawberries the previous summer, and planted out in rows on a warm border, making the soil very firm by treading and mulching round the roots with spent Mushroom manure when active growth had commenced. Through the winter they made a robust growth. Some of the largest I placed in boxes, gave them cold frame treatment, and they produced grand crops of fruit. Those potted up were placed on a hard cool bottom under a north wall for two or three weeks, and in a short time the new roots came freely round the sides of the pots and they were forced slowly in a

low temperature till set, when they received the usual treatment. These plants would not stand hard forcing the same as autumn-potted plants—at least, I found I got much finer fruit by giving them ample time. When potted up and put direct into the house or frames, the plants require frequent syringings, and sometimes flag with hot sunshine. If potted up early as advised, they soon take to the pots, and are full of roots by the time they are required for forcing. These are very useful for planting for permanent crops after fruiting. No doubt other varieties would do equally as well, but I only used the later kinds for this work, as I wanted the fruit in May and early in June, and it answered admirably. I consider it a saving of time and labour if the plants are grown on in this way, especially if late fruits are required. They also often fill up a gap between the potted-up plants and the first early Strawberries in the open ground. S. H.

STRAWBERRIES.

THE meeting of the fruit committee of the Royal Horticultural Society held on the 9th inst. was favoured by some four new varieties of Strawberries sent by an esteemed gardener, Mr. Allan, of Gunton Park. Those who embark in the raising of Strawberries find from experience that they have not altogether exhilarating examples before them, as out of myriads of assumed new sorts raised during the past twenty or thirty years how few have made for themselves a name. This is by no means encouraging. Some sorts which have been heralded into commerce with a flourish of trumpets and have enjoyed the apparently doubtful honour of receiving certificates of merit have turned out to be rank impostors, so that whenever our present considerable list of Strawberries is fairly hard selected, it is found that we have about seven or eight which are classed as really good, and about as many more are entitled to the questionable honour of being termed second-rate. It might be said that such being the case, it should not be at all difficult to raise new varieties which have special merit. Somehow, however, the Strawberry is one of those fruits which refuses to be liberal in giving us flavour. We have plenty that will fruit freely, early, mid-season, and late, but so very few indeed which deserve to rank as really good—ample evidence, were it needed, that good flavour in a Strawberry is a coy quality. Perhaps this comparative lack of quality is due to our having rather studied the production of size, abundance, and appearance than flavour, and to that end avoided utilising those varieties which give flavour, but are small fruited. With respect to the seedling varieties exhibited by Mr. Allan, I did not learn that any information as to their parentage was given. Perhaps Mr. Allan will not object to furnish that information. It was to some extent unfortunate for him that such a truly grand sample of Strawberries as was Mr. Norman's Sir Charles Napier from Hatfield should have been placed before the committee. When we were told that these were but a sample of some 200 lbs. gathered or ready for gathering at Hatfield, it is obvious that a very high standard is raised, and that new varieties can hardly merit a certificate if they fall appreciably below the example thus found in a really old variety. Of course, it might be pleaded that the new sorts had higher flavour than Sir Charles Napier shows, but that was not so manifest. Two of the seedlings did undoubtedly show merit, but only so much as to render a trial of the varieties at Chiswick desirable, and it is to be hoped that to such ordeal the seedlings will be submitted. Probably most gardeners will freely admit that however important it may be that we should have more first-rate forcing Strawberries, still the only real test of the value of any variety is to be found in outdoor culture. All growers of pot Strawberries are familiar with the fact that many varieties absolutely refuse to do well in some gardens whilst they will do well in others. This may be to some extent true also of outdoor grown plants, but it certainly is far more so with pot plants. Thus it may happen that a really first-class variety is in one garden condemned because

it cannot be induced to do well in pots, whilst in another it does remarkably well. This somewhat erratic conduct of Strawberries in pots shows that, unless the sorts have been well tested outdoors, no reliance is to be placed on the results. It may be in the case of Mr. Allan's varieties that he specially commends them for pot culture, but even if they did ever so well at Gunton Park it does not follow that they will do well in pots generally. On the other hand, if they be found to have good merit outdoors their reputation is made, and no one will condemn them because they may in some gardens fail to be at their best under glass. It is quite certain that if any sort be first-rate outdoors at Chiswick or elsewhere, it will be certain to be first-rate in pots somewhere. Strawberry raisers should not be disheartened because new sorts may at the first meet with a cool or cautious reception, or perhaps find no favour whatever. It does seem to be a fact that it is very difficult to get first-class flavour into new sorts, as the enormous number of failures in the past testify. How many new varieties are there which have been helped to notoriety by certificates of merit or other laudation which have sunk into comparative obscurity. It is not that growers are stupid or obstinate that they stick so closely to the few old sorts; it is rather because out of the legion of varieties few alone are first-class. It is very doubtful whether any variety has been sent out during the past ten years, perhaps twenty years, which can honestly be designated as of the very best. We somehow find it difficult to excel Keen's Seedling, Héricart de Thury, President, Sir Joseph Paxton, Sir Charles Napier, and British Queen, and yet no one is entirely satisfied with any of them, but could find points which admit of improvement. Whilst so many of our Strawberries produce fine fruits and have soft sweet flesh, yet they are either bad travellers, early subject to mildew, do not always set their blooms well, show a tendency to blindness, or have some other defects. Probably the really perfect Strawberry will never be forthcoming. Still we may well hail the efforts of those raisers who think such an acquisition to be obtainable. Our present best sorts are all old, some very old, and show that it is possible for a really good kind to have popularity for half a century. A. D.

Wellington Apple.—Amongst the admirable sets found so far amongst Apples this season, I note that the Wellington seems to be the exception. Many large trees bloomed well, but have failed to set other than a mere sprinkling of fruits. It would seem that in the Middlesex clay Wellington has got into a soil which, whilst it suited it admirably a few years since, does not answer now. Probably it would be wise to destroy or re-graft with some good fruiting kind the old trees and plant new ones on fresh soil. Whilst so many sorts thrive so well about here Wellington seems to have lost vitality, refusing to mature its annual growths or to plump up the flower-buds.—A. D.

Peach Waterloo.—It is indeed very annoying to find after a few years' growth and for some very particular purpose one has been supplied with a wrongly named variety, whether it be Peach, Nectarine, Pear, or any other class of fruit; this mistake, however, is not rare, and "M. H." may rest assured he is not the only one who has been, unfortunately, thus supplied. By the description given at p. 578, I incline to the belief "M. H." has been supplied with one of the three American varieties, and if not Waterloo, it is just possible the Amsden, with me outside a smaller fruit than the one under notice. The Waterloo is not usually considered a large fruit, but with moderate cropping and liberal feeding it sometimes grows to from 6 ozs. to 8 ozs. in weight, and I have had some 9 ozs., while in orchard houses and on the open walls 6 ozs. may be considered very good fruits for the variety. Alexander is very similar, but, as above stated, I find Amsden the smallest of the three. The leaves of the Waterloo have very deeply cut, kidney-shaped glands. With regard to forcing early, I should hesitate before giving either of them a permanent position for that purpose,

being doubtful about their dropping the buds. For a house to be started in the beginning of February Waterloo succeeds well, ripening by the end of May. But without Hale's Early or some other sort ripening about that time to follow there would be a considerable break between the ripening of Waterloo and such sorts as Royal George, Stirling Castle, &c.—H. MARKHAM, *Mereworth Castle.*

LATE VINERIES.

It is most unwise to retard late Grapes under the impression they will keep better if ripened as late as possible. Alicante, Gros Colman, Lady Downe's, Mrs. Pearson, Gros Guillaume, and Golden Queen all keep better if they commence to colour in August, and are completely ripened by the end of September. The Muscat of Alexandria may with advantage be ripened still earlier, this being a good preventive of premature shrivelling; while the indifferent keepers, such as Black Hamburgh, Madresfield Court, Foster's Seedling, Gros Maroc and Alnwick Seedling, seldom hang any better for being ripened extra late. All must have a certain amount of heat to bring about the requisite chemical changes in the berries, and this can be more beneficially applied during the early part of the summer than in the autumn. Late Vines should therefore be kept briskly on the move, without, however, subjecting them to a stewing temperature. Ventilate early on fine days, both front and top air being admitted, the former the most sparingly, before the temperature exceeds 80°, and the houses may well be kept at about those figures, closing somewhat early so as to run up the heat to 90°, the floors being freely damped down at the same time and also once or twice previously whenever the sunshine is strong. At the same time, a moist atmosphere all day ought to be guarded against, or otherwise the foliage will most probably be flimsy and the bloom on the berries thin. It is advisable to still keep a little heat in the hot-water pipes and also to open both front and top ventilators 2 inches or 3 inches every evening, leaving this on all night and increasing it early in the morning. All the Vines should be prevented from forming much superfluous growth, the sub-laterals being kept thinned out and those reserved stopped at the first joint while yet it can be done with the finger and thumb. A mulching of manure faced over with strawy litter ought to be applied to all inside borders, and a good watering be given whenever the soil to a good depth approaches dryness. There should be no fixed times for watering inside borders, the better plan being to treat them much as pot plants are treated, that is to say, give them water directly the soil shows signs of becoming dry. Too much water in the case of some soils may be even more injurious than too little.

THINNING LATE GRAPES.—Most varieties of late Grapes set very freely, and if the thinning out is deferred till the berries are about the size of peas it may with difficulty be carried out. The first proceeding should be to considerably reduce the number of bunches, a few extra being left in case of accidents with any of the reserved bunches. Large clusters are the most attractive, but it is the medium-sized to small bunches that keep the longest, and the bulk of late Grapes may well, therefore, be rather small in bunch. The least that can be done is to at once remove all long shoulders, these not adding to the beauty of the bunches and being frequently hindrances to successful bottling. The thinning out ought to be very severe, the aim being to have the berries as large as possible without pressing against each other. It does not require a very expert thin-

ner to detect which are the best set berries, any that are well quartered with stout footstalks being the most promising, those that are round and smooth having few or no stones in them. In the case of the Alicante and other varieties with broad tapering bunches, the uppermost shoulders ought to be suspended in a horizontal position with the aid of strips of raffia, this giving the berries more room to swell, and improving the character of the bunches generally. W. I.

PYRUS SALICIFOLIA AS A PEAR STOCK.

IN those warm countries where Pears can still be cultivated it is a matter for complaint that they barely grow when grafted on the ordinary Pear stocks, that they never succeed at all when grafted on the Quince, and especially that, under any circumstances, they do not live for any length of time. Such is the universal experience of cultivators in Provence, for example, and in a still greater degree in Algeria and throughout the entire region of the Mediterranean coast. To this rule, however, we know some exceptions, one of the most notable of which is supplied at Golfe Juan by our colleague, Mons. A. Constant, who has established in his grounds at the Villa Niobé a really proper fruit garden, which is now in full bearing. His success in doing so is due to the care which he took to have the soil deeply dug and also improved by adding lime and well-prepared composts to the gneiss sand, of which it principally consisted. He also planted good trees, which he pruned and otherwise managed well, and now he annually gathers a crop of very fine Pears, to which those grown in the more northern districts of France cannot be compared for flavour. Such success as this, however, is only to be obtained by the exercise of similar care and trouble, which, perhaps, it would be too much to expect that everyone would imitate. In this same district Pear trees, as ordinarily cultivated, barely keep alive for a short time until they perish under the heat, and especially the drought of summer. It is obvious that a species of *Pyrus*, which is a native of warm regions and is proof against the heat of our southern districts, must be a valuable acquisition as a Pear stock. Such a species is *Pyrus salicifolia*, a native of the Caucasus, which is grown as an ornamental tree under the name of the Willow-leaved Pear tree. It is not very common, notwithstanding the fact that its pendent branches, clothed with leaves which are white on the under-surface, entitle it to rank amongst the best of weeping trees. It thrives admirably in the climate of France and bears small, green, top-shaped fruit (not edible), the seeds of which are fertile even in the latitude of Paris. A very fine specimen of it may be seen at the islands at the Bois de Boulogne on the slope which commands the lake opposite the landing-place of La Muette.

It was in the Agricultural School at Athens that I saw *Pyrus salicifolia* successfully used as a Pear stock. It is slow in growth, taking several years before the seedlings attain sufficient size to be used as stocks for grafting, but the grafts always take well, whether cleft-grafting or shield-grafting is the method employed. The scions grow vigorously and make fine trees, and the stock may be planted in dry, stony soils, its nature enabling it to withstand an excessive degree of aridity. The stock might be advantageously double-grafted, using scions of very vigorous-growing kinds at the first grafting, on which select varieties could afterwards be grafted to form the kinds of trees desired.—*Revue Horticole*.

Peach Dymond.—I find this variety fully comes up to all that has been said in its favour by experienced fruit-growing friends, and it is undoubtedly one of the best that can be grown either for home consumption, exhibition, or market. With me it is of moderately strong growth, a sure setter, quite young trees bearing freely, while the fruit is large and handsome, and no fault can be found with the quality. Dymond does not appear

to be very generally grown, but it ought to be given a trial in quite limited collections even, as it succeeds admirably forced or unforced and in the open. —W. IGGULDEN.

LOCAL APPLES.

THE local Apple Scotch Bridget (here figured) is a favourite midseason kind in Scotland. It has white and tender flesh, which is sweet and juicy. It is also said to be a good cropper. We think it would be interesting and useful if we could obtain particulars of other good local Apples as no doubt there are many sorts in this country that are especially well suited to certain localities and soils, and it would be very valuable to planters to know of any good free-bearing Apple suitable for the particular district wherein they might be desirous of settling down



Apple Scotch Bridget.

and planting orchards for themselves or others in after years. We therefore invite correspondents interested in the important matter of Apple culture to furnish use with notes of really good local kinds that may have come under their notice for the benefit of fruit-growers generally. If photographs are taken of any Apples they should be done in the manner here illustrated—that is, as growing on the bough of the tree, and not plucked and placed in dishes.

Strawberry La Grosse Sucree.—This variety of Strawberry has fruited very finely at Dropmore in pots this season. Mr. Herrin men-

tioned that he grew Noble last year as a pot variety, but it was of such bad quality that he was fain to reject it entirely, and had found La Grosse Sucree a very superior substitute. Its fruits as seen in one of the houses recently were large, handsome, richly coloured, and of very fair quality. —A.

ORCHIDS.

ONCIDIUM CRISPUM.

THIS pretty species is just now very popular, its shades of terra-cotta being very pleasing. I have now before me from Mr. Wm. Bolton, Warrington, a spray of a remarkably fine variety of the plant, being the same form in fact portrayed by Mr. R. Warner in "Select Orchidaceous Plants," ii., p. 26. In his letter to me Mr. Bolton says, "What is it? It is not the *O. crispum* that I have," so that perhaps he has something that is not *crispum*, but I shall see when next it comes into bloom. It is quite sixty years ago since the plant was first introduced to this country by the Messrs. Loddiges, of Hackney. *O. crispum* evidently grows with several other kinds, or in close proximity to several others, in the Organ Mountains of Brazil, but at what altitude I have never been able to gain any direct evidence. I have always found it to thrive best when grown somewhat cool, say in the cool end of the Cattleya house, and during the summer-time even the *Odontoglossum* house will be found sufficiently warm to suit all its requirements. The plant in question oftentimes is imported to this country in company with *O. Forbesi*, *O. Gardnerianum* and others, and if they do not grow in company, they evidently grow contiguously, and present much the same general appearance. The pseudo-bulbs are usually of an oblong shape, furrowed, of a bronzy-green, and with a rough surface. In some instances very large and stout-bulbed pieces are imported, but I have invariably noticed that such plants produce very poor flowers. The leaves, some two or three in number, and varying in size from 9 inches to 1 foot or more in length, are borne upon the top of the bulb. The flower-spike is stout, erect, and varies from 1 foot to 3 feet in height, in some instances being much branched and bearing as many as fifty flowers, which, however, differ much in size and colour. In the variety now before me the sepals, petals, and the lip are of a rich bronzy-brown, the only yellow being at the base of the lip and on

the back of the column and outside of the two wings, which on the interior, however, are brownish crimson. The plant thrives best upon a block of wood, and does not appear to delight in much soil about its roots. I have, however, grown it in small teak-wood baskets, well drained, with a medium quantity of peat and Sphagnum Moss. During the growing season it likes an abundant supply of water, and in winter it must be kept moist and never be allowed to get dry, for to this must be attributed our non-success in the earlier days, when it was the custom to dry all Orchids severely in winter.

W. HUGH GOWER.

Sarcochilus Fitzgeraldi.—This is a very

interesting species, with larger flowers than those of *S. Berkeleyi*. They are, however, not so numerous on the raceme; the sepals and petals are nearly equal, pure white, densely spotted at the base in concentric rows of rosy-purple, lip smaller than the sepals and petals, spotted in the same manner and with a patch of yellow at the base. This species I noted some time ago in the collection of Sir Trevor Lawrence, Burford Lodge, Dorking. The plant is said to be of Australian origin.—G.

Cattleya Mendeli Jamesiana.—Of this fine variety a fine form comes from J. Ebbage. I should advise him to take care of this plant, for it is one of the very best forms. The only thing that I observe different from the plant that was originally named is that the flower before me is deficient in size. Want of size to me, however, is no deduction from its beauty. It is about 5½ inches across, the sepals and petals being of a deep rosy lilac, the latter toothed and undulated towards the tips, the central part of the petals at the points being broadly striped with rich magenta. The throat is veined with magenta, and the whole margin prettily frilled. I am very pleased to have passed this through my hands, as I look upon it as one of the superb varieties of this magnificent and showy *Cattleya*.—W. H. G.

Odontoglossum Alexandræ.—From S. Kerslake, gardener to the Rev. E. Hanley, of the Royal Crescent, Bath, comes one of the finest formed and handsomest spike of this species which I have ever seen. The spike was a very strong one and bore seven blooms, each of which measured 4 inches in diameter. These were white on the inside, nicely undulated and frilled, and stained on the outside with rosy-purple, which colour may be seen through the sepals and petals, giving them quite an uncommon appearance; lip large, prettily frilled, white, saving the yellow disc and a large pale brown spot below the horns, and a large dark brown one on the back of the column. The plant from which the blooms were cut is evidently a strong one, and I should expect another season it will produce a spike still more worthy of comment.—W. H. G.

A new Orchid (*Grammatophyllum Seegerianum*).—This species, sold on Monday last by Messrs. Protheroe and Morris, is named in compliment to Mr. Seeger, of Dulwich, by the collector, Mr. J. D. Osmer. From the dried flowers now before me, and from some recent ones which opened upon the spikes during the journey home, I apprehend the genus *Grammatophyllum* has been added to in a remarkable manner. Mr. Osmer found it upon a kind of India-rubber tree, growing at about 250 feet above the level of the sea in one of the Dutch islands of the Molucca group. The plants at present are destitute of leaves, but they have ovate dark green bulbs from 4 inches to 5 inches long, and the scape rises to several feet in height, bearing immense flowers which are each some 3 inches across, dorsal sepal the broadest, slightly pointed, 1½ inches long, petals slightly narrower, gradually increasing upwards, all yellow, profusely spotted and blotched with dark brown; lip three-lobed, side lobes erect, mauve-coloured, streaked with dark stripes which appear to be covered with white hairs. Mr. Osmer says some of the varieties have semi-transparent or quite transparent flowers. It appears to be a very free bloomer, and it will make an excellent companion plant to *G. Measuresianum*, recently imported and shown by Mr. Sander.—W. H. GOWER.

Dendrobium Bensoniæ as a basket plant. —This is a charming plant, and one of the freest blooming Dendrobies we have. Another special point in its favour is the many varied colours the flowers assume, some of the markings being very distinct. The plant is as easily grown as the old *D. nobile*. It may be grown in a mixed house of stove plants provided it gets sufficient heat and moisture while making its growth, and is taken into a drier and cooler temperature when at rest. As a basket plant suspended from the roof it is most effective if hung so that it may be easily seen. When I write of baskets I do not mean a large wire basket, but a small pan. I find small pans

give the best results, and I prefer single plants. When grown in a suitable moist atmosphere this *Dendrobe* gives little trouble in the way of insects, and I prefer pans to blocks, as they are more readily managed and the flowers last longer, I think. This is a capital Orchid for suspending on account of its long-lasting properties when in bloom. The flowers are also useful for button-holes, as they are of good substance and nice size. When at rest I do not advise so low a temperature as given some of the Dendrobies, as if kept too cold the plants suffer. I have kept the plants at the coolest part of the house or stove and dry at the roots, and got equally as good results as when removed to a somewhat lower temperature.—G. WYTHES.

CYPRIPEDIUM CONCOLOR AND ITS ALLIES.

THE little group of *Cypripediums*, composed of *C. concolor*, *niveum*, *Godefroyæ* and *bellatulum* with their several varieties, may justly be described as containing the gems of this extensive genus. Remarkably distinct from any other section of *Cypripedium* both in habit and structure, their beauty is also of a different type. The greens and dull purples so common in a greater or less degree with the majority of *Cypripediums* are here altogether absent, and undeniably handsome and striking as many of the latter are, they possess none of the delicate beauty which renders this little group so attractive. They are also the dwarfiest of *Cypripediums*, the plants themselves being only 2 inches or 3 inches high, whilst the scapes of all except *C. niveum*—which is the tallest—are under 4 inches in height; in *C. niveum* they are frequently 6 inches and 7 inches high. Besides these differences in colour and size, there is also a noteworthy distinction in the shape of the petals. In nearly all *Cypripediums* the petals are comparatively long and narrow; in this little group, however, they are broader and more rounded, although in some forms of *C. concolor* this character is not so prominent as in its allies.

Taking the species in the order of their introduction to Europe, we have first *C. concolor*, which was discovered as long ago as 1859 by the Rev. C. Parish, who found it in the neighbourhood of Moulmein. Like numerous other species of *Cypripedium*, it grows in hollows and crevices of rocks where decayed vegetable matter has gathered, but it shows a remarkable preference for those of limestone formation. It was not until five years after its discovery by Mr. Parish that it was first seen in English collections, having been imported by Messrs. Low, of Clapton, in 1864. Its leaves are from 3 inches to 5 inches long, oval-oblong, and of a deep green, prettily marbled with green of a lighter shade. The flowers are produced singly or in pairs on the scape and measure 2½ inches in diameter. In the original form the upper sepal and the petals are nearly similar in shape, both being oval and slightly concave; the lip is small and narrow, but proportionately deep; the whole flower is of a creamy yellow, numerous sprinkled with dots of cinnamon-red. Of the varieties that have since appeared, the one named *Regnieri* is the most valuable. It was discovered by M. Regnier in Cambodia and introduced to France in 1885. Compared with the type it has slightly larger leaves and the scapes bear from three to five flowers, which are of a deeper yellow and have the petals broader and more rounded than in the type. Whilst var. *Regnieri* occurs in a locality far to the south of Moulmein, and thus widely remote from the home of the original type, another variety is found as far to the north. It was discovered in Tonquin by a French missionary and takes its

name (*tonquinense*) from that district. Its distinctions consist in the leaves being broader, in the broader and more rounded sepals and petals, and in the dots with which they are marked being more clustered towards the base. Another variety introduced by Mr. Sander and called *chlorophyllum* is distinguished by its much paler leaves and by the dots being arranged in a line along the centre of the sepals and petals.

Following next was *C. niveum*, which first flowered in Messrs. Veitch's nursery in 1869, and which may be regarded as the daintiest and most charming of all *Cypripediums*. The original plants were gathered on the Lancavi Islands, which are situated some distance to the north of Penang. The species has since been found on the Tambilan Islands, which lie considerably to the south and nearer Borneo. When out of flower, *C. niveum* may usually be distinguished from *concolor* by the leaves being narrower and darker in shade, and by the marbling being less distinct; this character, however, is not always constant. The scape is erect and one or two-flowered, each flower from 2 inches to 2½ inches across. They are almost entirely white, the only colouring consisting in a number of tiny purple dots on the upper sepal and petals, these being generally most numerous near the base. The lip is short and rounded and the mouth contracted. In the plants found on the Tambilan Islands the petals are longer and narrower than in those from the more northern habitat. I have noticed some fine examples of this form in Mr. Bull's nursery at Chelsea. Like *C. concolor*, this species in its natural state prefers to grow on limestone rock, generally, it is said, on the western slopes of the hills and not greatly exposed to the sun.

Coming between *C. concolor* and *niveum*, both in regard to relationship and geographical position, is *C. Godefroyæ*. It is found on the islands near Siam, and always on limestone cliffs with a western exposure. The plant is similar in habit to *C. niveum*, the scapes being 2 inches to 4 inches high, and usually, but not invariably, one-flowered. The flowers are 2 inches to 2½ inches in diameter, and are of a creamy-white, or sometimes almost white, spotted with magenta-purple. Both in its foliage and in the size and marking of its flowers it is very variable, a character common to all the members of this group. The lip is somewhat cylindrical in shape, the spots on it being minute. The first plants appeared in England in 1883, having been sent to Kew by Mr. Alabaster, superintendent of the gardens at Bangkok. At the same time plants were sent to M. Godefroy, of Argenteuil, near Paris, who had previously seen the species at Singapore in 1876. It was very expensive for some time after its first introduction; it is now, however, to be obtained as cheaply as the others.

The latest addition to the group was made in 1888, when, through the agency of Messrs. Low and Co., *C. bellatulum* was introduced. Although it cannot be said to have the charm of *C. niveum* or *Godefroyæ*, it is by far the most striking and remarkable in this section. It is also larger and stouter in habit than any of the preceding, the leaves occasionally measuring upwards of a foot in length and over 3 inches in width; in colour and marking they do not differ from them. The scapes are 3 inches high and bear a single flower, which is 3 inches in diameter. The ground colour is pale yellow or ivory white, spotted with black-purple, these spots being much larger and more conspicuous than in any of its allies. In nearly

every character, however, the plant is subject to some variation. In some forms the spots are considerably smaller than in others; the ground colour, too, is occasionally tinged with purple. Its precise native locality has not been given, but it is surmised to have been introduced from the islands off Cochin China.

Although this little group of *Cypripediums* presents no special difficulty in regard to cultivation, they cannot be said to be so easily grown as the majority of *Cypripediums* are. In winter, more especially in the neighbourhood of London and other large cities where fogs are prevalent, they show a disposition to decay in the centre of the growth and at the base of the leaves. The greatest care is, therefore, needed in watering. Water should not be allowed to remain in the growing points, and whilst they are always kept fairly moist, they may be kept somewhat drier in winter than most *Cypripediums*. I have noticed, however, that in the country, where the air is purer and the light more continuous, such precautions do not seem to be so necessary, and more moist conditions may be supplied. With regard to temperature, it should be remembered that the majority of these plants are found on the moist islands of the Malay Archipelago growing practically at sea level, and they may be said to require as tropical conditions as any of our cultivated Orchids. We have always found them most satisfactory when grown in a low pit devoted primarily to *Phalænopsids*. The compost in which they are usually grown consists of fibrous peat and *Sphagnum*; experience has shown that the preference these plants display in a state of nature for limestone, they undoubtedly retain when under cultivation. The drainage should, therefore, consist of this material, and a few small pieces may be mixed with the compost. Where sufficient plants are available, the best display is made by growing several in a broad, shallow pan. *C. niveum*, with its taller scapes, is especially effective grown in this manner. W. J. B.

SHORT NOTES.—ORCHIDS.

Aerides Fieldingi (Brough).—Your flowers appear to be of this species, but you do not say anything about the habit of the plant. Is it robust, with a somewhat dark coloured stem and broad leaves? You say the spike is 2 feet long and the raceme has about ninety flowers, so that it should have a telling effect.—W. H. G.

Odontoglossum Alexandræ Warneri.—A fine spray of this new old variety comes to me from "J. J." It is quite distinct from the one sent by Mr. Kerslake; both are deservedly welcome. The flowers of this are also white in the inside, flushed with rosy-mauve on the outside, which colour shows through, the petals in addition being spotted with cinnamon.—W. H. G.

Oncidium Cræsus (J. Fitch).—This is your plant, and a very good variety. The flowers measure quite an inch and a half across; the lip is rich golden yellow, the crest very prominent and rich deep velvety black. It is a dwarf-growing species from the Organ Mountains, in Brazil, and should be planted in a small, shallow, well-drained basket and kept in the cool house, where it should have a moderate amount of water through the winter months.—H. G.

Vanda teres (Young Gardener).—You cannot fail to grow this species, and may either pot or basket the recently imported plants without any fear. Syringe the plants frequently and maintain a moist atmosphere and warm temperature. The group of these plants recently staged at the Temple show from Gunnersbury was truly remarkable, and ought to encourage anyone to have the species. My opinion of the plant is, however, in favour of propagation from the free-flowering varieties, as I contend there are free and shy bloomers.—W. H. G.

Cattleya Mossiæ.—I am in receipt of a consignment of these flowers from Mr. Taylor, the gardener at Hardwick Grange, near Shrewsbury, asking

my opinion and if any of the forms are worthy of a name. No. 1 is a very rich and bright-coloured variety; No. 5 is also a good variety with a very handsome shaped lip; the others are fairly good forms of *Mossiæ*.—G.

Masdevallia Goweræ.—From Messrs. Seeger and Tropp comes a beautiful flower of the Harryana section. It is a well-formed bloom, measuring about 2½ inches across, with short points turned inwards; the sepals thick and fleshy in texture, the colour intense deep magenta-crimson shaded with violet, and a large rich yellow eye and tube. A very pleasing and attractive flower.—W.

Saccolabium curvifolium luteum (J. Pusey).—This is the name of the flower sent, and a very fine thing it is. When I was with the late Messrs. Rollison and Sons, of Tooting, three plants of this variety cropped up from an importation from Burmah. The flowers, instead of being deep cinnabar-red, were, as in the one sent, a clear bright yellow. It is a valuable variety and well deserving any attention. Now is the right flowering season.—W.

Odontoglossum crispum chrysocentrum.—A very nice bloom of this species comes to me from Mr. Cowley, gardener to Mr. F. G. Tautz, Ealing. It is a round flower, thick and fleshy in texture, the petals being nicely fringed, and the whole flower of the purest white on the inside, with a conspicuous stain of rich golden-yellow on the disc. On the outside the petals have a streak of rosy-purple, which is invisible on the face. I should imagine the flower would come much larger as the plant gathers strength.—G.

Odontoglossum Vuylstekeanum.—Mr. W. Johnson sends me a flower of this Reichenbachian species to name, saying it flowered with him from amongst a lot of *O. luteo-purpureum*. It appears to me to be a variety of that species, and its flowers have no difference but colour to distinguish them; the sepals and petals are of two shades of yellow. In the flower now before me the dorsal sepal is deep nankeen-yellow, tipped with pale yellow; the lateral sepals similar in colour, but undulated at the edges; the petals pale yellow blotched with nankeen, much toothed. It is a very handsome plant, and one that will contrast well with the ordinary rich brown forms. As a variety I think this is one of the most distinct.—W. H. G.

The green-winged Orchis (*O. Morio*).—This is now at its best in the higher meadows where the soil is deep, rich, heavy and moist, but not flooded in winter. It is probably the most varied of all British Orchids, and the many forms are as lovely as they are numerous. The type with its purplish green-veined flowers occurs among kinds of every shade of purple, rose, lilac and pink. In a large field I only found two white-flowered forms, but these were very pure and pretty. The rose and pink kinds are numerous and charming in colour, whilst blue would seem to be almost capable of development, as it is occasionally found of a light shade in some varieties.—A. H.

Sarcocylus Berkeleyi.—This rare and pretty plant, now flowering in the collection of Mr. F. Wigan, Clare Lawn, East Sheen, was staged at the Temple show of the Royal Horticultural Society. That was the first time I had seen it. The plant cannot claim rank to any great beauty. It has distichous obtuse leaves, which are fleshy and deep green. The scape is many-flowered, the blooms each measuring more than 1 inch across, and of a creamy white. This plant was found by the gentleman whose name it bears in the Malay Archipelago. It is a slender-growing plant, thriving best in a small basket, which should be well drained. The plant should be hung up against the roof-glass, but shaded from the direct rays of the sun. A moist atmosphere should always be maintained throughout the season.—W. H. G.

The Marsh Orchis.—This is now glorious and in the height of its season, but I never before saw so many in forms so varied and fine till recently when I strolled through half-a-dozen fertile meadows which are often flooded in winter, but grow great crops of Grass in summer. The commoner species of British Orchids are all the most variable, and some of these vari-coloured varieties are extremely lovely, especially one that I gathered with flowers of a deep rose colour, bright and most effective. If anyone had a suitable spot in the garden where this Orchid would grow well, he might get a beautiful collection together just by going into the fields and selecting the most distinct kinds. The practice cannot be too strongly con-

demned, however, of digging up from moist meadows the best varieties and transplanting them to dusty rockeries or dry borders where they soon disappear. It is far better to let them remain and admire them in the meadows, but even this is a privilege that few are permitted to enjoy when, as in the case of the meadows I visited, the farmer is preserving the Grass for hay, and does not want it trampled down. Fortunately, in such places our choice wild flowers are in no danger of extermination, and the many seedlings as well as flowering plants proved that they will not die out of their own accord.—A. H.

STOVE AND GREENHOUSE.

APHELEXIS.

THE merits of *Aphellexis* are such as to entitle them to a first place either for the ordinary decoration of the greenhouse and conservatory or for exhibition. The profuse habit of blooming natural to them, with their telling colours and distinct character, is such as to make them more attractive than the generality of greenhouse subjects. One of the properties the flowers possess renders them especially worthy of the consideration of exhibitors who have to convey their collections long distances, that is, their hard texture, which is such as to prevent their being injured by rubbing and chafing in the way that occurs with many things unless great precaution is taken to secure each flower in a way that will keep it from coming in contact with the others during the ceaseless shaking that takes place through the movement of the vehicle in which they are conveyed. The long endurance of the flowers, lasting, as they do, in presentable condition for six or eight weeks, is likewise in their favour.

The plants begin to bloom when quite small, ordinary trade size of stock in 5-inch or 6-inch pots producing flowers proportionate to their size almost as freely as when the specimens get larger and older. With fair treatment *Aphellexis* are much less liable to die off or get out of condition than the majority of hard-wooded kinds. In common with most species indigenous to the Cape, they will not bear over-watering at any time of the year, but more especially during the late autumn and winter months when the roots are dormant and the top-growth is so little as to scarcely be perceptible. The hard texture of the leaves, added to their small size, exposes very little surface to the action of the air; consequently in the winter the soil dries very slowly. Hence the roots need water seldom more than most things. They strike easily from cuttings put in when the wood is about half matured in August. All they require is keeping close under propagating glasses with the sand in which they are inserted kept moderately moist. The temperature should be a little higher through the autumn and winter than that of an ordinary greenhouse. So treated they will be found to be well rooted in spring, at which time they should be put singly into small pots. Good brown peat that contains plenty of the fibrous roots of the common Brake Fern is the only material that is really suitable for *Aphellexis*. Enough sand must be added to keep the whole sweet and porous. These brief remarks on propagation may help those who feel inclined to raise their own stock, but in most cases it is better to go to a nursery where young hard-wooded plants are well managed, as thereby time is saved, and young plants that have been duly attended to by stopping at the right time are likely to be secured. This is a matter of importance, for unless the single shoots of which the little plants are composed are stopped before they

have extended more than 3 inches or 4 inches, the specimens will be insufficiently furnished to make them bushy right down to the base. When once a fair amount of shoots is thus obtained little more in the way of stopping is afterwards required, as when the plants are strong and vigorous they branch out of their own accord annually, and in addition young growths are continually produced from about the point where the first stopping was effected. Early in spring is the best time to repot *Apelexis*, particularly whilst the plants are young. When the work is done before the weather gets hot and the air dry, a longer time intervenes between the potting and its becoming necessary to give water, a matter of importance in the cultivation of all the best kinds of hard-wooded greenhouse stock. With a like object the potting should always be carried out a day or two after the plants have been watered, just allowing enough time after the water is given to let the superfluous moisture pass away. This

should be taken of standing the plants in a house or pit where no side air is admitted for two or three weeks, giving a thin shade if the weather is exceptionally bright; otherwise, it is not necessary, as the small, hard scale-like leaves lose comparatively little by evaporation even in summer. As soon as they are potted the strongest shoots should be tied well out to small sticks inserted just within the rims of the pots in the new soil. When this is done immediately after potting before the roots have time to extend into the new material injury to the tender fibres will obviously be avoided; and at a future time when new sticks become necessary care is taken to put them in the holes that have been occupied by the old ones, the mischief that often occurs in this way will not be done. This is a matter that cannot be too strongly urged, particularly in the case of plants that are intended for exhibition, and which necessarily need more sticks than those that are wanted only for ordinary decorative use. There is no doubt that

have five or six weeks out of doors, say from the middle of August until towards the end of September, as when the specimens have become dense and bushy the young shoots which vigorous examples keep pushing up from about the collar get better matured by this means. Moderate shifts should be given each spring until the plants get something like from 2 feet 6 inches to 3 feet through. After they have attained this size they may go for two or three years without additional root-room. It is necessary for the cultivator to use discretion in this matter. The freer and more vigorous the growth which the plants make, the more quickly they exhaust the soil, and they must not be allowed to starve for want of the requisite sustenance.

The nature of the flowers of *Apelexis* is such that they are classed amongst the Ever-lasting, from the fact that they retain much of their colour and general appearance through a considerable portion of the summer, not shrivelling up and falling off in the way that occurs with most things. By reason of this, growers are frequently tempted to allow the flowers to remain on the plants too long, by which they suffer through exhaustion to an extent that interferes with the season's growth that should bloom the year following. This being the case, the flowers should be removed within a reasonable time after they have opened. In removing them, the shoot to which they are attached should be cut away at the bottom where it springs from the branch that has produced it, as the flowering shoots, though in appearance they are just like the ordinary growth and will retain their vitality for years, rarely break, and their presence when allowed to remain tends to crowd the plants for no purpose.

As already said, *Apelexis* are much less likely to get out of condition than many kinds of hard-wooded greenhouse species. With careful treatment on the lines here given, the plants will go on for a dozen or fifteen years, producing annually flowers as large and as numerous as when the specimens are younger. The varieties of *Apelexis* are not so numerous as those of many things. There are about three that are sufficiently distinct to especially deserve a place in every greenhouse. *A. macrantha purpurea* is the deepest coloured sort and one of the best. It is a good grower, and sooner attains specimen size than the others. *A. macrantha rosea* is a long way in advance both in the size and the brilliancy of the colour of its flowers of several others that bear the same name and are often passed off for it. The flowers are bright pink in colour with a large yellow disc. When the plants are in full vigour the flowers of this sort are 2½ inches in diameter. Its growth is considerably shorter than that of *A. macrantha purpurea*. *A. rupestris grandiflora* is a desirable sort that may with advantage be added to those already named. T. B.



A well-grown Persian Cyclamen.

is a course that it is advisable to follow alike when the specimens get large as when they are small. Large shifts are not necessary and are better not given, for though the plants when in good condition produce roots freely, the extension of the fibres is much slower than that of more vigorous subjects.

In preparing the soil for potting it should be broken by hand into bits about the size of Walnuts; sand to the extent of one part to six or seven parts of peat is about the right proportion to use. In potting make the new soil quite solid, so that the water given afterwards will not pass off through it too readily. The pots must be well and carefully drained, as anything approaching stagnant moisture in the soil would quickly be fatal to the plants. For stock in 6-inch pots a shift into others 2 inches larger is enough, unless in the case of any that are unusually vigorous. After potting the usual precaution

quantities of plants are killed or injured beyond recovery through the cause in question, though they may be months before the full effect of the injury is apparent. During the spring and summer months *Apelexis* are benefited by moderate syringings overhead daily. They should have a good light house or pit, and be kept not too far from the roof, for although the character of their growth is such that the shoots are much less liable to draw than those of many things, when the growth is made under conditions of full light, the wood and leaves are solidified as they are formed. This process can more effectually be secured gradually in this manner than by anything that can be done for the plants afterwards. It is not necessary to expose young *Apelexis* out in the open air in the way that is practised with young stock of many things in the latter part of summer; but when the plants get large it is well to let them

Metrosideros floribunda.—Several Australian plants belonging to the Myrtle family are remarkable for the peculiar arrangement of their inflorescence, the most conspicuous feature of which is the long bright red stamens, which are disposed thickly around the shoots in a cylindrical manner, after the fashion of a bottle brush, hence their popular name of Bottle-brush plants. The above-mentioned *Metrosideros* flowers freely in a smaller state than many of them, and as it is among the brightest coloured, it is by no means overlooked by those who make a speciality of hard-wooded plants. There is a form of this known as *M. floribunda alba*, whose blossoms are whitish, but it is not nearly so ornamental as the bright-coloured type. Several of these Bottle-brushes are very handsome plants for the greenhouse or conservatory, as in addition to

their other desirable qualities they do not require any particular treatment, and are seldom troubled by insect pests of any kind. Seeds of several of these plants are sometimes to be obtained, and when such is the case, a ready means of increasing them is afforded; though where required for flowering in a small state, plants raised from cuttings are much preferable to seedlings, as they will bloom when quite young.—H. P.

PERSIAN CYCLAMENS.

THE old plan of cultivating these was to grow on old plants year after year and to dry them off during the summer in the same way as Gloxinias, the result being poor examples with very few flowers on them. Contrast this system with that now in vogue, which is to sow the seed as soon as ripe, and to grow on the plants in light airy houses or pits in a genial temperature. In this way fresh healthy plants bearing a good head of bloom (as in the illustration) can be had in fifteen months from the time of sowing. The seed, which generally ripens in July and August, should be sown as soon as possible afterwards in a light fibrous soil, with a little leaf mould and sharp sand. When the seedlings are strong enough, ten or twelve should be pricked off into a 4½-inch pot, and when large enough shifted singly into 3-inch pots, shifting again when these are full of roots. For the last potting stiffer soil is necessary. Attention must be given that the plants while growing are kept quite clean, as if insects are allowed any quarter, the beauty of the plant will be spoiled. Cyclamens, even when not in flower, are ornamental, the markings on the leaves being very beautiful. They are at their best during February and March, as then the flowers have their true colour and the foliage is firm and good. They should have no sticks or ties of any kind. The bulbs should be carefully watered and well ripened after blooming, as the next season's display depends very much on this. The plants should not be repotted until they break into growth, and then they should be put into smaller pots, shifting on as may be necessary. W.

Salvias.—For large conservatories, in their season, Salvias are most valuable. Young plants struck this spring must not be starved. As they grow, a few pinchings will be needful to keep them in fairly good shape and to regulate the growth. I have found that nearly all loam, and that not of the lightest, will grow these plants well. In richer soil too vigorous a growth is made, which is not eventually so free flowering. Full exposure to the light and air is needful to obtain short-jointed growth. Over-potting should be guarded against, particularly so in the case of the autumn and early winter kinds. The spring varieties will require pots a trifle larger; of these nothing surpasses the fine old Gesnera-like Salvia (*Salvia gesnerifolia*).—I.

Cinerarias.—Now is a very good time to sow Cineraria seed for obtaining plants of useful decorative size. I am fully aware some growers sow earlier, grow their stock on rather freely, and in the end they have plants with large succulent leaves for their extra pains. Plants grown in this manner frequently lose the best of their foliage before the winter season is got through, thus presenting an ungainly appearance when in flower. When sowing at this time is practised, there is a long enough period wherein to obtain plants of good size before the winter sets in. These should not receive any check from the time the seed germinates until active growth is almost over in the late autumn. I am no advocate for growing Cinerarias upon the north side of a high wall, the result of which is soft flabby leaves and long footstalks. It is better to shade a little during the heat of the day than to do this and then air freely as well on all occasions. The lights may be withdrawn as soon as the sun leaves the plants and left off all night in fa-

vourable weather. The mistake of using large pots should be avoided; it only tends to excite too rank a growth. Rich soil will also be conducive to the same end. Good loam is the staple product for the Cineraria. In sowing the seed, quick germination is the point to aim at. The soil should be worked down to a fine surface and then well moistened by means of a fine rose. After a little while the seed may be sown and very lightly covered with sandy soil. Then cover the pot or pan with a pane of glass to prevent evaporation, and place in a cool frame where shaded from the direct rays of the sun. In a few days the young plants will be seen; then gradually inure to light and air. At this juncture the depredations of slugs must be carefully guarded against. The safest and best way to do this is to stand the pan upon a pot which itself stands in another pan, this latter being surrounded with water. The plants will thus be quite safe. As soon as large enough to handle, the young plants ought to be pricked off carefully. This work must be repeated when they begin to touch each other. It pays to attend to this work in time, as it all tends to keep the plants dwarf and stocky. Thus grown, there is less susceptibility to attacks of green-fly.—H.

APHELEXIS MACRANTHA ROSEA.

"PLANTSMAN" (p. 539) writes about the best variety of *Aphelexis macrantha rosea*. This is not only the best of all the *Aphelexis*, but it is also one of the finest hard-wooded plants ever brought into cultivation, yet, with the neglect that gardeners now show for hard-wooded greenhouse plants, it is more than likely that this beautiful species will be lost to cultivation. I do not suppose that there are more than two or three nurseries, if so many, in the country where it can be met with, and the same may be said in reference to its absence from private gardens. The plant is of compact habit, making considerably shorter growth than any of the forms of *A. macrantha purpurea*. In common with most of the other *Aphelexis*, it is a free bloomer. The merits of the flowers lie in their beautiful bright colour and large size; I have had them over 2½ inches in diameter. But might I ask "Plantsman" why "Brucei" is attached to the name? What reason is there for giving it this varietal name? So far as I am aware, there is no more reason for describing it as "var. Brucei" than there was for calling it Chilman's var. or Baines' var., both of which have been tacked to it in catalogues. I hold that there cannot be a greater mistake than a jumble of names of this kind for any plant. It tends to nothing but confusion.

The origin of the variety in question, so far as I can make out, is this: Between thirty and forty years back there were a few plants of it in Messrs. Rollison's nursery at Tooting—three at least. Mr. B. Peed, the well-known exhibitor, then with Mr. Tredwell, obtained one of them, and grew and showed it at the metropolitan exhibitions. Mr. Chilman also had one. When he gave up exhibiting he sold his plants to a London nurseryman, from whom I had two or three, including the *Aphelexis*, taking them in exchange for duplicates of other things which I could spare. The plant was unusually strong and vigorous, but I had bad luck with it, as it was virtually dead when I received it. The summer previous it had pushed a quantity of young shoots all about the collar; these were all taken off for stock previous to its coming to me, and in slipping them off almost all the bark about the base of the stem was removed, and this was evidently the cause of its death. To give some idea of the estimation the plant was held in, I may say that I afterwards bought three small examples from the nurseryman I had the original from for 3s. 6d. each, just three years before the collection at Southgate House was dispersed, and in the sale the three plants fetched over £8 each, two out of the three being bought by nurserymen to raise stock from. I gave cuttings of this variety to Mr. Fancourt, when he was foreman to Mr. Cutbush, of Barnet; whether it is there or not now I cannot say. The third plant from the Tooting Nursery

likewise came to an untimely end. It went to a place in the north of England where there was then a noted collection of hard-wooded and other plants. The gardener instructed his foreman to tie it; he did so, putting in a good many more sticks than there was any need for. When the work was completed the gardener did not like the shape, and he gave directions to the man to re-tie it; this he did, thrusting in the sticks afresh, doubtless destroying as many roots as the number that escaped. This killed it. I well remember the gardener pulling some of the sticks from the dead plant to show me the length that they had been pushed into the soil. This is some thirty-five years ago, and all those connected with the plant have joined the majority, or I should not have mentioned the circumstance, which I do with the object of showing, as I have often tried to do before, the great amount of injury that is done in this way to plants by the mutilation of their roots with the sticks that are thrust into the soil. Yet there is no need for any injury by this means, no matter how many sticks are used, provided care is taken to confine the new stakes to the holes in which the old ones have been, and as the plants increase in size, putting the additional stakes required immediately after potting into the new soil before the roots get possession of it. T. B.

Sweet-scented plants.—A batch of these will be found useful from now onwards through the summer months for either the greenhouse or conservatory. The common Musk is not to be despised, but for pots Harrison's is better. Another good companion is the Lemon Plant. *Heliotropes* and Scented Geraniums are at all times of service; so are a few good pots of Mignonette. *Bouvardia Humboldtii corymbiflora* is, I consider, of more use from now onwards to the autumn than later in the season. With the exception of the two latter plants, a shift into a larger pot would assist some, no doubt. They could very soon afterwards be used if necessary. Another good plant for pots is *Nicotiana affinis*, of which a few plants should be grown. It does not, as we know, make any display during the day, but in the evening its perfume is distinct, and in most cases welcome also. Until it is in flower the plants should be kept in the open air.

Annuals for summer flowering.—Of these there are many which will now be serviceable. The chief thing now to observe is a plentiful supply of water. Further potting will hardly be required, unless it is in the case of late plants of Balsams. If the stock of such as *Petunias* and *Lobelias* is short and there are any left over from the bedding-out supply, these could with advantage be potted up for later use. Where Cockscombs are forward they should be gradually hardened off; then they also may be kept in a cool house with careful watering. *Phlox Drummondii* is useful in pots for massing. Individually each plant does not present a very favourable appearance. Some Asters in pots will be found useful in their season; it is better to pot these up in good time—soon, in fact. Then before coming into flower the pots will be well filled with roots. When potted I prefer to plunge the pots in the open ground, paying attention to the watering. Three plants of a dwarf growing kind are sufficient for a 6-inch pot, but the stronger growers require a size larger. Fairly good soil should be given them.

Senecio lanata.—A coloured plate in THE GARDEN, Vol. XXXVIII. (p. 252), has already, under the name of *Cineraria aurita*, brought the merit of this composite prominently into notice. It is undoubtedly one of the prettiest of greenhouse plants in flower at this season, and is, moreover, quite distinct from any other in general use; as such it deserves to be widely grown. Several plants are now in flower at Kew both in the conservatory and in the large temperate house. They are from 2 feet to 3 feet high, and are of compact, pyramidal shape. The leaves are cordate and five or seven-lobed, with an unevenly cut margin; they are 3 inches to 5 inches across, and deep green above with a white pubescence underneath. The flower-heads occur in flat loose trusses from 4 inches to a foot across, according to the strength

of the shoots on which they are borne. The ray petals are chiefly white, the tips alone being bright purple; the disc is also of a purplish shade, this combination of white and purple giving a most charming effect. Each flower-head is $1\frac{1}{2}$ inches across. Another recommendation is the pleasant fragrance of its flowers. It is a plant of the simplest culture. Cuttings should be taken in May before the plants commence to flower, selecting the points of the younger non-flowering shoots which are then pushing from the base. These should be put singly into $2\frac{1}{2}$ -inch pots and placed in a propagating frame until rooted, afterwards growing them on in rich loamy soil until they are in 6-inch or 7-inch pots. During the winter they almost cease growing, but in spring it may be necessary to give them a final shift into 10-inch pots. When full of roots they may be freely supplied with manure water. The plant may be pinched once or twice to induce a more spreading habit, but even when let alone they assume a handsome pyramid form. It is a native of the Canary Islands.

Marguerites. These when free from the troublesome maggot, which so often infests them, will make a good display. To grow them well they must be treated generously. If attacked with the maggot, a severe pinching off of all the infested foliage will give it a check and not do the plants much harm. Young plants, or small ones which are starved, if potted on now will make useful flowering stuff by September. A large shift is not needed, merely sufficient for fresh root action to induce a fairly good growth. All flowers now for some time should be pinched off. To save labour in watering it will be as well to plunge the plants in the open.

FLOWERS FOR THE DECORATION OF FIRE-GRATES AND CHIMNEY-PLACES.

WHEN there is such a wealth of flowers from which one make a choice for this kind of decoration at this season of the year, there is no reason whatever why plants should be so much employed, and that greatly to their injury. Of late there has been an abundance of Rhododendrons, Azaleas, Lilacs, Horse Chestnuts, Pyrus, Prunus and Wistaria with other things, all of which can be most effectively arranged when good taste is displayed. Now we have the double Thorns, Laburnums, Guelder Rose and Weigelas, all of which are equally useful. As additional foliage accompaniments, there are the Beeches (purple and green), Prunus Pissardi, the variegated Negundo, and the beautiful forms of the Japanese Maples. To these may be added the wild Grasses and Sorrel, now in good condition, with Buttercups also. Of the Ferns, the larger-growing Lastreas and Polypodiums will afford excellent material for backing. Many of the bulbous plants do not require any additional foliage other than their own. The German Iris, for instance, just now in full beauty can be most tastefully arranged with their own leaves or those of a commoner kind, such as the yellow water Iris. The Solomon's Seal now just over is another suitable thing in this section. The larger-growing Pæonies may even be used most effectively, but the smaller flowers would possibly last longer. The grand flowers of the large kinds of Poppies, as *P. orientale*, are splendid for this kind of decoration, whilst the Delphiniums which are just beginning to open are equally useful. What is chiefly wanted in this kind of ornamentation is bold flowers or trusses and decided colours with not too much mixing of kinds; two colours of one species are enough or one each of distinct ones; more is rarely needed. It is better to use a little more of each kind than add to the variety too much. As to style of arrangement, there is room for variety; it may be spreading or conical, but will on most occasions be the better displayed if arranged to a face. I have recently taken note of some very tasteful arrangements made up of common flowers and foliage which a young lady has done after her own ideas. Among other things used were the wild Parsley, the Snapdragon, the Oat Grass, and other wild flowers. One very effective piece was composed of yellow Laburnums and pink May. When seeing these arrangements, the thought struck me how much better this was than filling up the spaces with either artificial

flowers or the overdrawn paintings of such which are so frequently seen. Even from a sanitary point of view it must be better than preventing the circulation of air to a certain extent when screens are used. As to receptacles, almost anything will do that holds a good amount of water. For instance, the jars which have contained preserved ginger are very useful, and not in any sense unsightly if perchance they are seen. I think there is room for a far more extended use of flowers in this manner than is at the present taken advantage of. H.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 23.

THE fortnightly meeting on the above date was without doubt one of the most interesting ever held in the building under the auspices of the society. Had the room at disposal been half as much more, the effect would have been considerably enhanced and the several exhibits seen to far greater advantage. The chief feature on this occasion was the excellent display of Tea Roses both by nurserymen and amateur growers. Hardy shrubs from Messrs. Veitch and Sons consisted of either new or choice kinds, whilst a splendid show in itself was made by Messrs. Kelway and Son, whose exhibits occupied the entire length of the hall on one side.

Orchid Committee.

First-class certificates were given to—

DENDROBIUM PHALÆNOPSIS STATTERIANUM, previously alluded to and shown also last week at Regent's Park. Messrs. B. S. Williams and Son.

LÆLIA GOTTOIANA.—This is presumably a natural hybrid, having the colours somewhat after *Cattleya lobata* with the size and form of *Lælia purpurata*; it is a distinct and beautiful variety. Mr. Gotto, Hampstead Heath.

ODONTOGLOSSUM CRISPUM GUTTATUM (Burford var.).—This is a valuable addition to an already numerous class, being one of the most distinct forms; it is heavily blotched with pale chocolate upon a light ground. Sir T. Lawrence, Bart., M.P.

LÆLIA GRANDIS (Tring Park var.).—Other plants of this distinct *Lælia* were shown, but this was decidedly the best form, with larger flowers of richer colour than the type, and the lip of extra size. Lord Rothschild.

Awards of merit were given to—

LACENA BICOLOR.—This is interesting as a distinct novelty; it has a long spike of rather small flowers, the lip dark chocolate, the sepals and petals a dull white. Messrs. Sander and Co.

ODONTOGLOSSUM LUTEO-PURPUREUM ILLUSTRE.—Also from Messrs. Sander. This is a superior variety with deeper coloured flowers than the type. The plant shown was not a strong one; it ought, therefore, to be seen in better condition.

A botanical certificate was most deservedly awarded to *Cynoches chlorochilum*, the plant shown being a most vigorous one with two spikes bearing about a dozen flowers; the colour is a pale olive-green; the flowers possess great substance. From Sir Trevor Lawrence.

Messrs. Williams and Son showed fine forms of *Cattleya Mendeli* and *C. Warneri*; *Cypripedium superbiens*, a fine plant with thirteen good blooms, and *C. superciliosa*; *Thunia Bensoniæ*, *Vanda suavis*, with a dark lip (silver medal).

Messrs. Sander contributed *Phajus Humbloti*, *Odontoglossum mulus*, *Epidendrum alatum*, *Cattleya Aclandiae*, now seldom seen, and other good things. From Mr. Gott came *Lælia grandis* and a better form called *superba*, but both were inferior to the Tring Park variety. Other Orchids were sent by Sir Trevor Lawrence, and consisted of *Masdevallia Davisii*, a rich yellow variety, the plant in profuse bloom bearing about forty flowers; *Odontoglossum crispum platyglossum*, an extra strong plant bearing two spikes with about two dozen flowers, and *O. crispum Purple Emperor*, an excellent variety

with distinct purple shading, having few spots. Messrs. Veitch again showed a good example of their new hybrid *Disa Veitchi* and *Cypripedium Astræa* (*C. philippinense* × *C. Spicerianum*); this partakes somewhat of the latter parent, but traces of the other are distinctly apparent. From Mr. Charles Winn, Selly Hall, Birmingham, was sent *Thunia Winniana*, a richly coloured form of *T. Bensoniæ*. A few Orchids were sent from Messrs. Seeger and Tropp's nursery, consisting of several varieties of *Masdevallias*, &c.

Floral Committee.

First-class certificates were awarded to the following:—

IRIS GATESI.—This is a superb and noble-looking Iris of the *susiana* type, the flowers shown being even larger; the colour throughout is very pale suffused with faint spots and slender veins of a darker shade. The colours are most difficult to describe, the flowers requiring to be seen to be appreciated. Messrs. Veitch and Sons and C. G. Van Tubergen.

WEIGELA HORTENSIS NIVEA.—This is the finest white variety yet seen, very pure in colour and free flowering, the habit robust, the growth dense and compact. This is a decided acquisition to hardy flowering shrubs. Messrs. Veitch and Sons.

INDIGOPERA GERARDIANA FLORIBUNDA ALBA.—This is a very light and elegant shrub with small pea-like blossoms of a pure white colour produced upon slender spikes nearly 1 foot in length. The abundance of spikes in successive stages clearly shows it to be a continuous bloomer. Messrs. Veitch and Sons.

Awards of merit were given to—

CLOVE CARNATION IVER WHITE.—This is a decided improvement and valuable addition to its family. The flowers are pure white, of excellent form, very full and highly perfumed, the grass being vigorous and the habit compact. Mr. Chas. Turner.

CARNATION LORD RENDLESHAM.—This is a terra-cotta coloured variety, in its colour somewhat novel, but the flowers are not first-rate in form. Mr. J. Mill, Campsey Ash, Wickham Market.

GLOXINIA MONARCH.—A very fine variety and distinct advance in its colour, a rich crimson; the habit very robust, the foliage good. The flowers are borne upon stout foot-stalks. Messrs. Veitch and Sons.

G. ELECTRA.—A rich plum-coloured variety with light throat, the flowers margined with light blue, the plant dwarf in habit. Messrs. Veitch and Sons.

CAMPANULA ABIETINA.—A slender-growing and elegant variety, the flowers freely produced. These are of a light purplish blue. It should be valuable for vases. Messrs. Paul and Son, Cheshunt.

CANNA JULES CHRETIEN.—This variety is of a very dwarf habit and sturdy growth, its flower spikes being not much more than 2 feet in height. The flowers are of a dark crimson, the trusses large; a striking kind of the dwarf type. Messrs. Paul and Son.

CANNA ANTOINE CHANTIN.—Another of the dwarf varieties with pure yellow flowers, the lip spotted with orange, an excellent kind. Messrs. Paul and Son.

BEGONIA (double tuberous) **BARONNE DE ST. DIDIER**.—This is probably the largest flowering double variety yet shown, the blooms of enormous size, fully 5 inches across and nearly as much in depth, more like a Hollyhock than a Begonia. The colour a bright yellow. Messrs. Cannell and Sons.

PÆONY MOONBEAM.—A pale cream-coloured variety of extra size and very full; in every way distinct and handsome. From Messrs. Kelway and Son.

IRIS VARIEGATA ROBERT BURNS.—This belongs to the German section. Its flowers have the standards of a rich yellow colour with the falls several shades darker, a distinct kind. Messrs. Barr and Son.

The prizes offered for Pæonies only resulted in two competitors coming forward. The first prize was easily won by Rev. W. Wilks, M.A., with an

excellent and varied assortment, Mr. Crasp being second.

A few distinct kinds of Spanish Iris were also staged by Messrs. Collins Bros. and Gabriel; Arthur Collins and Canary Bird, two good yellows, were the best. Lord Penzance again exhibited several of his hybrid Briers and Sweet Briers crossed with Hybrid Perpetual varieties, which bid fair to be useful additions to the garden; the latter should prove perpetual bloomers. With these were sent a quantity of the old Fortune's Yellow from a north-east wall at his lordship's residence, Easing Park, Godalming; these were of a rich apricot colour. Rosa sulphurea, having the colour of the Austrian Brier with very double flowers, was also shown. Messrs. Veitch and Sons showed several hardy kinds of shrubs, &c. These consisted of *Fabiana imbricata*, *Chionographis japonica*, an attractive white variety, and *Ozothamnus rosmarinifolius* (Australia), with small white flowers. Flowers of *Azaleas* (*indica*) The Mikado and The Daimio, both most promising dwarf free-flowering varieties of the *A. obtusa* type, were also shown. These flowers were cut from plants which had had no protection during the past severe winter. Two distinct additions to the golden coloured Conifers were *Abies orientalis aurea* and *Juniperus prostrata aurea*.

Mr. Noble, of Bagshot, showed *Rhododendron* fragrans in profuse flower, with medium-sized trusses more after the Ghent *Azaleas* in size. Mr. R. Dean, of Ealing, had a distinct looking form of Everlasting Pea in *Lathyrus tingitanus*, a deep coloured kind; also some useful Pinks. Mr. Mortimer, Farnham, Surrey, staged some well-marked forms of the fancy Coleus. From the Kew collection were sent several most interesting plants—*Exacum macranthum*, with its rich indigo-blue flowers and golden stamens, being one of the most striking, the plant well bloomed. *Disa tripetaloides* and *D. racemosa*, the latter a strong spike; *Primula imperialis* (Java), robust growth, with flowers of an apricot colour; *P. Poissoni*; *Dendrobium McCarthiae* with fine blossoms, very seldom seen; *Masdevallia muscosa* and *M. tridactylis* (two small kinds), and an excellent plant of *Anguloa Ruckeri* with nine flowers were also shown.

Messrs. Kelway and Sons had a magnificent display of *Pæonies* of the best double and single varieties. Most noteworthy were *Reine des Roses*, of a creamy shade; *alba maxima*; After Glow, a single ruby-red; *Lady Leonora Bramwell*, pink. *Delphiniums* were staged in profuse variety of all shades of this flower, very vigorous spikes, a few of the best being *Sambac*; *Britannia*, a rich blue, with distinct white eye; *Wildenow*, a pale blue; and *Amyas*, deep blue and slate. *Pyrethrums* were represented also by the best kinds, *Aphrodite* and *James Kelway* being two of the best singles. Other good things consisted of *Gaillardias*, *Dianthus Napoleon III.*, *Dictamnus Fraxinella*, *Carduus heterophyllus* and *Irises* (silver-gilt Flora medal).

Messrs. Paul and Son put up a splendid assortment of the choicest herbaceous and alpine plants, amongst which were *Orchis foliosa*, very fine spikes; *Calochortus pulchellus*, a rich yellow; *Campanula persicifolia alba grandiflora*, *Æthionema grandiflora*, *Amasonia latifolia*, *Inula glandulosa* (very fine), *Potentilla verna*, *Onosma tauricum*, *Aquilegia* (Paul's yellow). Several varieties of the Scotch Brier, *Rose de Meaux*, *Clothilde Soupert* (*Polyantha*), and a *Dijon Tea*, *Gaston Chandin*, were also shown in good condition. Several kinds of dwarf Cannas made a fine feature; the best besides those alluded to were *C. Mme Crozy*, *Francois Corban*, and *President Hardy* (silver-gilt Banksian medal). Messrs. Barr and Son showed a large collection of the most distinct kinds of *Pæonies* and *Iris*, *I. dalmatica pallida* being a lovely variety (silver Banksian medal). Messrs. B. S. Williams and Son set up a group of *Sarracenias*, the best kinds in cultivation being represented. *S. Courti*, *S. Stevensi*, *S. Williamsi*, and other hybrids, with *S. purpurea*, were some of the best (silver Banksian medal). Mr. Crasp, Canford Gardens, Wimborne, showed a group of *Carnation Souvenir de la Malmaison*, both the blush white and the pink varieties being repre-

sented, the flowers individually of immense size and fresh (silver Banksian medal). Mr. S. Barlow had a collection of cut Tulips, consisting of the best of the florists' exhibition varieties of all classes, *bizarres*, *hybloemens*, and roses with breeder or mother Tulips (bronze Banksian medal). Messrs. Cannell and Sons sent *Verbascum olympicum*, of which three very vigorous specimens were shown with branched spikes, the rich golden flowers being most effective (bronze Banksian medal).

Fruit Committee.

An award of merit was given to a promising looking Cucumber raised by Mr. Mortimer, Farnham, Surrey; it is of good useful size, and with hardly any handle. A cultural commendation was voted to Mr. Crasp, Wimborne Gardens, for a large box of well grown Peaches, apparently *Violette Hâtive*, and for a smaller one of *Nectarines*, which bore a close resemblance to the variety of the same name as the Peaches. Mr. Collis, Bollo Lane, Acton, showed a seedling Strawberry bearing a close resemblance to *Sir Joseph Paxton*, but earlier than that well-known kind. Mr. Watkins, Hereford, showed well-kept and good-flavoured fruits of *Duke of Devonshire Apple* and very firm was the *Striped Beefing*. A cultural commendation was given to some very fine fruits of *Noble Strawberry* from Messrs. Cheal and Son. These fruits were of extra flavour for the kind, being grown out of doors upon heavy clay land at their nursery at Crawley. Several seedling Melons were shown by various growers, but no awards were made in either case.

Duke of Albany Peas from Mr. Leach, Albury Park, were very fine samples, a cultural commendation being awarded.

Tea Rose Show.

Considering the backward season, the exhibits may be considered in every way satisfactory. Some very fine flowers were staged, and there were also weak ones. For twenty-four single trusses (amateurs) not less than 12 varieties, Mr. Gray, Beaulieu, Newbridge, Bath, was easily first. *Alba rosea*, *Catharine Mermet*, *Comtesse de Nadaillac*, *Mme. de Watteville*, *Souvenir d'Elise Vardon*, *Niphotos*, and *Reine du Portugal* were the best. For twelve single trusses, same conditions, Rev. A. Melliar, Ipswich, was first. His best blooms were *Mme. Hoste* and *Rubens*. Rev. J. Pemberton, Havering, Essex, second. For six single trusses Mr. Girdlestone was first, having in his stand a grand flower of *Comtesse de Nadaillac*, to which was awarded the prize as the premier bloom. Rev. Allan Cheales, Brockham, Surrey, second. For six single trusses, any one variety, Mr. Gray was first, and Rev. A. Cheales second. Mr. Gray again won for six distinct trusses, showing fine blooms of *Comtesse de Nadaillac* and others. For twenty-four distinct kinds, Mr. Prince, Oxford, easily won with very fine blooms. Mr. Cant second. For twelve trebles, Mr. Prince again won, and Mr. Cant followed, Mr. G. W. Piper, Uckfield Nurseries, being third with smaller, but fresh blooms. For twelve blooms of *Maréchal Niel*, Mr. Gray was an excellent first with highly coloured flowers; Mr. Cant second with smaller ones. For twelve single trusses of any Tea or *Noisette* Mr. Gray again came to the front with superior flowers of *Souvenir d'Elise Vardon*, Mr. Prince following with *Souvenir de S. A. Prince*. The best blooms throughout were those from Bath and Oxford respectively. Only one basket arrangement of Teas and *Noisettes* was shown. This was a very good example, although not altogether done in a practical manner. From Mr. Mount, Canterbury.

In the afternoon Mr. Girdlestone delivered a lecture on Tea Roses, and said that he considered the Tea Rose the most useful of all. The *Manetti* stock has been much used, and many varieties have not succeeded outdoors on it. For pot work under glass the results are better, as the roots are confined to a small space and the growth is not so robust. By using the wrong stock for Tea Roses, many persons are under the impression that Tea Roses are too tender to survive our winters, and, therefore, many give up their culture. This diffi-

culty can be easily got over by using suitable stocks and by planting more dwarf instead of standard Roses. Standards are sure to succumb to our rigorous winters, more especially if budded on unsuitable stocks. On the other hand, dwarfs are only killed down to the ground level, and shoots as strong or stronger than ever are produced. Tea Roses stand as well as many other herbaceous plants. In the choice of stock he preferred the seedling Brier, but in extreme seasons the Brier cutting does best and suits many of the Teas. The *Polyantha* stock, as it is termed by rosarians, is a most useful one, being nearly mildew-proof and rooting freely from cuttings. He had also tried *Rosa rugosa*, and had a nice lot on this stock. He did not now grow standards, as they are so uncertain and unsuitable in many ways. Snow and wind play sad havoc with them, and a friend told him that this year he had lost 300 Tea Roses grown as standards. When Teas are grown against warm walls they come into bloom at the end of April and early in May in sheltered places, and for cutting are best, as they keep their colour and last longer than Hybrid Perpetuals. There may be a lack of colour in the dark section, but they certainly make up for any deficiency by the many beautiful tints in the lighter ones. For bouquets or button-holes they are invaluable. For exhibition they are far before Hybrid Perpetuals, as he had known the same Roses do duty two or three times. This could not be said of the others, as they quickly lose colour and droop. In severe winters no pruning is necessary, only removing the dead wood. They are also the first to bloom and the last to leave off. For forcing they are superior to all others. If dwarf plants are grown, he considered it a waste of time to protect them. In a bed of over 500 plants not protected they did as well, if not better, than those covered by the side of them. Many growers of Teas find it best not to protect, as the shoots come stronger if not covered up. The amateur must not attempt too much, it being better to grow a certain number than a great variety. Tea Roses on walls often suffer for want of moisture. He had found that mildew was worst in hot dry seasons.

Annual Dinner.

The dinner of this society was held on Tuesday evening last at the Hotel Metropole, when a large and distinguished company sat down under the presidency of Sir Trevor Lawrence, Bart., M.P. Sir James Paget in proposing the toast, "The Royal Horticultural Society," said he was glad to have the privilege of asking the company to drink to the toast, for he was sure the society was doing more than any other towards the happiness and utility of our nation. It was also a noteworthy fact that wherever one went in the streets and in the miserable alleys in London, flowers were to be seen in profusion. Sir James alluded not only to the beauty of colour, but to the beauty of form in modern flowers, and also added that the society deserved our thanks for the delicious fruits and articles of our diet cultivated for their nutritive properties.

In responding to the toast, the chairman briefly reviewed the early work of the society, and divided its labours into four distinct sections; firstly, that of sending out collectors to secure new or rare plants; secondly, the publishing of the transactions and proceedings; the holding of shows, and also of inaugurating conferences at which specialists were chosen to read papers on matters of which they possessed peculiar knowledge. When the society determined to carry out its proper work the public came to its support, and last year 420 new Fellows were enrolled, making a net increase of 364 after allowing for resignations and decease of Fellows. This year he was pleased to say a large number of new Fellows had been added to the list, and if the society continued to pursue its present path, there would be no cause for anxiety. Its work would be felt everywhere, for if in a country village one saw a neat tidy cottage garden, there was sure to be a comfortable home within; but if, on the other hand, the garden was a receptacle for rubbish, then it was certain that the home would be found to be an untidy one too. It

was desirable, he thought, that a permanent home should be secured, for it was not possible for the society to labour successfully in the Drill Hall as now. Thanks were due to the trade for maintaining the excellence of the shows, and likewise to all those gentlemen who constituted the several committees. It was a fact of considerable importance that their verdicts were received with approbation, not only here, but on the Continent of Europe.

The "Health of the President" was proposed by Baron Schröder, who made reference to the great need for the suggested horticultural hall. The toast of "The Treasurer and Benchers of the Inner Temple" was proposed by Mr. Morris. It was through their kindness, the speaker said, that the society had been able to hold such splendid shows in the city of London during the past few years, and they were especially deserving of thanks for the way in which they had thus assisted the society. That good results were actually to be attributed to these shows were beyond dispute, for at the meeting of the society following the last Temple show, no fewer than sixty-eight new Fellows were elected, and the gardens could not be devoted to a better cause. It was also a matter of gratification that the Benchers were so kind as to open them to the poor children of the neighbourhood, and it was a gratifying sight to see them enjoying that which might prove healthful and beneficial in many ways. The sub-treasurer had also rendered much assistance and given his time to the arrangement for the show, and he would, therefore, ask Mr. H. W. Lawrence to respond on behalf of the treasurer and Benchers of the Inner Temple, which Mr. Lawrence accordingly did. Sir Joseph Lister, in replying to the toast of "The Visitors," said that as a medical man he could testify to the use of flowers in the sick room causing cheerful thoughts to those who were suffering, and it was obvious, he thought, that medical men owed much to a society that was doing so much good in such a sphere. The chairman then proposed "The Health of the Hon. Secretary," the Rev. W. Wilks, who, in replying, said he hoped they would continue to support his efforts as they had done in the past.

ROYAL AQUARIUM.

JUNE 24 AND 25.

THE Rose show of the series originated by the Royal Aquarium Society took place on the above dates, and though the exhibition of Roses was somewhat limited in extent, it was a very good one the season considered. Mr. G. W. Piper, nurseryman, Uckfield, was the only exhibitor of forty-eight varieties. In that for thirty-six Roses Messrs. J. Burrell and Son, Howe House Nurseries, Cambridge, were first, and Mr. George Prince, Market Street, Oxford, second—the former showing Hybrid Perpetuals, the latter Tea-scented varieties. Mr. Piper was the only exhibitor of twenty-four Roses, three trusses of each. In the class for thirty-six distinct varieties Mr. A. H. Gray, of Bath, was first with a fine lot of Teas and Noisettes; Dr. S. P. Budd was second. Mr. R. L. Knight, of Sittingbourne, was the only exhibitor of twenty-four varieties. With twelve varieties, three trusses of each, Mr. A. H. Gray was first, and Dr. Budd second. Mr. George Prince was the only exhibitor of twelve Teas or Noisettes, three trusses of each. In the class for twelve trusses of any yellow Rose, Mr. A. H. Gray was first, and Mr. George Prince second, in each case with *Maréchal Niel*. In that for any white Rose, Mr. A. H. Gray was first with *Souvenir d'Elise Vardon*, a box of beautiful blooms; Mr. George Prince second, with *Souvenir de S. A. Prince*; and Mr. B. R. Cant third, with the same variety as Mr. Gray. In that for any crimson Rose, Dr. Budd was first with A. K. Williams, and Messrs. J. Burrell and Co. second with *Charles Lefebvre*.

Tuberous-rooted Begonias were a remarkable feature. It is not too much to say that such an extensive exhibition characterised by so much quality had probably never before been seen in London—a grand bank of fully grown and bloomed plants mingled with Palms, occupying a space of nearly 300 feet. Messrs. J. Laing and Sons,

Stanstead Park Nursery, Forest Hill, were placed first, and Mr. T. S. Ware second, the latter having a smaller group, but one of remarkable quality. Messrs. Henry Cannell and Sons staged, not for competition, a large collection, the double varieties especially being remarkably fine. Strange to say, owing no doubt to the fact that Begonias can be much better shown in July than in June, especially in the face of such a late season, there was not a single entry for the special prizes for Begonias offered by Messrs. J. Laing and Sons, Messrs. H. Cannell and Sons, Messrs. Sutton and Sons, Reading, and Mr. R. Owen, Maidenhead. There were two large collections of Iris, the first prize being awarded to Messrs. Barr and Son, King Street, Covent Garden, for a considerable variety of fine types; and Messrs. Paul and Son, Old Nurseries, Cheshunt, second. For thirty-six bunches of Pyrethrums, double and single, Messrs. Collins, Brothers and Gabriel, Waterloo Road, and Hampton, were first, with some superb bunches of fine varieties; and Messrs. Paul and Son second, also with a very good collection. Two superb groups of herbaceous Peonies were staged by Mr. T. S. Ware, and Messrs. Barr and Son. These groups were staged upon the floor, with Palms forming a background, and made a very imposing floral spectacle.

Some very fine groups of hardy flowers were also shown, and here Mr. T. S. Ware was first, with a remarkable collection, covering a great extent of table. Messrs. Barr and Son were second, and Messrs. J. Laing and Sons third, an extra prize being awarded to Messrs. Paul and Son.

Messrs. Sutton's prizes for Cucumbers brought several competitors. Mr. Cook, Holmewood; Hendon, was first with Prize-winner; second, Mr. T. Lockie, the Gardens, Oakley Court, Windsor, with a brace that should certainly have been placed first; and Mr. G. Collins, Wandsworth Common, third, with Prize-winner. One competitor brought a Melon in Messrs. Sutton and Sons' special class, Mr. W. Palmer, Thames Ditton, being awarded the first prize with a good example of Sutton's Triumph.

In the miscellaneous class Mr. C. Cuthill, Dorking, was awarded an extra prize for a charming collection of garden Roses; and the same award was made to Mr. G. Baskett, Easing Park, Godalming, for a collection of his hybrid seedling Sweet Briers. Extra prizes were given to Mr. S. Mortimer, Swiss Nursery, Farnham, for a collection of *Coleus* and *Celosias*, and to Mr. Samuel Barlow for a collection of Tulips. A silver medal was given to Messrs. Kelway and Sons for the extensive collection of hardy flowers seen at the Drill Hall the day previous.

GARDEN EDGINGS.

SO-CALLED ornamental tiles in many fantastic designs and crude glaring colours happily have never become universal for garden edgings, such being totally out of keeping with their surroundings in almost any place other than children's toy gardens. On the other hand, plain tiles of a quiet inoffensive colour, and of sufficient depth and dimensions to afford solidity when fixed, are certainly neat and useful, keeping the walks in their proper lines and widths, lacking which no amount of labour will give the garden a trim and finished appearance. In some places and under some conditions more suitable and in happier combination with the surroundings than even these are materials of a more rustic and rougher appearance, notably burr stones of a dull colour and uneven, unkempt surface. These, when placed deeply and solid in the ground, and in perfect line on the gravel side of the walk, are decidedly most ornamental, cheap, and lasting, for no amount of fair usage will displace or disfigure them, and for walks of varied curves, &c., are indispensable for the carrying out of such in an easy and natural style. They have advantages also in being the means of better displaying to perfection the plants used as edgings, an occasional bold knob jutting through the carpet of plants at irregular intervals; while in the crevices and over the lower ones the plants trail on to

the very edge of the walks, thus breaking the flatness and formality observed where tiles are used.

Hardy plants suitable to edge these are almost endless in variety. Saxifrages, Sedums, *Herniaria glabra*, *Antennaria tomentosa*, *Arabis* in variety, *Aubrietias* in variety, *Cerastiums*, *Gentians*, *Spergula*, *Campanulas* (dwarf), *Thrift*, *Iceland Poppies*, *Pyrethrums*, *Violas*, &c., are all suitable and effective, requiring but little trouble to keep them in order. Replanting most of them every other year is essential to keep them in good colour and within bounds. *Santolina incana*—to my idea the most perfect edging plant for clipping—and *Golden Thyme* are two plants I would be pleased to add to the hardy list, but after the past winter's experience am unable to do so, unless on very dry soils and sheltered positions from east winds, for most of them perished here; but being easy of propagation and of such merit, they are deserving of cultivation for such a purpose, even should annual propagating from cuttings and slight winter protection prove necessary. Tender plants of suitable height might be added by scores, but I shall leave them at present, my object being to recommend plants that require no glass in winter and little labour in keeping in order. J. R.

NOTES OF THE WEEK.

Strawberry Scarlet Queen.—This is an early seedling from Noble fertilised by King of the Earlies. The fruits and foliage sent are from plants grown and ripened entirely in the open and in advance of Noble. First ripe June 20, 1891.—T. LAXTON, Bedford.

* * A promising variety.—Ed.

Strawberry Noble.—I have sent you some fruits of this. They are not quite so large as some I have had. I have gathered fruit each weighing $1\frac{1}{2}$ oz. to $1\frac{3}{4}$ oz. I commenced gathering on June 6.—J. CROOK, Forde Abbey.

* * Fruits large and of good colour, but the flavour second-rate.—Ed.

Seedling Begonias.—I herewith enclose two blooms of a seedling Begonia which I think an excellent variety. I have cut several blooms measuring 5 inches across.—H. S.

* * The flowers are far too large and lumpy. Raisers of Begonias are now striving too much after size.—Ed.

Cytisus Adami.—Enclosed please find Laburnum. There are several trees in Redenhall Churchyard with the three varieties of bloom on; all those enclosed came from one tree. There are several bunches of *Genista* or Broom dotted all over the tree. Could you kindly let me know whether it is at all common to find these three all on one tree and in some cases all on one branch? The Broom generally grows towards the top of the branch.—H. C. FRICH.

* * Your Laburnum is *Cytisus Adami*, now common.—Ed.

Gardeners' Royal Benevolent Institution.—We are requested to remind our readers that the fifty-second anniversary festival dinner of the Gardeners' Royal Benevolent Institution will take place at the Hôtel Métropole on July 8, on which occasion the chair will be taken by the Rt. Hon. Joseph Chamberlain, M.P. Those desirous of attending should make early application for tickets to the secretary, George J. Ingram, 50, Parliament Street, S.W.

The Austrian Brier.—Mr. J. Crook, The Gardens, Forde Abbey, Chard, Somerset, sends us some beautiful flowers of the copper and yellow Austrian Briers. It is astonishing that these are not more often seen, as on dry hot soils they are often wonderfully free flowering and form striking objects in the landscape when allowed to run up into large loose bushes. They require very little pruning, the branches only being thinned when overcrowded.

Callistemon rigidus.—The Bottle-brush plants of Australia constitute one of the most characteristic types belonging to the flora of that country. The name, which aptly expresses the appearance of the inflorescence, refers to the remarkable development of the stamens, which are long and very numerous, varying in colour from white to yellow and crimson. *Callistemon rigidus*, which flowers during May, June, and July, is unsurpassed for brilliancy of colour by any of this class. The

flowers are in dense cylindrical bunches, measuring 3 inches to 5 inches in length and 3 inches through. The stamens are of a rich scarlet, whilst the anthers are bright golden, a combination of colour that is most effective. Like most of the *Callistemons*, this species is very easily grown; it requires a greenhouse temperature, and may even be stood out of doors in summer. What is most important is full exposure to light at all times, this, together with a somewhat confined condition at the roots, conducing to abundance of bloom. The most ornamental genera in this class of plants are *Callistemon Mela-leuca* (of which splendid examples are to be seen in the gardens on the Riviera), *Metrosideros*, *Calothamnus*, and *Beaufortia*. All these are members of the Myrtle family.—B.

Tufted Pansies from Scotland.—I have sent you a few bunches of blooms of seedling tufted Pansies raised from *Violetta*, a variety sent out last season. You recommended me to try to get the strain of self without rays by working with this type. I send you now a few of the produce for opinion.—C. STUART, M.D.

* A charming little series, very neat, and without rays in the centre, with soft and most delicate colours. A large and soft creamy white is named *Sylvia*, a purer white *White Lady*. A white, with delicate lilac on the back of the petals, is named *Picotee*. A soft sulphur-yellow is named *Springville*. A very pretty little white with yellow eye is *Snowdrift*. We wish Dr. Stuart every success in his endeavour to improve these charming plants, which particularly deserve the name of tufted Pansies, as they are so compact in habit.—ED.

Ceanothus and the past winter.—On a west wall here there is a plant of *Ceanothus divaricatus* which was planted four years ago and grew very vigorously, being now 12 feet high. In the last two years during the month of June it flowered very freely. The severe frost of the past winter having killed all the young growth projecting from the wall, it was pruned back to the main stems. These broke well this spring, but now all are shrivelled up as if scorched. Am I right in supposing this is caused by the cold nights preventing the sap rising in sufficient force to second the effort to grow after being so hardly hit by frost?—H. BRASIER, *Palace Gardens, Ely, Cambs.*

Calanthe Dominii.—In several respects this *Calanthe* is entitled to special notice. It was the first artificial hybrid that ever flowered, its parents being *C. masuca* and *C. furcata*. The latter species has long been lost to cultivation, a fact which confers additional interest on its progeny. *C. Dominii* belongs to the evergreen section of the genus, and is one of the handsomest of the group, and it is, besides, the only hybrid that has been raised in that class. It has the habit of *C. masuca*, the leaves being oblong-lanceolate, pointed, and about 1 foot in length. The scapes are $1\frac{1}{2}$ feet high, with the flowers densely arranged towards the top. The flowers, which individually are 2 inches across and have the deeply three-lobed lip common to *Calanthes*, are of a pale mauve-purple, the lip being of a slightly darker shade than the sepals and petals, which in certain parts are almost white. This plant flowered in Messrs. Veitch's nursery at Exeter in 1856, and was named in honour of the late Mr. Dominy, who raised it. A specimen may now be seen in flower at Kew.

Masdevallia rosea.—Although very nearly fifty years have passed since this beautiful *Masdevallia* was discovered by Hartweg on the Andes of Ecuador, and named from his dried specimens by Dr. Lindley, it was not until 1880 that it was introduced to England in a living state. It occurs at a very high altitude, and it was entirely to the energy and skill of the noted collector Lehmann in finding and transporting it that its successful introduction was primarily due. It proved a most valuable addition to the genus, equalling in beauty, if not in size, the best forms of *M. Lindeni*. The plant is dwarf and neat in habit, the leaves being lanceolate and from 4 inches to 6 inches long, the lower half narrowed into a stalk. The beauty of the flower is chiefly due to the two lower sepals, which are 2 inches long, boat-shaped, and of a

brilliant rosy carmine, each of them terminating in a long thread-like point. The upper sepal is much smaller, the base being a quarter of an inch across, but abruptly narrowing into a long filiform point. All three sepals are united below and form a tube an inch or more long. This species possesses in a marked degree the free-flowering character common to the genus, and is altogether one of the most desirable of *Masdevallias*.

A note from Aberdeen.—We herewith send you per same post a truss of *Sisyrinchium odoratissimum*, which we understand is very rare and scarce. It is quite hardy with us in the north, and is making splendid growth this season. We also enclose a few blooms of *Senecio doricum*, referred to by "E. J." in last week's issue.—JAMES COCKER AND SONS, *Aberdeen*.

Tea-scented Roses and the past winter.—Tea-scented Roses have been put to a good test in Mr. Fowler's garden at Claremont, near Taunton, where every variety worth growing has been planted. In many cases as many as six plants of a sort are grown, and never less than three or four of each. A good number of the Roses have been planted two years, in each case in the autumn. A few days ago I looked over this extensive collection, and I am glad to report that the deaths during the past winter do not exceed 4 per cent. Some of the sorts are breaking somewhat weakly, owing to the severity of the weather of the past winter and the lateness of the spring. But that there will be an abundance of flowers in the late summer months the condition of the plants at the present time shows. The tenderest sorts amongst the Teas, according to the death-rate furnished by this collection, are the Hon. E. Gifford, *Souvenir de Paul Neron*, and *Comtesse de Napoléon*.—J. C. C.

FLORICULTURE IN AMERICA.

FLORICULTURE as an industry has never been made the subject of census investigation until now; therefore, the preliminary report which has just come to hand has exceptional interest. The statistics show that it has only assumed large proportions during the last quarter of a century. Out of nearly 5000 establishments, three-fifths have been started since 1870 and one-third of them since 1880. At the beginning of the century there was but one commercial florist in the country, and only three establishments were started between 1810 and 1820. Eighty per cent. of the entire business has been developed during the past twenty-five years. During the census year every State and Territory, except Idaho, Nevada, the Indian Territory, and Oklahoma, reported some business in floriculture, and perhaps in these States small establishments would have been discovered if sufficiently thorough investigation could have been made.

The report records 4659 establishments, of which 312 were owned and conducted by women. These establishments had in use 38,823,247 square feet of glass, covering a space of more than 891 acres. Their value, including fixtures and heating apparatus, was £7,671,144, and the tools used were valued at £317,538 more. Wages amounting to £1,696,720 were paid to 16,847 men and 1958 women. The fuel cost more than £200,000, and the postage on the 20,000,000 catalogues amounted to £153,487. In addition to this, more than £200,000 were paid for advertising, and another £200,000 for freight and express bills. The receipts from cut flowers amounted to more than £2,800,000, and from plants and shrubs more than £2,400,000. The largest area in glass in a single establishment was found in the district of Columbia, and the smallest in a New England farmhouse, from which the lady of the house sells annually from £7 to £10 worth of plants and flowers, raised under 60 square feet of glass. Besides the Society of American Florists there are 965 State and local societies and clubs, and 358 horticultural societies, and these, aided by the agricultural and horticultural press, have helped to put the industry in its present healthy and prosperous condition, giving employment to thousands of people, and furnishing a fair reward for capital

invested, besides doing much to adorn the homes and elevate the taste of all classes of people. It is difficult to estimate the rate of wages paid, but the figures seem to show that the wages paid in what is called the North Atlantic division of the United States are rather more than 6s. a day to men, and rather less than 4s. a day to women, although in every establishment of any size there are men acting as experts, or as foremen, who receive from £3 to £4 a week. In the Southern States lower wages are paid, and higher pay is commanded in the Pacific States.

Of the plants sold, the demand in the Northern and Eastern States is greatest for the following in nearly the order named: *Geraniums*, *Coleus*, *Roses*, *Pansies*, *Verbenas*, *Heliotropes*, *Carnations*, *Chrysanthemums*, *Palms*, *Ferns*, and *Fuchsias*. In the south the demand is for *Roses* first, and then for *Chrysanthemums*, *Geraniums*, *Coleus*, *Palms* and *Ferns*, while California shows the demand to be largest for *Roses*, *Carnations*, *Chrysanthemums*, *Geraniums*, *Palms* and *Pansies*. There is also a very general and growing demand for aquatic plants, and specialists are giving marked attention to this branch of the business. Regarding cut-flower sales, reports show that, while there is a slight variation in the demands of the different markets, the greatest demand everywhere is for *Roses*, followed closely by *Carnations*. These two furnish about sixty-five per cent. in value of all cut flowers sold. *Violets*, *Chrysanthemums*, *Lilies*, *Hyacinths*, *Smilax*, *Bouvardias*, *Heliotropes*, *Pansies* and *Tulips*, in the order named, supply twenty-five per cent. more, while the other ten per cent. is made up of *Orchids*, *Tuberose*, *Mignonette*, *Primroses*, *Camellias*, *Daffodils*, and many others cultivated in a small way to supply a special or local demand. As to the profits in the business from the different classes of plants, eighty per cent. of the reports mention *Roses* as most profitable, *Carnations* second, and *Violets* third, while twenty per cent. rank *Carnations* first, *Roses* second, and *Violets* third.

The Open Spaces Acts.—Notification is given by the vicar and churchwardens of the parish of St. Botolph Without, Aldgate, in pursuance of the Open Spaces Acts, 1877 to 1890, of their intention to apply for a faculty for permission to remove or change the position of the tombstones and monuments in the churchyard adjoining the parish church. It is also notified that "a statement has been prepared, sufficiently describing the said tombstones and monuments," and that it has been deposited with the Town Clerk of the City at the Guildhall, where it may be inspected.

Sulphate of copper for mildew.—Will you kindly describe the method of applying sulphate of copper to mildew on Vines, whether in solution or dry; if liquid, what proportion?—R. F.

BOOKS RECEIVED.

"Journal of the Royal Agricultural Society of England." Vol. 11., Part 2. London: John Murray, Albemarle Street.

"*Anthurium: Description and Culture.*" By Ernest Bergman.

Names of plants.—*Anon.*—Probably *Geranium macrorrhizum*, but the flowers had fallen.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"The Garden Annual" for 1891.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

London: 87, Southampton Street, Strand, W.C.

WOODS AND FORESTS.

THE GROWTH OF FOREST TREES.

EACH kind of tree possesses a character and external appearance peculiar to itself. The Oak is a noble and majestic tree. It stretches abroad its sinewy arms, and conveys to the mind the idea of strength. The Beech, too, throws out its wide-spreading branches, but it wants the rugged outline and abrupt roughness characteristic of the Oak. The Spanish Chestnut may be said to hold a place between these, and accordingly partakes in part of the characters of each, but there are so many points in which it differs from both, that it is easily distinguished. The Ash, again, is known by the scantiness of its foliage and the size and peculiar arrangement of its limbs, being of all trees the least beautiful on these accounts. The Elm rises to a height superior to the Oak or the Beech, extending its arms aloft. All the Pine tribe assume a conical form, their limbs being arranged in whorls stretching out horizontally and decreasing in length towards the top. These descriptions, however, only refer to the trees when growing isolated. Trees, as well as plants of every kind, accommodate themselves to circumstances, adapting their growth to their situation. Thus, the roots of a solitary tree, growing in an exposed situation, are large and numerous, having a deep and firm hold of the ground to enable it to withstand the force of storms. The trunk, too, is short, and it sends out a great number of limbs

abounding in small twigs and foliage, and the whole tree appears stunted and dwarfish compared with one of the same species growing in a low and sheltered situation. A similar contrast also is observable between trees growing on the seashore and those situate in deep valleys, sheltered either by surrounding hills or by trees growing around them. In the one class the limbs are observed to grow almost exclusively on one side; they shrink, as it were, from the apparently withering effect of the sea breeze, and if any are exposed to it, they have degenerated to mere bushy twigs and are covered with a thick, but stunted foliage. In the other class, again, the trunk is straight and tall, and the limbs are vigorous and stretch themselves in an upward direction.

It is curious to observe the near connection there is between the roots and the limbs of a tree. An isolated tree, having a large head spreading over a considerable extent of ground, is always possessed of very large roots extending deep into the earth, and spreading in every direction from its centre to a much greater distance than the extremities of its limbs. A complete network under the surface is thus formed, the roots interlacing each other in every possible direction; but a tree of the same kind growing in a thick plantation, having a tall trunk and few straight branches, has very few roots, and these are long and slender, taking but a slight hold of the ground; yet the strength in each of these cases, though differing so very much, is similarly proportioned to the resistance which each requires

to make for its support during stormy weather. Thick plantations are much less agitated by wind and storms than when they are thinly planted, for the tops of the plantations in that case present a smaller resisting surface of leaves and branches—hence, then, it is that trees in sheltered situations are easily blown down when that shelter has been taken away by improper thinning.

It is this tendency in trees to accommodate their growth to peculiar situations that enables us to give them almost any character we choose, for in whatever way we wish them to grow we have only to place them in circumstances fitted to produce that effect, and Nature will perform the rest. If, then, we plant for profit, the first thing to be done is to inquire into the mode of growth which is most profitable in producing the finest and most valuable timber, then to ascertain under what circumstances that growth will take place, and, lastly, to act upon the information so obtained.

J. M.

Undergrowth beneath Beeches — The Beech, it appears, is one of the tyrants of the forest. The Birch and similar trees will allow things to grow under their shade; when the Beech has mastery it has the tendency to exterminate all beneath it. This may partly arise from its dense foliage, and partly from its depriving the soil of its necessary constituents. The Beech is not, however, the only tree which does this to a greater or less degree. The struggle between the Beech and the Oak is generally long and stubborn, and in the majority of cases the latter disappears.



